

TAXONOMICAL AND CHOROLOGICAL NOTES 10 (98–110)

Gergely KIRÁLY¹, Michael HOHLA², Kristóf SÜVEGES³,
Anna Alida HÁBENCZYUS⁴, Zoltán BARINA⁵, Angéla KIRÁLY⁶,
Balázs András LUKÁCS⁷, Ildikó J. TÜRKE⁸ and Attila TAKÁCS⁹

¹Institute of Silviculture and Forest Protection, University of Sopron,
H–9400 Sopron, Bajcsy-Zsilinszky u. 4, Hungary; kiraly.gergely@uni-sopron.hu

²Michael Hohla, Therese-Riggle-Straße 16, A–4982 Obernberg am Inn, Austria; m.hohla@eduhi.at

³Department of Botany, University of Debrecen, H–4032 Debrecen, Egyetem tér 1, Hungary

⁴Department of Ecology, University of Szeged, H–6726 Szeged, Közép fasor 52, Hungary

⁵Department of Botany, Hungarian Natural History Museum,
H–1431 Budapest, Pf. 137, Hungary; barina.zoltan@nhmus.hu

⁶Institute of Wildlife Management, University of Sopron,
H–9400 Sopron, Bajcsy-Zsilinszky u. 4, Hungary

⁷Department of Tisza River Research, MTA Centre for Ecological Research, DRI,
H–4026 Debrecen, Bem tér 18/C, Hungary

⁸Aggtelek National Park Directorate, H–3758 Jósvalfő, Tengerszem oldal 1, Hungary

⁹MTA-DE “Lendület” Evolutionary Phylogenomics Research Group,
H–4032 Debrecen, Egyetem tér 1, Hungary

Király, G., Hohla, M., Süveges, K., Hábenczyus, A. A., Barina, Z., Király, A., Lukács, B. A., Türke, I. J. & Takács, A. (2019): Taxonomical and chorological notes 10 (98–110). – *Studia bot. hung.* 50(2): 391–407.

Abstract: The present part of the series provides new records of locally introduced native species in Hungary (*Apium repens*, *Crypsis schoenoides*, *Limonium gmelinii*, *Rumex confertus*, *Sagina apetala*). The spread of *Crypsis schoenoides* and *Limonium gmelinii* on roadsides is due to winter salting of roads, whereas the appearance of *Apium repens* and *Sagina apetala* is likely the consequence of the use of soil or peat material containing their seeds.

The reports of *Knautia dipsacifolia* from the northern part of the Great Hungarian Plain and *Spiraea crenata* from the Hungarian–Romanian–Ukrainian border region is ascertained here concluding that the report of the first taxon was based on a misidentification of *K. drymeia*, whereas the record of *Spiraea crenata* is a consequence of mislocation.

New records of two spreading aliens (*Eragrostis virescens*, *Sporobolus vaginiflorus*) are discussed here along with a herbarium revision of *Eragrostis*, which showed that all previous Hungarian records of *Eragrostis parviflora* refer to *E. virescens*. Further species discussed in the paper escaped from cultivation (*Asparagus verticillatus*, *Euphorbia characias*, *Nassella tenuissima*, the latter two new for the country). The first record of the sedge hybrid *Carex* × *leutzii* in Hungary is also presented.

Key words: Apiaceae, Asparagaceae, Caryophyllaceae, Cyperaceae, Dipsacaceae, Euphorbiaceae, Hungary, Plumbaginaceae, Poaceae, Polygonaceae, Rosaceae

INTRODUCTION

This paper is the tenth 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 (BARINA *et al.* 2015, PAPP *et al.* 2016, TAKÁCS *et al.* 2016, CSIKY *et al.* 2017, MESTERHÁZY *et al.* 2017, SCHMIDT *et al.* 2018b, MATUS *et al.* 2018, KIRÁLY *et al.* 2019, DEME *et al.* 2019).

MATERIAL AND METHODS

Nomenclature of vascular plants follows KIRÁLY (2009) and The Plant List (2013). Codes of the Central European Flora Mapping grid are in square brackets. Abbreviations of herbaria follow THIERS (2017).

NEW RECORDS WITH ANNOTATIONS

Vascular plants

(98) *Apium repens* (Jacq.) Lag. (Apiaceae)

Hungary, Csongrád County, Szeged, Széchenyi Square, mowed lawns in the front of the City Hall, 46.25376° N, 20.14834° E, 84 m [9786.2]; leg.: A. & G. Király, 30.07.2019 (BP).

Apium repens is considered an endangered native species in Hungary (KIRÁLY 2007), which has only few stable populations in (semi)natural habitats (BÁTORI *et al.* 2014, KUN 2019), however, it has been repeatedly found in artificial biotopes (lawns, front gardens), in places with higher abundance (PINTÉR & BARINA 2014, ARADI *et al.* 2017). The species grows in Szeged in the strictest city centre, it was probably introduced here due to the use of peat in gardening. This is the easternmost record of the species in Hungary that is new both for the “Alsó-Tisza-vidék” geographical region and the “Crisicum” floristical district.

G. Király & A. Király

(99) *Asparagus verticillatus* L. (Asparagaceae)

Hungary, Bács-Kiskun County, Dusnok: Kengyelesi-erdő, at the margin of a forest, likely planted previously along the fence, 46.36197° N, 18.92998° E, 91 m [9679.2], leg.: Z. Barina, 27.04.2014 (obs.). – Hungary, Győr-Moson-Sopron County, Sarród, Fertőszéplak, planted in and escaped from front gardens in the village: Vasút Street, 47.69176° N, 16.84585° E, 116 m [8367.1], leg.: G. Király, 23.07.2019 (BP); Fő Street, 47.69408° N, 16.84417° E, 116 m, obs. G. Király, 23.07.2019; Sopron, Balf, planted in and escaped from front gardens in the village, 47.65570° N, 16.66560° E, 129 m [8365.2], leg.: G. Király & M. Hohla, 07.09.2019 (BP). – Hungary, Pest County, Törökbálint: Nagy-Pusztá, in semi natural and disturbed grasslands, likely remnants of old planta-

tions, 47.43084° N, 18.95885° E, 212 m, 47.43084° N, 18.95892° E, 47.431944° N, 208 m, 18.96425° E, 212 m [8579.4], leg.: Z. Barina, 02.06.2017 (BP).

It is a Ponto-Turanian floristical element (native to SE Europe and W Asia) that is a popular ornamental plant in Hungary. It was first reported as escaped and locally naturalised plant in the surroundings of Pécs by WIRTH & GYERGYÁK (2015). The recently found and above described new localities are like those in Pécs circumscribed by the latter authors: generally, few to numerous specimens (partly survivors of one or more winters) were recorded on dry, (gravelly) soils close to old, well-developed (but obviously planted) fruiting specimens

G. Király & Z. Barina

(100) *Carex* × *leutzii* Kneuck. (*C. lepidocarpa* Tausch × *C. hostiana* DC.) (Cyperaceae) (Fig. 1)

Hungary, Pest County, Gödöllői-dombság microregion, Mogyoród: 'Sikáros', in a rich fen, 47.6206° N, 19.2705° E, 21.05.2019 [8381.4]; leg.: K. Süveges & A. Takács (DE-Soo-45696).

Carex × *leutzii* was described by KNEUCKER (1891) as a natural hybrid of *C. lepidocarpa* and *C. hornschurchiana* Hoppe (syn. of *C. hostiana*). Although, both parent species are widespread in Europe (CHATER 1980), only a few occurrences were reported, e.g. from the Czech Republic (KRČAN & KOPECKÝ 1959),



Fig. 1. *Carex hostiana* (left), *C. ×leutzii* (middle), and *C. lepidocarpa* (right) (photo: A. Takács, 21.05.2019, Mogyoród).

Austria (GRULICH & HODÁLOVÁ 1994), Slovenia (DOLINAR & VREŠ 2012), Poland (WIĘCŁAW 2014), Slovakia (BERNÁTOVÁ *et al.* 2018), and Switzerland (KOOPMAN & WIĘCŁAW 2019). In SOÓ (1973) *C. ×leutzii* was listed among the sedge hybrids, without the indication of being present in Hungary. Intermediate morphology and distinctive features of this nothospecies were extensively studied by WIĘCŁAW & KOOPMAN (2013).

Some individuals of *C. ×leutzii* were found in Mogyoród in dense mixed populations of the parent species. Further characteristic taxa of the fen were *Carex davalliana*, *Juncus subnodulosus*, *Eriophorum latifolium*, and *Cladium mariscus*. The hybrid specimens have obvious intermediate morphology (Fig. 1): the utricle beak is shorter and less curved than in *C. lepidocarpa*; the beak has a very narrow, inconspicuous, white membrane at the apex; glumes are dark brown, and their length is intermediate to those of the parents.

K. Süveges & A. Takács

(101) *Crypsis schoenoides* (L.) Lam. (Poaceae)

Hungary, Borsod-Abaúj-Zemplén County, Bükk-fennsík microregion, Miskolc, on gravelly roadsides, between Bükkszentlélek and Bánkút, 48.11404° N, 20.50349° E, asl. 815 m, 26.08.2019 [7889.3]; leg.: K. Süveges & A. Hábcnczyus (DE-Soo-45695).

Crypsis schoenoides is an annual halophyte species, which grows in annual salty pioneer swards of steppes and lakes or sometimes in natural (or semi-natural) pioneer vegetation on wet substrates. This taxon is a lowland species; according to BARTHA *et al.* (2015), in Hungary it occurs mainly in the lowlands (Great Hungarian Plain, where it is not uncommon in suitable habitats), and locally in Transdanubia (Lesser Plain, Velence Basin, West Hungarian Periphery); so far, this species has not been reported from the mountainous regions of Hungary (including the Bükk Mts, VOJTKÓ 2001). Several authors emphasised the spread of halophytic plants along roads (e.g. FEKETE *et al.* 2018, SCHMIDT *et al.* 2018a, etc.), but we found no literature records of *C. schoenoides* on roadsides in Hungary. In the Bükk Mts there was a single accompanying halophyte species at the site, namely *Puccinellia distans*, one of the most common “roadside” halophytes of Hungary.

A. A. Hábcnczyus & K. Süveges

(102) *Eragrostis virescens* J. Presl (Poaceae)

Hungary, Budapest IV, Temesvári Street (at the corner of Csányi L. u.), numerous specimens in a short section by the roadside [8480.2], leg.: Z. Barina, 04.11.2018 (BP). – Hungary, Győr-Moson-Sopron County, Hegykő, illegal rubbish dump 0.3 km NE of the village, 47.62312° N, 16.80336° E, 118 m [8366.4], leg.: G. Király, 11.08.2019 (BP). – Hungary, Komárom-Esztergom County, Esztergom: Simor János u., numerous specimens in a careless flower pot and in pavement gaps around [8278.1], leg.: Z. Barina, 27.08.2019 (BP)

Eragrostis virescens (Syn. *E. mexicana* Hornem.) Link subsp. *virescens* (J. Presl) S. D. Koch et Sánchez Vega) has a large but disjunct distribution from Chile and Argentina in the south to the eastern United States in the north (PETERSON 2007). The species has been found as an introduction in regions of America, Europe, S Africa and Australia as well (see MARTINI & SCHOLZ 1998). In Europe it is mainly classified as casual alien, but its local naturalisation has also been observed (e.g. VERLOOVE 2005).

Eragrostis virescens was first reported from Hungary by KOVÁCS & CSIKY (2016) from a small area near Budapest (“in Piliscsaba and Pilisszentiván”, no further details on the position and/or number of localities were given). However, latter authors added a mystic note (“in Hungary it occurs along roads, railways, in verges and private gardens”), indicating that it could be (or already is?) common in the country.

In fact, based on specimens deposited in BP, the species was already recorded by Antal Péntzes in Budapest. He first found the plant in the Botanical Garden, Budapest (with the remark “spreading spontaneously”) in 1929 and identified it as *E. neo-mexicana* Vasey (PÉNTZES 1931). He later corrected this determination for the Australian *E. parviflora* (R. Br.) Trin. (PÉNTZES 1941), and the plant was recorded by him also at other sites in Budapest. According to our revision (see below), all his collections belong to *E. virescens*, and *E. parviflora* should be removed from the Hungarian checklist.

The list of specimens of *E. virescens* deposited as “*E. parviflora*” in BP (in chronological order of the collections):

- BP “8032”, Budapest, “Botan. Kert, in cultis”, 18.07.1929, A. Péntzes, as “*E. neo-mexicana*”, revised by L. Somlyay, 2000, as “*E. parviflora*”.
- BP “139”, “Botan. Kert, in cultis”, 22.09.1930, A. Péntzes, as “*E. neo-mexicana*”, revised by L. Somlyay, 2000, as “*E. parviflora*”.
- BP 406622, “Botan. Kert, in cultis, planta spontanea”, 22.09.1930, A. Péntzes, as “*E. neo-mexicana*”, revised by an unknown person as “*E. parviflora*”.
- BP 380975, Budapest, “Botan. Kert, in cultis”, 22.09.1930, A. Péntzes as “*E. parviflora*” (revised by L. Somlyay, 2000, also as “*E. parviflora*”).
- BP 406623, Budapest, “horto, planta spontanea”, 22.08.1931, A. Péntzes, as “*E. neo-mexicana*”, revised by an unknown person as “*E. parviflora*”. (Remark: this specimen has a very diffuse panicle and pilose pulvini, it resembles *E. virescens* subsp. *verloovei*).
- BP “139”, “Botan. Kert, in cultis, planta spontanea”, 22.09.1931, A. Péntzes, as “*E. neo-mexicana*”, revised L. Somlyay, 2000, as “*E. parviflora*”.
- BP “8033”, Budapest, “Központi Klinika háztetején”, 1940, A. Péntzes, as “*E. parviflora*”.
- BP 380974, BP 406624, Budapest, “spont. in hort. botan. univ.”, 12.08.1947, leg. Á. Boros, det. A. Péntzes as “*E. parviflora*”.
- BP 380973, Budapest, “Városliget”, 11.08.1951, A. Péntzes, as “*E. parviflora*”.
- BP 207210, Budapest, “Városliget, gyp közt”, A. Péntzes, 21.08.1951, as “*E. parviflora*”.
- BP 202257, Budapest, “ad viam in Városliget”, A. Péntzes, 21.08.1951, as “*E. parviflora*”.

- BP 380986, Budapest, “Lágymányos, in ruderatis”, A. Péntzes, 30.07.1957, as “*E. parviflora*”.
- BP 380983, Budapest, “Bot. Kertben elvadulva”, 23.10.1970, leg. Sz. Priszter, as “*Eragrostis* sp.?”, rev. by A. Péntzes as “*E. parviflora*”, 29.10.1970.

Altogether, Péntzes collected this taxon at least at 4 localities in the lowland part of Budapest (University Botanical Garden – today in Korányi Street, clinics in Üllői Street, Városliget, Lágymányos). The first date of collection (1929) is among the earliest records in Europe (see MARTINI & SCHOLZ 1998). Worthy of note that Péntzes was a bit uncertain with the identification of his plants as *E. parviflora* (see the note in PÉNTZES 1941: 180). His “misinterpretation” is well understandable, knowing the problematic nomenclature, confusing keys and lack of available reference material of the species in *Eragrostis*. Keys containing both species (i.e. *parviflora* and *virescens*) are very scarce because they co-occur only in few regions. According to STACE (2010) they can be best distinguished by the shape of caryopsis: *E. virescens* has a clear ventral groove that is missing (or obscure) in the case of *E. parviflora*. The seeds of *E. virescens* are very precisely illustrated by MARTINI & SCHOLZ (1998) and PETERSON & SÁNCHEZ VEGA (2007). The features of *E. parviflora* were correctly described in the Hungarian key of SOMLYAY (2009), however, it has not been recognised by him that none of “*E. parviflora*” specimens in BP fit this characteristic. PORTAL (2002) described a new subspecies of *E. virescens* (subsp. *verloovei*), however, their separation looks problematic. Our actual collections belong obviously to subsp. *virescens*, but at least one specimen of Péntzes (BP 406623, see above) with pilose pulvini at the primary inflorescence branches resembles subsp. *verloovei*.

Despite the new records of *E. virescens* in Hungary the species cannot be treated explicitly as a naturalised alien, its occurrences represent probably only repeated escapes (i.e. from bird feeders or transports of cereals).

G. Király & Z. Barina

(103) *Euphorbia characias* L. (Euphorbiaceae)

Hungary, Győr-Moson-Sopron County, Sopronhorpács, Fő Street, spreading spontaneously in the street, 47.48359° N, 16.73604° E, 198 m [8566.1]; leg.: G. Király, 14.06.2019 (BP).

Euphorbia characias is a perennial Mediterranean species, which occurs in dry, open vegetation both in southern Europe and northern Africa (SMITH & TUTIN 1968). Due to its majestic habit it is a widespread ornamental plant (JÄGER *et al.* 2008), however, outside of the native range only few escapes from cultivation are known, i.e. in the British Isles (CLEMENT & FOSTER 2004) and Belgium (VERLOOVE 2019), among them with some established, long-existing “garden relic” stands. Both latter authors emphasise the increasing number of observations, and a potential further expansion. The species has never been men-

tioned previously in the floristical sources in Hungary, but recently is on offer by several horticultural companies. Its spontaneous population in Sopronhorpács is certainly several years old, containing specimens up to 1 m high, its spread causes sometimes some concerns for the householders. In Hungary we expect further reports on its escapes from gardens, and, especially in dry, rocky sites it probably will reach (semi)natural habitats as well. It is worth mentioning that, according to SMITH & TUTIN (1968), two subspecies with rather separated ranges exist, however, their morphological differences are often not clear (see comments of VERLOOVE 2019). The plant growing in Sopronhorpács probably belongs to subsp. *wulfenii* (Hoppe ex W. D. J. Koch) Radcl.-Sm., which has long horned glands in the inflorescence.

G. Király & A. Király

(104) *Knautia dipsacifolia* Kreutzer (Dipsacaceae)

Knautia dipsacifolia is a species of wood-margins and tall-herb vegetation of European mountains (EHRENDORFER 1976). In Hungary, occurrences from the Visegrád Mts (SZABÓ 1910) and the Börzsöny Mts (BOROS 1968, cf. NAGY 1997) were known for a long time, while its record from the Mátra Mts (Herbarium Kitaibelianum, fasc. VII, no. 38 in BP) remains unconfirmed (SZABÓ 1910). A remote lowland occurrence was reported by SIMON (1985) from the Beregi-sík microregion (Beregdaróc: Kisasszony-erdő). Later comprehensive works (FINTHA 1994, KIRÁLY 2009, BARTHA *et al.* 2015) also reported the presence of *K. dipsacifolia* in the northern part of the Great Hungarian Plain. The voucher specimen of Simon is stored in the collection of the Eötvös Loránd University (BPU-3865, “In sylvis nemorosis »Kisasszony-erdő« inter pag. Csaroda et Beregdaróc.” leg.: T. Simon, 10.09.1984; enumerated as BPU-04333 in NÓTÁRI *et al.* 2017).

During our field work (B. A. Lukács: 17.08.2011; K. Süveges & A. Takács: 13.06.2019), we recorded a population of *Knautia* (N 48.1851° E 22.4962°, CEU: 7800.2; DE-Soo-37509, DE-Soo-45697) most probably on the same site as that of SIMON (1985). However, these plants clearly exhibited the morphology of *K. drymeia* Heuffel (rhizomes ending in a terminal leaf-rosette; flowering stems developing laterally; stems covered by soft, greyish hairs; cf. EHRENDORFER 1976). After noting this, we checked Simon’s voucher (BPU-3865). The sheet contains a fragmented fruiting plant in a rather poor condition (without basal parts and with creased leaves and irregularly bended stems and peduncles). The stem of the specimen is subglabrous and sparsely hairy only at the nodes. Rigid setae are definitely missing. Overall, the plant is more slender, has thinner stocks, smaller leaves and capitula compared to specimens (predominantly of Carpathian origin) of *K. dipsacifolia* in BPU and DE. We suppose that Simon’s voucher represents *K.*

drymeia, in line with our recent collections, therefore, *K. dipsacifolia* should be deleted from the checklist of the region.

Knautia drymeia was also listed by FINTHA (1994) from a forest fringe near Garbolc (most probably from CEU: 8003.1). This record was ignored by recent comprehensive works (KIRÁLY 2009, BARTHA *et al.* 2015). Perhaps, besides the acceptance of Simon's false identification, the false identification of the species by I. Fintha was suspected by the latter authors, although the opposite seems probable.

B. A. Lukács, K. Süveges & A. Takács

(105) *Limonium gmelinii* (Willd.) Kuntze (Plumbaginaceae)

Hungary, Vas County, Gasztony, approx. 0.7 km E of the village, along the road No. 8, one vegetative specimen (leaf rosette) on the salted banquette of the road, 46.96829° N, 16.46685° E, 203 m [9064.2], leg.: G. Király & M. Hohla, 06. 09. 2019 (photodocumented, see Fig. 2).

Limonium gmelini is a typical species of the saline meadows of the Great Hungarian Plain (Alföld), with few secondary occurrences (mainly in anthropogenic habitats) on the Lesser Plain (Kisalföld) and on the foothills of both the Northern and Transdanubian Mts in Hungary (BARTHA *et al.* 2015). The species has expanded along roads (especially motorways), its invasion became remark-



Fig. 2. *Limonium gmelinii* at the shoulder of the road No. 8 near Gasztony (photo: M. Hohla, 06.09.2019).

ably fast, it is already present at various highways of Austria (HOHLA *et al.* 2015) and the Czech Republic (KOCIÁN *et al.* 2016), to where it got certainly from Hungary. However, it has not yet been found in western Hungary (“Praenoricum” floristical district or “Nyugat-magyarországi peremvidék” geographical region), the closest known (secondary) localities are at Lake Fertő (KIRÁLY *et al.* 2015), and near Graz, Austria (HOHLA 2018).

G. Király & M. Hohla

(106) *Nassella tenuissima* (Trin.) Barkworth (Poaceae)

Hungary, Győr-Moson-Sopron County, Sopronhorpács, Fő Street, spreading spontaneously in the street, 47.48359° N, 16.73604° E, 198 m [8566.1]; leg.: G. Király, 14. 06. 2019 (BP).

Nassella Desv. in C. Gay is a species-rich genus that was characterised by BARKWORTH (1990) in the recently accepted sense, i.e. its representatives have glumes thinner than the lemma, margins of the lemma strongly overlapping; palea one third or less than the length of the lemma, hyaline. *N. tenuissima* has lemmas without a cylindrical corona, its awns are 4.5–9 cm, and florets are 2–3 mm long. Another species of the genus, *N. hyalina* (Nees) Barkworth, which was reported by POLGÁR (1918) as an escape in Győr, differs from *N. tenuissima* in having florets *ca* 4 mm long, and top of lemma forming a conspicuous cylindrical corona.

Nassella tenuissima is native to the Americas from Chile to the southern part of the United States, its use as an ornamental plant have helped it become an invader. In Europe it was recorded as a casual alien in Austria (PFLUGBEIL 2015), Germany (JUNGHANS 2014), Italy, and France (BRUNEL *et al.* 2010), and its invasion was also presumed by latter authors in the Mediterranean. In other continents the species is already invasive, as in South Africa (MILTON 2004), and in Australia and New Zealand (JACOBS *et al.* 1998), where several actions on its eradication have been made (incl. ban from propagation and sale). The closest known occurrence to Hungary was reported by KNICKMANN *et al.* (2016) from Wulkaprodersdorf in northern Burgenland, Austria. We monitored its remarkable population of spontaneous origin in Sopronhorpács several years ago, it was planted there in a front garden of a single building, and now spreads in pavements and in ruderal vegetation along a 50 m long strip. The species is frequently planted in Hungarian settlements, and its escape from cultivation is expected also at other sites, especially in bigger cities with sandy or limestone areas around (e.g. Budapest, Győr). The introduction of the species can cause conservational threats in dry grasslands and rock vegetation types, therefore a ban for further plantation in Hungary is up for consideration now.

G. Király & A. Király

(107) *Rumex confertus* Willd. (Polygonaceae)

Hungary, Borsod-Abaúj-Zemplén County, Bodroghöz microregion, 1) Tokaj, Bodroghöz, 13.05.1948 [most probably 7894.3], leg.: K. Almássy, det.: A. Takács (DE-Soo-43411). 2) Tokaj, Bodroghözi-vár-dűlő, in disturbed mesic meadows, 48.12878° N, 21.42046° E, 28.07.2017 [7894.4], leg.: I. J. Türke. Tokaj, Bodroghöz, in mesic meadows of the embankment along the Bodrog River, and in the margin of wet meadows near the Nagy-Nádas-Lake, 48.14362° N, 21.40708° E, 23.08.2019 [7894.3]; leg.: I. J. Türke, det. A. Takács. – Hungary, Szabolcs-Szatmár-Bereg County, Dél-Nyírség microregion, Vámospércs: roadside verge near the train station, 47.51829° N, 21.89248° E, 20.05.2019 [8497.3]; leg.: K. Süveges & A. Takács. – Hungary, Heves County, Bükk-fennsík microregion, Szilvásvár: near Olaszkapu, in an uncharacteristic mesic grassland along the road, 48.07630° N, 20.45179° E, 26.08.2019 [7988.2]; leg.: K. Süveges & A. Hábczyus.

Rumex confertus is a tall herb of mesic meadows and ruderal habitats. In Hungary, its distribution is focused around the Middle Tisza region, expanding to the margins of the North Hungarian Mts (BARTHA *et al.* 2015). A new occurrence from the northern part of the Great Hungarian Plain (i.e. from the Beregi-sík) was recently published (KIRÁLY & KIRÁLY 2018), however, no mention of *R. confertus* can be found from the neighbouring Bodroghöz and the Nyírség regions in the checklists of these areas (BOROS 1932, TUBA *et al.* 2008), nor in later floristical papers. In the Bükkalja microregion this taxon has recently become well known (SCHMOTZER 2015), but there is no current data of the occurrence of this species in the inner parts of the Bükk Mts (VOJTKÓ 2001); apart from some old records from the upper part of the Garadna valley, and one record from the Northern Bükk (SOÓ *et al.* 1943).

The occurrences near Tokaj, detailed above, fit well in the distribution range of the species along the Tisza River, meanwhile the remote population in Vámospércs (and maybe in the Bükk-fennsík) is most probably the result of introduction.

A. Takács, I. J. Türke, A. Hábczyus & K. Süveges

(108) *Sagina apetala* Ard. (Caryophyllaceae)

Hungary, Hajdú-Bihar County, Hajdúszoboszló, in gaps between paving slabs: Hősök tere, 47.44396° N, 21.38990° E, 03.05.2019 [8594.3]; Halasi Fekete Péter tér, 47.44637° N, 21.39131° E, 05.05.2019 [8594.3]; Mátyás király sétány, 47.45306° N, 21.40448° E, 10.06.2019 [8594.1]; leg.: A. Takács (DE-Soo-45694).

Sagina apetala is a therophyte of bare, dominantly sandy or gravelly, often moist surfaces. According to the former Hungarian Floras (JÁVORKA 1925, SOÓ & KÁRPÁTI 1968, SIMON 1992, KIRÁLY 2009), it is sporadic in Transdanubia, and rare in the North Hungarian Mts. First observation from the northern part of the Great Hungarian Plain (i.e. from the Szatmári-sík microregion) was published recently (KIRÁLY & KIRÁLY 2018), however, no mention of *S. apetala* can

be found from the Tiszántúl neither in the overview of the regional Flora (Soó & MÁTHÉ 1938), nor in the numerous floristical papers published recently.

Dense populations of *S. apetala* on promenades of Hajdúszoboszló town were found, accompanied by patches of *Sagina procumbens* and *Euphorbia maculata*, which are well known container weeds (e.g. ALTLAND 2004) spreading in urbanised habitats. Surprisingly, *S. apetala* has not been reported from similar contexts so far (cf. CASE *et al.* 2005). Nonetheless, *S. apetala* was most probably introduced as a container weed (sites are ornamented with potted plants), or possibly introduced by tourists.

A. Takács

(109) *Spiraea crenata* L. (Rosaceae)

Spiraea crenata is a characteristic element of the continental steppe belt, with a continuous distribution area stretching from the Altai Mts to the Carpathian Basin and the Balkan Peninsula (subsp. *crenata*), with an isolated metapopulation in the Iberian Peninsula (subsp. *parvifolia* (Pau) Romo). Due to habitat destruction, the once native populations of *S. crenata* became extinct in Hungary (Soó 1966). Recently, several cultivated individuals of uncertain origin were found in Hungarian cemeteries (LOVAS-KISS *et al.* 2017, MOLNÁR *et al.* 2017, UDVARDY 2004), on the hill Sas-hegy in Budapest (SOMLYAY 2015) and from the eastern margin of the Bakony Region (BAUER 2019). Within the Carpathian Basin, only few recent populations are known from Romania (SÂRBU *et al.* 2013), and a single from Slovakia (HOLUB 1999).

The distribution map published by KURTTO *et al.* (2004), indicated a population situated within the 34UFU2 grid cell (approximately on the Hungarian–Romanian–Ukrainian border). The source of this certain data was not clear enough so far. According to the personal communication of A. Sennikov (Helsinki) this record was received from Ukraine, submitted by V. I. Czopyk and N. M. Fedoronchuk (Kiev). When processing the Ukrainian distribution of *S. crenata*, the regional collaborators identified Chorna Hora Hill, near Vynohradiv (Nagyszőlős) in the Transcarpathian region (Zakarpattia Oblast in western Ukraine) as the locality of the record mentioned by KNAPP (1872) (M. M. Fedoronchuk pers. comm.). By checking the original context in Knapp's paper ("Auf der Czarna Hora, am Czarny Czeremosz (Hacq. III. 30), doch bedarf diese nicht unwahrscheinliche Angabe einer neueren Bestätigung") the mistake has come to light: HACQUET (1794) mentioned *S. crenata* in his Galician travelogue, from the surroundings of "Czarna Gora" (Máramaros Mts), from the valley of Czeremosz – thus the mysterious record (regardless of its questionable reliability) evidently comes from the

Outer Eastern Carpathians and not from the Transcarpathian region. Therefore, the occurrence of *S. crenata* in the grid cell 34UFU2 should be deleted.

A. Takács

(110) *Sporobolus vaginiflorus* (Torr.) Wood. (Poaceae)

Hungary, Vas County, Gasztony, 0.7 km E of the village, along the road No. 8, on the salted banquette of the road, 46.96829° N, 16.46685° E, 203 m [9064.2], leg.: G. Király & M. Hohla, 06.09.2019 (BP); Szentgotthárd, along the road to Rábafüzes, approx. 0.4 km N of the bridge of the Lahn Creek, 46.97668° N, 16.28213° E, 222 m [9063.2], leg.: G. Király & M. Hohla, 06. 09. 2019 (BP).

Sporobolus vaginiflorus, originated from the Central and Atlantic United States (PETERSON *et al.* 2007), is an emerging invader of the roadsides in Central Europe. It was first found in Hungary along the M7 highway near Letenye (KIRÁLY & HOHLA 2015), and after a certain break SCHMIDT (2019) recorded a small population in Szombathely. The new occurrences reported here represent large stands that are presumably connected to the Austrian sites (the species already occurs in SE Austria along several roads, incl. smaller ones, as well); its further rapid spread in western Hungary is very likely.

G. Király & M. Hohla

Acknowledgements – A. Takács is thankful to Alexander Sennikov (Committee for Mapping the Flora of Europe) and Mykola M. Fedoronchuk (National Academy of Sciences of Ukraine) for their personal communication on the distribution of *Spiraea crenata*, to László Papp jun. for his help during the revision in the BPU collection, and to Orsolya Vincze for her linguistic corrections. K. Süveges and A. Takács are thankful to Valentin Szénási for calling attention to the fen meadow, where *C. ×leutzii* was found, and for Gergely Király for his comments. Work of K. Süveges was supported by the ÚNKP-19-3-1 New National Excellence Program of the Ministry for Innovation and Technology.

Összefoglaló: Regionális adatokat közlő rovatunk jelen részében beszámolunk 5 Magyarországon honos edényes növényfaj (*Apium repens*, *Crypsis schoenoides*, *Limonium gmelinii*, *Rumex confertus*, *Sagina apetala*) megtelepedéséről új lelőhelyeken. Közülük kettő (*Crypsis schoenoides*, *Limonium gmelinii*) megjelenése valószínűleg az utak téli sózásának eredménye, míg másik két faj (*Apium repens* és *Sagina apetala*) talajjal vagy tőzeggel kerülhetett új lelőhelyére. Ugyancsak az utak mentén terjed az adventív *Sporobolus vaginiflorus*, amelynek további előretörése várható.

Az erdei varfű (*Knautia dipsacifolia*) beregi adatáról bebizonyosodott, hogy a magyar varfűre (*Knautia drymeia*) vonatkozik, a csipkés gyöngyvesszőt (*Spiraea crenata*) pedig lelőhelyének azonosítása következtében jelezték tévesen a Kárpátaljáról.

Az *Eragrostis virescens* új előfordulási adatainak bemutatása mellett herbáriumi példányok áttekintése bizonyította, hogy az *Eragrostis parviflora*-nak Magyarországról nincs igazolható előfordulása, régebbi adatai az *E. virescens*-re vonatkoznak.

További három tárgyalt faj kertekből szökött ki (*Asparagus verticillatus*, *Euphorbia characias*, *Nassella tenuissima* – utóbbi kettőnek ez az első hazai jelzése). Végül egy hazánkból korábban nem jelzett ritka sáshibrid (*Carex ×leutzii*) előfordulását is sikerült kimutatni.

REFERENCES

- ALTLAND J. (2004): *Common weeds in Oregon container crops*. – Oregon State University, Oregon, 20 pp.
- ARADI E., ERDŐS L., CSEH V., TÖLGYESI Cs. & BÁTORI Z. (2017): Adatok Magyarország flórájához és vegetációjához II. – *Kitaibelia* **22**: 104–113. <https://doi.org/10.17542/kit.22.104>
- BARINA Z., BENEDEK L., BOROS L., DIMA B., FOLCZ Á., KIRÁLY G., KOSZKA A., MALATINSZKY Á., PAPP D., PIFKÓ D. and PAPP V. (2015): Taxonomical and chorological notes 1 (1–19). – *Studia bot. hung.* **46**(2): 205–221. <https://doi.org/10.17110/studbot.2015.46.2.205>
- BARKWORTH M. A. (1990): *Nassella* (Gramineae, Stipeae): revised interpretation and nomenclatural changes. – *Taxon* **39**: 597–614. <https://doi.org/10.2307/1223366>
- BARTHA D., KIRÁLY G., SCHMIDT D., TIBORCZ V., BARINA Z., CSIKY J., JAKAB G., LESKU B., SCHMOTZER A., VIDÉKI R., VOJTKÓ A. & ZÓLYOMI Sz. (eds) (2015): *Magyarország edényes növényfajainak elterjedési atlasza*. – Nyugat-Magyarországi Egyetem Kiadó, Sopron, 329 pp.
- BAUER N. (2019): *Spiraea crenata* a Keleti-Bakonyban. – *Kitaibelia* **24**(2): 262–264. <https://doi.org/10.17542/kit.24.257>
- BÁTORI Z., ERDŐS L., CSEH V., TÖLGYESI Cs. & ARADI E. (2014): Adatok Magyarország flórájához és vegetációjához I. – *Kitaibelia* **19**: 89–104.
- BERNÁTOVÁ D., KLIMENT J. & TOPERCER J. (2018): *Carex buxbaumii* – horúci kandidát na vyhynutie na Slovensku. – *Bull. Slov. Bot. Spoločen.* **40**(2): 171–180.
- BOROS Á. (1932): *A Nyírség flórája és növényföldrajza*. (Die Flora und die pflanzengeographischen Verhältnisse des Nyírség's). – Tisza István Tudományos Társaság Honismertető Bizottságának Kiadványai VIII, Debrecen, 208 pp.
- BOROS Á. (1968): *Bryogeographie und Bryoflora Ungarns*. – Akadémiai Kiadó, Budapest, 466 pp.
- BRUNEL S., SCHRADER G., BRUNDU G. & FRIED G. (2010): Emerging invasive alien plants for the Mediterranean Basin. – *EPPO Bulletin* **40**: 219–238. <https://doi.org/10.1111/j.1365-2338.2010.02378.x>
- CASE L. T., MATHERS H. M. & SENESAC A. F. (2005): A review of weed control practices in container nurseries. – *Hort. Technology* **15**: 535–545. <https://doi.org/10.21273/horttech.15.3.0535>
- CHATER A. O. (1980): *Carex L.*. – In: TUTIN T. G. *et al.* (eds): *Flora Europaea*. Vol. 5. Cambridge University Press, Cambridge, pp. 290–323.
- CLEMENT E. J. & FOSTER M. C. (1994): *Alien plants of the British Isles*. – BSBI, London, 590 pp.
- CSIKY J., KOVÁTS D., DEME J., TAKÁCS A., ÓVÁRI M., MOLNÁR V. A., MALATINSZKY Á., NAGY J. and BARINA Z. (2017): Taxonomical and chorological notes 4 (38–58). – *Studia bot. hung.* **48**(1): 133–144. <https://doi.org/10.17110/studbot.2017.48.1.133>
- DEME J., PALLA B., HASZONITS Gy., CSIKY J., BARÁTH K., KOVÁCS D., ZURDO JORDA A., ERZBERGER P., WOLF M., PAPP V. & SCHMIDT D. (2019): Taxonomical and chorological notes 9 (94–98). – *Studia bot. hung.* **50**(2): 381–392. <https://doi.org/10.17110/StudBot.2019.50.2.381>
- DOLINAR B. & VREŠ B. (2012): Pregled flore Mišje doline in zgornjega porečja Rašice (Dolenjska, Slovenija). – *Hladnikia* **30**: 3–37.
- EHRENDORFER F. (1976): *Knautia L.*. – In: TUTIN T. G. *et al.* (eds): *Flora Europaea*. Vol. 4. Cambridge University Press, Cambridge, pp. 60–67.
- FEKETE R., MESTERHÁZY A., VALKÓ O. & MOLNÁR A. (2018): A hitchhiker from the beach: the spread of the maritime halophyte *Cochlearia danica* along salted continental roads. – *Preslia* **90**(1): 23–37.

- FINTHA I. (1994): *Az Észak-Alföld edényes flórája*. – A KTM Természetvédelmi Hivatalának tanulmánykötetei I. Természetbúvár Alapítvány Kiadó, Budapest, 359 pp.
- GRULICH V. & HODÁLOVÁ I. (1994): The *Senecio doria* Group (Asteraceae-Senecioneae) in Central and Southeastern Europe. – *Phyton* **34**: 247–265.
- HACQUET B. (1794): *Neueste physikalisch-politische Reisen in der Jahren 1791. 92. und 93. durch die Dacischen und Sarmatischen oder Nördlichen Karpathen. Dritter Theil*. – Raspeschen Buchhandlung, Nürnberg, 254 pp.
- HOHLA M. (2018): *Artemisia gilvescens*, *Oenothera macrocarpa* und *Pseudosasa japonica* – neu für Österreich – sowie weitere Beiträge zur Adventivflora von Oberösterreich und der Steiermark. – *Neilreichia* **9**: 143–159.
- HOHLA M., DIEWALD W. & KIRÁLY G. (2015): *Limonium gmelini* – eine Steppenpflanze an österreichischen Autobahnen sowie weitere Neuigkeiten zur Flora Österreichs. – *Stapfia* **103**: 127–150.
- HOLUB J. (1999): *Spiraea crenata* L. – In: ČEŘOVSKÝ J., FERÁKOVÁ V., HOLUB J., MAGLOCKÝ Š. & PROCHÁZKA F. (eds): *Červená kniha ohrožených a vzácných druhov rastlín a živočíchov SR a ČR. Vol. 5. Vyššie rastliny. Príroda a. s., Bratislava, p. 355.*
- JACOBS S. W. L., EVERETT J. & TORRES M. A. (1998): *Nassella tenuissima* (Gramineae) recorded from Australia, a potential new weed related to Serrated Tussock. – *Telopea* **8**: 41–46. <https://doi.org/10.7751/telepea19982013>
- JÄGER E. J., EBEL F., HANLET P. & MÜLLER G. K. (eds) (2008): *Exkursionsflora von Deutschland, Vol 5. Krautige Zier- und Nutzpflanzen*. – Springer, Berlin & Heidelberg, 880 pp.
- JÁVORKA S. (1925): *Flora Hungarica*. – Studium, Budapest, 1307 pp.
- JUNGHANS TH. (2014): Kurze Anmerkungen zu den Vorkommen einiger Adventivpflanzen im Raum Mannheim. – *Mitt. bad. Landesver. Naturkunde u. Naturschutz N. F.* **21**: 405–423.
- KIRÁLY G. (ed.) (2007): *Red list of the vascular flora of Hungary*. – Private edition of the Authors, Lóvér Print, Sopron, 73 pp.
- KIRÁLY G. (ed.) (2009): *Új magyar fűvészkönyv. Magyarország hajtásos növényei. Határozókulcsok*. – Aggteleki Nemzeti Park Igazgatóság, Jósza, 616 pp.
- KIRÁLY G. & HOHLA M. (2015): New stage of the invasion: *Sporobolus vaginiflorus* (Poaceae) reached Hungary. – *Studia bot. hung.* **46**: 149–155. <https://doi.org/10.17110/StudBot.2015.46.2.149>
- KIRÁLY G. & KIRÁLY A. (2018): Adatok és kiegészítések a magyar flóra ismeretéhez III. – *Bot. Közlem.* **105**(1): 27–96. <https://doi.org/10.17716/BotKozlem.2018.105.1.27>
- KIRÁLY G., TAKÁCS G. & KIRÁLY A. (2015): Adatok a Kisalföld flórájához és növényföldrajzához. – *Kitaibelia* **20**: 235–253. <https://doi.org/10.17542/kit.20.235>
- KIRÁLY G., BARÁTH K., BAUER N., ERZBERGER P., PAPP B., SZÜCS P., VERES Sz. & BARINA Z. (2019): Taxonomical and chorological notes 8 (85–93). – *Studia bot. hung.* **50**(1): 241–252. <https://doi.org/10.17110/StudBot.2019.50.1.241>
- KNAPP J. A. (1872): *Die bisher bekannten Pflanzen Galiziens und der Bukowina*. – W. Braumüller, Wien, 391 pp.
- KNEUCKER A. (1891): *Carex Mich. Segge*. – In: SEUBERT M. (ed.): *Exkursionsflora für das Grossherzogtum Baden*. Eugen Ulmer, Stuttgart, pp. 49–70.
- KNICKMANN B., RAABE U., GILLI CH. & ENGLMAIER P. (2016): (274) *Nassella tenuissima* (Poaceae). – *Neilreichia* **9**: 327.
- KOCIÁN P., DANIHELKA J., LENGYEL A. & CHRTEK J. (2016): *Limonka Gmelinova* (*Limonium gmelinii*) na dálnicích České republiky. – *Acta rer. nat.* **19**: 1–6.
- KOOPMAN J. & WIĘCŁAW H. (2019): The section *Ceratocystis* (*Carex*, Cyperaceae) in the Netherlands. – *Gorteria* **41**(1): 1–13.

- KOVÁCS D. & CSIKY J. (2016): *Eragrostis virescens* J. Presl, egy új, adventív fűfaj Magyarországon. – Abstracts of the 11th International Conference “Advances in research on the flora and vegetation of the Carpato-Pannonian region”, Hungarian Natural History Museum, Budapest, 12–14 February 2016, pp. 175–176.
- KRČAN K. & KOPECKÝ K. (1959): Květena okolí Nového města nad Metují. – *Preslia* **31**: 52–77.
- KUN A. (2019): Az *Apium repens* császártöltési állományának monitorozása (2006–2015). – *Kitai-belia* **24**: 1–8. <https://doi.org/10.17542/kit.24.1>
- KURTTO A., LAMPINEN R. & JUNIKKA L. (eds) (2004): *Atlas Florae Europaeae. Distribution of vascular plants in Europe. 13. Rosaceae (Spiraea to Fragaria, excl. Rubus)*. – The Committee for Mapping the Flora of Europe & Societas Biologica Fennica Vanamo, Helsinki, 320 pp.
- LOVAS-KISS Á., LÖKI V. & MOLNÁR V. A. (2017): A csipkés gyöngyvessző (*Spiraea crenata* L.) újabb temetői előfordulása. – *Kitai-belia* **22**(2): 409–410. <https://doi.org/10.17542/kit.22.404>
- MARTINI F. & SCHOLZ H. (1998): *Eragrostis virescens* J. Presl (Poaceae), a new alien species for the Italian flora. – *Willdenowia* **28**: 59–63. <https://doi.org/10.3372/wi.28.2805>
- MATUS G., CSIKY J., BAUER N., BARÁTH K., VASUTA G., BARABÁS A., HRICSOVINYI D., TAKÁCS A., ANTAL K., BUDAI J., ERZBERGER P., MOLNÁR P. & BARINA Z. (2018): Taxonomical and chorological notes 7 (75–84). – *Studia bot. hung.* **49**(2): 83–94. <https://doi.org/10.17110/studbot.2018.49.2.83>
- MESTERHÁZY A., MATUS G., KIRÁLY G., SZŰCS P., TÖRÖK P., VALKÓ O., PELLES G., PAPP V. G., VIRÓK V., NEMCSOK Z., RIGÓ A., HOHLA M. & BARINA Z. (2017): Taxonomical and chorological notes 5 (59–70). – *Studia bot. hung.* **48**(1): 263–275. <https://doi.org/10.17110/studbot.2017.48.2.263>
- MILTON S. J. (2004): Grasses as invasive alien plants in South Africa. – *South African J. Sci.* **100**: 69–75.
- MOLNÁR V. A., LÖKI V., MÁTÉ A., MOLNÁR A., TAKÁCS A., NAGY T., LOVAS-KISS Á., LUKÁCS B. A., SRAMKÓ G. & TÖKÖLYI J. (2017): The occurrence of *Spiraea crenata* and other rare steppe plants in Pannonian graveyards. – *Biologia* **72**(5): 500–509. <https://doi.org/10.1515/biolog-2017-0060>
- NAGY J. (1997): Adatok a Börzsöny-hegység flórájához. – *Kitai-belia* **2**: 27–32.
- NÓTÁRI K., NAGY T., LÖKI V., LJUBKA T., MOLNÁR V. A. & TAKÁCS A. (2017): Az ELTE Fűvészkert herbárium (BPU). – *Kitai-belia* **22**: 55–59. <https://doi.org/10.17542/kit.22.55>
- PAPP V., KIRÁLY G., KOSCSÓ J., MALATINSZKY Á., NAGY T., TAKÁCS A. & DIMA B. (2016): Taxonomical and chorological notes 2 (20–27). – *Studia bot. hung.* **47**(1): 179–191. <https://doi.org/10.17110/studbot.2016.47.1.179>
- PÉNZES A. (1931): Adatok Budapest adventív flórájához II. – *Magyar Bot. Lapok* **30**: 132–135.
- PÉNZES A. (1941): Ujabban terjedő *Eragrostis*- és *Lepidium* fajról. – *Bot. Közlem.* **38**: 179–180.
- PETERSON P. M. (2007): *Eragrostis Wolf*. – In: BARKWORTH M. E., ANDERTON L. A., CAPELS K. M., LONG S. & PIEP M. B. (eds): *Manual of grasses for North America*. Intermountain Herbarium and Utah State University Press, Logan, Utah, pp. 201–210.
- PETERSON P. M. and SÁNCHEZ VEGA I. (2007): *Eragrostis* (Poaceae: Chloridoideae: Eragrosti-deae: Eragrostidinae) of Peru. – *Ann. Missouri Bot. Gard.* **94**: 745–790. [https://doi.org/10.3417/0026-6493\(2007\)94\[745:epceeo\]2.0.co;2](https://doi.org/10.3417/0026-6493(2007)94[745:epceeo]2.0.co;2)
- PETERSON P. M., HATCH S. L. & WEAKLEY A. S. (2007): *Sporobolus R. Br.* – In: BARKWORTH M. E., ANDERTON L. A., CAPELS K. M., LONG S. & PIEP M. B. (eds): *Manual of grasses for North America*. Intermountain Herbarium and Utah State University Press, Logan, Utah, pp. 212–217.
- PFLUGBEIL G. (2015): Floristische Besonderheiten in den Gemeindegebieten von Dorfbeuern und Lamprechtshausen. – *Mitt. Haus Natur Salzburg* **22**: 47–57.

- PINTÉR B. & BARINA Z. (2015): Az *Apium repens* (Jacq.) Lagasca Budapesten. – *Kitaibelia* **19**: 365.
- POLGÁR S. (1918): Neue Beiträge zur Adventivflora von Győr (Westungarn) II. – *Magyar Bot. Lapok* **17**: 27–41.
- PORTAL R. (2002): *Eragrostis pilosa* subsp. *felzinesii* et *Eragrostis virescens* subsp. *verloovei* (Poaceae: Chloridoideae, Eragrostideae) deux nouvelles sous-espèces pour l'Europe. – *Bull. Soc. Bot. Centre-Ouest N. S.* **33**: 3–8.
- SÂRBU I., ŞTEFAN N. & OPREA A. (2013): *Plante vasculare din România: determinant ilustrat de teren*. – Publishing House Victor B Victor, Bucharest, 1320 pp.
- SCHMIDT D. (2019): Vonalas létesítmények mellett terjedő növények Vas megyében. – *Vasi Szemle* **73**(2): 160–174.
- SCHMIDT D., HASZONITS G. & KORDA M. (2018a): Sótűrő budavirágfajok terjedése a Dunántúl útjain. – *Kitaibelia* **23**(2): 141–150. <https://doi.org/10.17542/kit.23.141>
- SCHMIDT D., CSIKY J., MATUS G., BALOGH R., SZURDOKI E., HÖHN M., ÁBRÁN P., BUCZKÓ K. & LÖKÖS L. (2018b): Taxonomical and chorological notes 6 (71–74). – *Studia bot. hung.* **49**(1): 121–130. <https://doi.org/10.17110/studbot.2018.49.1.121>
- SCHMOTZER A. (2015): *Ceratocephala testiculata* (Crantz) Roth és további adatok a Bükkalja flórájához. – *Kitaibelia* **20**(1): 81–142. <https://doi.org/10.17542/kit.20.81>
- SIMON T. (1985): A *Knautia dipsacifolia* Kreutzer védett montán faj az Északi-Alföldön. – *Bot. Közlem.* **72**: 123–124.
- SIMON T. (1992): *A magyarországi edényes flóra határozója*. – Tankönyvkiadó, Budapest, 892 pp.
- SMITH A. R. and TUTIN T. G. (1968): *Euphorbia L.* – In: TUTIN T. G., HEYWOOD V. H., BURGESS N. A., MOORE D. M., VALENTINE D. H., WALTERS S. M. & WEBB D. A. (eds): *Flora Europaea*. Vol. 2. Cambridge University Press, Cambridge, pp. 213–226.
- SOMLYAY L. (2009): *Eragrostis Wolf*. – In: KIRÁLY G. (ed.): Új magyar fűvészkönyv. Magyarország hajtásos növényei. Határozókulcsok. Aggteleki Nemzeti Park Igazgatóság, Jószafeő, p. 536.
- SOMLYAY L. (2015): A *Spiraea crenata L.* sas-hegyi (Budai-hegység) felfedezésének története. – *Kitaibelia* **20**(2): 307–308.
- SOÓ R. & KÁRPÁTI Z. (1968): *Növényhatározó II.: Harasztok–virágos növények*. – Tankönyvkiadó, Budapest, 846 pp.
- SOÓ R. & MÁTHÉ I. (1938): *A Tiszántúl flórája*. – Editio Instituti Botanici Universitatis Debreceniensis, Debrecen, 192 pp.
- SOÓ R. (1966): *Spiraea crenata L. 1753*. – In: A magyar flóra és vegetáció rendszertani-növényföldrajzi kézikönyve II. Akadémiai Kiadó, Budapest, p. 97.
- SOÓ R. (1973): *Carex L.* – In: A magyar flóra és vegetáció rendszertani-növényföldrajzi kézikönyve V. Akadémiai Kiadó, Budapest, pp. 206–261.
- SOÓ R., BOROS Á., IGMÁNDY J., MÁTHÉ I. & UJVÁROSY M. (1943): Előmunkálatok a Bükkhegység és környéke flórájához. – *Bot. Közlem.* **40**: 169–221.
- STACE C. (2010): *New flora of the British Isles*. 3rd ed. – Cambridge University Press, Cambridge, 1232 pp.
- SZABÓ Z. (1910): A Magyar birodalom Knautiáinak rendszertani áttekintése. – *Bot. Közlem.* **9**: 67–99.
- TAKÁCS A., BARÁTH K., CSIKY J., CSIKYNÉ R. É., KIRÁLY G., NAGY T., PAPP V., SCHMIDT D., TAMÁSI B. & BARINA Z. (2016): Taxonomical and chorological notes 3 (28–37). – *Studia bot. hung.* **47**(2): 345–357. <https://doi.org/10.17110/studbot.2016.47.2.345>
- THE PLANT LIST (2013): *Version 1.1*. – Published on the Internet, <http://www.theplantlist.org/> [accessed on 21 October 2019]

- THIERS B. M. (2017): *Index Herbariorum: a global directory of public herbaria and associated staff*. – New York Botanical Garden's Virtual Herbarium. <http://sweetgum.nybg.org/ih/> [accessed on 21 October 2019]
- TUBA Z., SZIRMAI O., NAGY J. GY., CZÓBEL SZ., CSERHALMI D., GÁL B., SZERDAHELYI T. & MAR-SCHALL Z. (2008): *A Bodrogköz edényes flórája és annak jellemzői*. – In: TUBA Z. (ed.): *Bodrogköz. Lorántffy Zsuzsanna Szellemében Alapítvány, Gödöllő–Sárospatak*, pp. 477–521.
- UDVARDY L. (2004): *Rediscovery of *Spiraea crenata* in Hungary*. – In: MITIĆ B. & ŠOŠTARIĆ R. (eds): *1st Croatian Botanical Symposium / Pvi hrvatski botanički simpozij*, Sept. 30th – Oct. 2th. Croatian Botanical Society, Zagreb, 189 pp.
- VERLOOVE F. (2005): New records of interesting xenophytes in Spain. – *Lazaroa* **26**: 141–148.
- VERLOOVE F. (2019): *Euphorbia characias*. – *Manual of the Alien Plants of Belgium*. Botanic Garden Meise, Belgium. <http://alienplantsbelgium.be> [accessed 28/09/2019]
- VOJTKÓ A. (2001): *A Bükk hegység flórája*. – Sorbus Kiadó, Eger, 340 pp.
- WIĘCŁAW H. (2014): *Carex flava* agg. (section *Ceratocystis*, Cyperaceae) in Poland: distribution maps and locality lists. – *Biodiv. Res. Conserv.* **33**(1): 52–87. <https://doi.org/10.2478/biorc-2014-0002>
- WIĘCŁAW H. & KOOPMAN J. (2013): Numerical analysis of morphology of natural hybrids between *Carex hostiana* and the members of *Carex flava* agg. (Cyperaceae). – *Nordic J. Bot.* **31**(4): 464–472.
- WIRTH T. & GYERGYÁK K. (2015) *Az Asparagus verticillatus* L. Magyarországon. – *Kitaibelia* **20**: 38–43. <https://doi.org/10.17542/kit.20.38>