

TAXONOMICAL AND CHOROLOGICAL NOTES 5 (59–70)

Attila MESTERHÁZY¹, Gábor MATUS², Gergely KIRÁLY³, Péter SZÜCS⁴,
Péter TÖRÖK⁵, Orsolya VALKÓ⁶, Gábor PELLE⁷, Viktor Gábor PAPP⁷,
Viktor VIRÓK⁸, Zoltán NEMCSOK⁹, Attila RIGÓ⁹, Michael HOHLA¹⁰ and
Zoltán BARINA¹¹

¹Directorate of the Hortobágy National Park,
H–4024 Debrecen, Sumen u. 2, Hungary; amesterhazy@gmail.com

²Department of Botany, University of Debrecen,
H–4032 Debrecen, Egyetem tér 1, Hungary; matus.gabor@science.unideb.hu

³Institute of Silviculture and Forest Protection, University of Sopron,
H–9400 Sopron, Bajcsy-Zsilinszky u. 4, Hungary; kiraly.gergely@uni-sopron.hu

⁴Institute of Biology, Eszterházy Károly University,
H–3300 Eger, Leányka u. 6, Hungary; szucs.peter@uni-eszterhazy.hu

⁵MTA-DE Lendület Functional and Restoration Ecology Research Group,
H–4032 Debrecen, Egyetem tér 1, Hungary; molinia@gmail.com

⁶MTA-DE Biodiversity and Ecosystem Services Research Group,
H–4032 Debrecen, Egyetem tér 1, Hungary; valkoorsi@gmail.com

⁷Directorate of the Bükk National Park,
H–3304 Eger, Sánc u. 6, Hungary; gpelles67@gmail.com, PappVG@bnpi.hu

⁸Directorate of the Aggtelek National Park,
H–3758 Jósvafő, Tengerszem oldal 1, Hungary; virokv@gmail.com

⁹Department of Botany and Soroksár Botanical Garden, Szent István University,
H–1118 Budapest, Villányi út 29–43, Hungary

¹⁰Therese-Riggle-Straße 16, A–4982 Obernberg am Inn, Austria; m.hohla@edubi.at

¹¹Department of Botany, Hungarian Natural History Museum,
H–1431 Budapest, Pf. 137, Hungary; barina.zoltan@nhmus.hu

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 (59–68). – *Studia bot. hung.* 48(1): 263–275.

Abstract: The present part of the series of miscellaneous new records provides new chorological data of one moss and ten vascular plants. Six species (*Ammannia coccinea*, *Chenopodium pumilio*, *Elodea nuttallii*, *Lindernia procumbens*, *Paspalum dilatatum*, *Verbena supina*) and one hybrid (*Potamogeton × angustifolius*) are reported for the first time from the territory of Albania, one (*Potamogeton pusillus*) is confirmed there and it is ascertained that one further species (*Potamogeton praelongus*) was previously reported there in error. One alien species (*Ammannia coccinea*) is reported from the territory of the Republic of Macedonia for the first time and one alien (*Atriplex micrantha*) from Hungary for the first time. One species (*Ptilium crista-castrensis*) is new to the southern Nyírség region (E Hungary) and one (*Carex pilulifera*) is new for the Aggtelek, Bükk, and Zemplén Mts (N Hungary).

Key words: Albania, Chenopodiaceae, Cyperaceae, Hungary, Hydrocharitaceae, Hypnaceae, Linderniaceae, Lythraceae, Macedonia, Poaceae, Potamogetonaceae, Verbenaceae

INTRODUCTION

This paper is the fifth 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).

MATERIAL AND METHODS

Nomenclature of vascular plants follows KIRÁLY (2009).

Codes of the Central European Flora Mapping grid are in square brackets.

At the Regéc site altogether 17 specimens of *Carex pilulifera* have been grown from xero-mesophilous grassland and fen-meadow soil samples whereas estimated local densities vary from ca. 25 up to 210 seeds per m² considering the upper 10 cm soil layer (VALKÓ *et al.* 2009, 2011).

Coordinates if not recorded by GPS devices are in square brackets.

Nomenclature follows The Plant List (2013), abbreviations of herbaria follows THIERS (2017).

NEW RECORDS WITH ANNOTATIONS

Bryophytes

(59) *Ptilium crista-castrensis* (Hedw.) De Not. (Hypnaceae)

Hungary, Hajdú-Bihar Country, Dél-Nyírség: Vámospércs, in an old *Pinus sylvestris* plantation, on mixed raw forest humus, 47.49875° N, 21.93583° E, 135 m, [8597.2], leg. et det. Szűcs P., (EGR), 09.09.2017, conf. P. Erzberger.

This circumpolar moss is an endangered (EN) species in Hungary (PAPP *et al.* 2010). Two old reports are known from the southeastern part of the Nyírség region: Piricse, Júlia-liget (JAKAB 1997a), Ömböly, Szénási erdőház (JAKAB 1997b); and one extinct locality from the Central Nyírség region at Baktalórántháza (BOROS 1968). Associated bryophytes in the *Pinus sylvestris* plantation: *Hypnum cupressiforme*, *Ceratodon purpureus*, *Dicranum scoparium*, *Leucobryum* sp. and *Campylopus introflexus*, *Scleropodium purum*.

Recent locality is new to the southern Nyírség region, and the only recent occurrence in Hungary (last reported from Órség by SZŰCS 2007). The occurrence of this boreal-montane species in lower altitude and latitude is remarkable (JAKAB 1997a).

P. Szűcs

Vascular plants

(60) *Ammannia coccinea* Rottb. (Lythraceae)

Republic of Macedonia, Eastern region, Municipality of Kočani (Кочани), Kočansko pole, between villages Češimovo and Kučičino; in rice-field, 41.85835° N, 22.29301° E, 298 m; leg. Z. Barina, G. Puskás & L. Somay, 21.09.2009, Nr. 16279 & 16281.

Albania, Lezhë County, Kallmet i Vogël; in the bed of the reservoir of Kallmet i Vogël, 41.857677° N, 19.685581° E, 37 m; leg. Z. Barina, Z. Nemcsok & A. Rigó, 13.09.2017, Nr. 35168.

Albania, Lezhë County, Troshan; in the bed of the reservoir of Troshan, 41.883729° N, 19.669483° E, 19 m; leg. Z. Barina, Z. Nemcsok & A. Rigó, 13.09.2017, Nr. 35170.

Neotropical species, similarly to its congeners, occurs as an alien Europe, predominantly in rice-fields (RAUS 1997). In the Balkans, it is naturalised in NE Greece (RAUS 1997), but so far missing or overlooked in Bulgaria (ASSYOV and PETROVA 2006) and in other countries.

When collected, it was found to be a rare element of rice-fields in Macedonia, likely more widely distributed there. Rice-cultivation was declined and ceased in the 1950's in Albania. In the long lasting drought of 2017, when large plots of mud vegetation come into being in the water reservoirs over the country, a few specimens of the plant turned on the mud surfaces of two reservoirs in N Albania. Because of the similar habitats along the shore of Shkodra Lake, the species may be discovered also there.

Z. Barina, Z. Nemcsok & A. Rigó

(61) *Atriplex micrantha* C. A. Mey. in Ledeb. (Chenopodiaceae)

Hungary, Győr-Moson-Sopron County, Börcs, highway M1, “Börcsi pihenő” resting place, direction of Budapest, 47.70623° N, 17.48853° E, 111 m; leg. G. Király, 25.09.2013 (8270.4); – Győr, highway M1, “Arrabona pihenő” resting place, direction of Budapest, 47.63296° N, 17.66340° E, 113 m; leg. G. Király & R. Diran, 07.08.2015 and G. Király & M. Hohla, 27.09.2015 (8371.4); – Ikrény, 2.3 km NE of the village, junction of the highway M1 (direction of Sopron), 47.67667° N, 17.54842° E, 121 m; leg. G. Király, BP, 25.09.2013 and G. Király & M. Hohla, 27.09.2015 (8371.1); – Károlyháza, 1.6 km SW of the village, resting place of the highway M1 (direction of Budapest), 47.78929° N, 17.32872° E, 114 m; leg. G. Király & M. Hohla, 27.09.2015 (8269.2); – Mosonmagyaróvár, highway M1, “Lajta pihenő” resting place, direction of Budapest, 47.84415° N, 17.25801° E, 116 m; leg. G. Király, BP, LI, 25.09.2013 (8169.4); – Mosonmagyaróvár, highway M1, “Mosoni pihenő” resting place, direction of Budapest, 47.87181° N, 17.21446° E, 121 m; leg. G. Király, 25.09.2013 and G. Király & M. Hohla, 27.09.2015 (8169.1); – Rábapatona, 0.5 km N of the village, on the bridge of the junction of motorway M85, 47.65322° N, 17.45947° E, 112 m; leg. G. Király & M. Hohla, 27.09.2015 (8370.2).

Atriplex micrantha (often synonymized with *A. heterosperma* Bunge) is similar to the native *A. sagittata* Borkh., and it can be distinguished only in flowering or fruiting stage, by having all female flowers alike, with seeds enclosed by a pair of bracteoles (*A. sagittata* has two different types of female flowers). Other characters (e.g. the typically reddish colour of plants or the vertical position of

the leaves) can help in finding potential stands or specimens of *A. micrantha*, however, flowers or fruits are needed for the certain identification (for details see HOHLA and MELZER 2003, SUCHORUKOW 2007, VERLOOVE 2017).

Atriplex micrantha is native to the steppe and forest steppe areas of eastern Europe and Central Asia, with western outposts in Moldavia and Bulgaria, originally occurring in river banks and shores of saline lakes (ASSYOV and PETROVA 2006, ZHU *et al.* 2003, SUCHORUKOW 2007). It was introduced (as a rare wool or cotton alien) in several regions of Western Europe and North America in the first decades of the 20th century (CLEMENT and FOSTER 1994, WELSH 2003, VERLOOVE 2006, WEICHERDING 2007). After the 1970s it became an invader along Central European highways, its invasion started probably from Germany (GRIESE 1998), later it reached also Austria (MELZER 1986, HOHLA and MELZER 2003), the Czech Republic (KOCIÁN 2014) and Slovakia (HODÁLOVÁ *et al.* 2016).

Atriplex micrantha has not yet been reported from Hungary, albeit SOÓ (1970) mentioned “*A. heterosperma* Bunge” in the synonymy of *A. hortensis* L., and “*A. microcarpum* Kar. et. Kir. ex Ledeb.” in the synonymy of *A. sagittata*; however, his nomenclatural standpoint is rather unclear, and he neither has given Hungarian localities for these names. The newly found stands in Hungary are certainly originated from Austria (and maybe also from Slovakia) due to the preparation of continuous network of the motorway lines. Along the highway M1 this species has already strong populations in the surroundings of Győr, in open disturbed habitats (parking places, roadsides, quite often in the central strip of motorways). Its further spread alongside the highway M1 in direction of Budapest, and later to other regions with warmer climatic conditions (e.g. Great Hungarian Plain and southern Transdanubia) along the highways M3, M5 and M7 is expected.

G. Király & M. Hohla

(62) *Carex pilulifera* L. (Cyperaceae)

Hungary, Zemplén Mts, Regéc: Gyertyán-kúti-rétek: 1) Junco-Molinion fen-meadow, 48.43800° N, 21.36461° E, 675 m, one seed germinated from soil sample; 2) Cirsio pannonicae-Brachypodium pinnati dry-mesophilous grassland, 48.43558° N, 21.36969° E, 705 m; 48.43778° N, 21.36617° E, 685 m; 48.43781° N, 21.36600° E, 680 m, 16 seeds germinated from soil samples; leg. (drilling, sample concentration, germination, cultivation): P. Török, O. Valkó 04.2008, det. (cultivated specimens): G. Matus, 04.2009 [7594.3].

Hungary, Zemplén Mts, Nagyhuta: Komlósi-völgy (Komlóska-völgy) “upper fen-meadow” (opposite to the opening of Nyírjes-völgy) (77RL), *Calluna-Nardus* grassland: 1) [48.42196° N, 21.46866° E, 230 m]; leg. et det. V. G. Papp 1996; 2) leg. et det. G. Pelles, 02.06.1997, BP618473; 3) leg. et det. G. Pelles, 15.05.2003, 15.05.2003 [7594.4].

Naghuta: Komlósi-völgy, “lower fen meadow”, *Nardus* grassland, 210 m; leg. et det. G. Pelles, 02.07.1997 [7594.4].

Hungary, Zemplén Mts, Nagyhuta: Császár-völgy, *Calluna* grassland invaded by young *Betula pendula* trees, ca 250–300 m; leg. et det. G. Pelles, 08.06.1998 [7594.4].

Hungary, Zemplén Mts, Nagyhuta: Kékszűrő, *Nardus* grassland in mountain meadow, 48.39391° N, 21.50739° E; ca 415 m; leg. et det. G. Pelles, 11.06.2009 [7695.1].

Hungary, Zemplén Mts, Kishuta: Lengyel-bérc – Gilevár (5/B, 5/C), *Calluna* heath invaded by young *Betula pendula* trees, ca 400 m; leg. et det. G. Pelles, 12.06.1997, BP618380 [7594.4].

Hungary, Zemplén Mts, Kishuta: Kemencepatak-völgy (20/TI), dry parts in fen-meadow, 180 m; leg. et det. G. Pelles, 02.07.1997 [7594.2].

Hungary, Zemplén Mts, Háromhuta: Soltész-hegy (60/ÚT, 60/H), road verge at edge of beech forest, 540 m; leg. et det. G. Pelles, 04.06.2002 [7594.4].

Hungary, Zemplén Mts, Füzér: Nagy-almás-rét, *Nardus* dominated spot in mountain meadow, 48.58011° N, 21.42716° E, 585 m; leg. et det. G. Pelles, 31.05.2011 [7494.2].

Hungary, Zemplén Mts, Telkibánya: Csöcs-völgy – Gúnya-kút, in mountain meadow, ca 300 m; leg. et det. G. Pelles, 01.05.2013 [7594.1].

[7594.4]

Aggtelek Mts, Szuhafő (near Aggtelek): Hármashatár (11/C forest subcompartment), vegetation, turkey oak-sessile oak forest, 48.44707° N, 20.46855° E, 360 m; leg. et det. V. Virók, 13.05.2006 [7588.4], Nr. DE-Soo-39645.

Bükk Mts, Répáshuta: Lapos-ágy, (19/TI forest lot), edge of hay-making meadow, 48.03031° N, 20.53464° E, 450 m; leg. et det. V. G. Papp & G. Pelles, 13.06.2013 [7989.3].

Pill sedge has a European distribution area stretching from the Macaronesian Islands, Northern Spain, Corsica, north of Italy, and the Balkans to Scandinavia and Iceland (MEUSEL *et al.* 1965, CHATER 2010, JERMY *et al.* 2007). It grows on soils developing on acidic substrates characterised by a pH of 4.5 to 6.0 (<https://www.gbif.org/species/113641445>). Various *Pinus sylvestris* forests (Pino-Quercion, Festuceto-Pinion), *Callunetum* heathlands (Calluno-Genistion), acidophilous oakwoods as well as *Nardus* grasslands and fen-meadows are mentioned among habitats in Hungary (SOÓ 1973, SIMON 1992, BORHIDI 1995). In the Czech Republic it is known to occur in the following plant communities: *Thesio alpini-Nardetum strictae*, *Nardo strictae-Agrostion tenuis*, *Sileno vulgaris-Nardetum strictae*, *Festuco capillatae-Nardetum strictae* (<http://botany.cz/cs/Carex-pilulifera>). The pill sedge is a myrmecochorous species, in Sweden it is known to be dispersed by *Myrmica ruginodis* (KJELLSSON 1985), an ant species also widespread in Hungary (TARTALLY 2008, RADCHENKO and ELMES 2010).

The recent floristic works and the Hungarian flora atlas report its limited distribution in the country, with most records from the Western Transdanubia (Sopron Mts, Kőszeg Mts, Őrség) (KIRÁLY and KIRÁLY 1999, BARTHA *et al.* 2015). Part of old, partly dubious records from the Transdanubian Mountain Range (Buda), the Hanság region (Csorna; ZÓLYOMI 1932) or the Great Hungarian Plain (Hódmezővásárhely; SOÓ 1973) remained unconfirmed. Others, like those from Esztergom (BAUER and BARNÁ 1999) or the Keszthely Mts have been rediscovered, while new records from the Visegrád Mts and the Bakony Mts are also reported (KIRÁLY 2009). Conservational status of this rare sedge was formerly classified as near threatened (NÉMETH 1989) but later has been downgraded to “not threatened” (KIRÁLY 2007).

Till now the only apparent record from the North Hungarian Mountain Range was that of HAZSLINSZKY (1866) who mentioned it from the “southern part of Zemplén Mts”. The source of this could be an undated *C. pilulifera* sheet of Hazslinszky (BP 609944) from “Mihalko, Zemplén” (formerly also mentioned as “Miháلكó”, while recently called as “Michalok” (48.9920° N, 21.6322° E). This village is located in the northern part of the former Zemplén County but falls out of the Zemplén Mts. This record has been last cited by KISS (1939), but later on as the location does not belong to Hungary any longer Hungarian herbals did not mention it (SOÓ and KÁRPÁTI 1968, SOÓ 1973, SIMON 2001). KIRÁLY (2009) cites *C. pilulifera* as a rare species in the Zemplén Mts without discussing its data source. Our records proved the occurrence of pill sedge in three parts of the North Hungarian Mountain Range, namely in the Zemplén Mts, Aggtelek Mts, and Bükk Mts, respectively. New data suggest a significant vertical distribution range (180–705 m) covering various habitats corresponding with literature data.

Ecological preference of the species has been given as T5, W4, R3, N5, L6, K2, S0 (ELLENBERG *et al.* 1991, BORHIDI 1995). Seed bank analysis was also proven as a useful method to detect rare species with long-term persistent seeds. Seed bank sampling and germination followed the protocol of ter HEERDT *et al.* (1996).

In the xero-mesophilous grassland nine seedlings emerged from the 0–5 cm soil layer and seven from the 5–10 cm one forming 1.01% and 2.65% of the germinated seed population of these vertical segments, respectively. Its absence from the aboveground vegetation and relatively dense seed bank in the deeper soil layers indicate a long-term persistent seed bank (THOMPSON *et al.* 1997). Our finding corresponds with that of GRANSTRÖM (1998) who calculated from >25 to >68 years of seed longevity. Seed mass has been measured on Debrecen Botanical Garden plants grown from Regéc soil samples (TÖRÖK *et al.* 2013).

G. Matus, P. Török, O. Valkó, G. Pelles, V. G. Papp & V. Virók

(63) *Chenopodium pumilio* R. Br. (Amaranthaceae)

Albania, Korçë County, Shqitas; in the bed of the reservoir of Shqitas, 40.812698° N, 20.710545° E, 904 m; leg. Z. Barina, Z. Nemcsok & A. Rigó, 08.09.2017, Nr. 35127.

Albania, Korçë County, Baban; in the bed of the reservoir of Baban, 40.627981° N, 20.921196° E, 891 m; leg. Z. Barina, Z. Nemcsok & A. Rigó, 08.09.2017, Nr. 35133.

Albania, Gjirokaštër County, Vrisherë; in the bed of the reservoir Liqeni i Vrisherës, 39.890747° N, 20.336605° E, 301 m; leg. Z. Barina, Z. Nemcsok & A. Rigó, 10.09.2017, Nr. 35149.

Albania, Gjirokaštër County, Andon Poçi; in the bed of the reservoir of Andon Poçi, 40.177256° N, 20.104504° E, 188 m; leg. Z. Barina, Z. Nemcsok & A. Rigó, 10.09.2017, observed.

Albania, Gjirokaštër County, Humelicë; in the bed of the reservoir N of Humelicë, 40.185652° N, 20.073275° E, 194 m; leg. Z. Barina, Z. Nemcsok & A. Rigó, 10.09.2017, observed.

This species is a neophyte in Europe with Australian origin, present in more European countries and sometimes regarded to be naturalised. In the Balkans,

it is reported from Serbia (BOGOSAVLJEVIĆ and ZLATKOVIĆ 2017) and Greece, first with unknown naturalisation status (ARIANOUSOU *et al.* 2010), later reported from many regions of the country (DIMOPOULOS *et al.* 2013).

Owing to the drought of 2017 in Albania, the species appeared on the open rocky and mud surfaces of altogether 5 water reservoirs. In some cases, this was one of the dominant plants covering 1–2% of the total area of the reservoirs (at Vrisera and Humelicë). Though *Chenopodium pumilio* is a terrestrial plant of dry habitats and its localities reported here are normally water flooded, considering the abundance of the specimens and the five distant localities, we still regard the species naturalised in Albania.

It is a new, naturalised alien for the flora of Albania.

Z. Barina, Z. Nemcsok & A. Rigó

(64) *Elodea nuttallii* (Planch.) H. St. John (Hydrocharitaceae)

Albania, Shkodër County; in Shkodra Lake from Shirokë to the outflow of Buna River, 42.05861° N, 19.46000° E, abundant in shallow water; leg. Attila Mesterházy, 13.09.2017, in the private herbarium of the collector.

Elodea canadensis has been long known in Europe and Albania. Recently, the replacement of this species by *E. nuttallii* is being observed in many countries (SIMPSON 1990), BARRAT-SEGRETAIN 2001, KOČIĆ *et al.* 2014). *E. nuttallii* has been reported along the water catchment area of River Danube including Croatia and Serbia, but so far unknown in the territory of the Balkan Peninsula.

The turn up of the species in the Shkodra Lake, in a new water body means a new step in the spread of the species in Europe. It is a new naturalised alien in Albania.

A. Mesterházy

(65) *Lindernia procumbens* (Krock.) Philcox (Linderniaceae)

Albania, Shkodër County, Gruemirë-Çesme; in the bed of the reservoir of Rezervuari i Gruemirë Çesmës, 42.186927° N, 19.463085° E, 27 m; leg. Z. Barina, A. Mesterházy, Z. Nemcsok & A. Rigó, 14.09.2017, Nr. 35177.

Albania, Shkodër County, in Shkodra Lake at Shirokë 42.05833° N, 19.46138° E; rare in mud vegetation; leg. A. Mesterházy, 13.09.2017, in the private herbarium of the collector.

This Central and Eastern European species is very rare in the Balkans. It is known in the North Central and North East regions of Greece (DIMOPOULOS *et al.* 2013), and is rather sporadic in Serbia (TOMOVIĆ *et al.* 2007).

This new native species for the flora of Albania was found to be very rare (a few specimens) both at the Shkodra Lake and in the close water reservoir.

A. Mesterházy, Z. Nemcsok, A. Rigó & Z. Barina

(66) *Paspalum dilatatum* Poir. (Poaceae)

Albania, Tiranë County, Tirana Airport; in lawn, 41.421008° N, 19.711775° E, 49 m; leg. Z. Barina, Z. Nemcsok & A. Rigó, 12.09.2017, Nr. 35165.

This South American species is a neophyte in Europe. In Montenegro it occurs in coastal grasslands, ruderal vegetation and olive groves (ILIJANIĆ and TOPIĆ 1986). It is an invasive species in Greece (ARIANOUTSOU *et al.* 2010) and Croatia (BORŠIĆ *et al.* 2008).

It is a (mono)dominant grass in the artificial lawns in and around the airport and has not been observed in adjacent natural habitats, so far. It is a new alien for the flora of Albania.

Z. Barina, Z. Nemcsok & A. Rigó

(67) *Potamogeton ×angustifolius* J. Presl. (= *P. gramineus* L. × *P. lucens* L.)

Albania, Shkodër County, Shkodra Lake, observed from Shirokë to Shtoj; leg.: A. Mesterházy, 13.09.2017, in the private herbarium of A. Mesterházy.

This relatively frequent hybrid recorded for many countries in Europe (KAPLAN 2013) may occupy ecological niches not accessible for parental species (ZALEWSKA-GAŁOSZ *et al.* 2010). It produces fertile seeds and can spread without its parents (KAPLAN 2010).

In the Shkodra Lake it is not rare in the inner parts, in 20–50 cm deep water (but missing at the outflow of Buna River and in the close surroundings of Shkodër) and constitutes independent stands. Its parents are also present nearby, however, *P. gramineus* only with scattered specimens. It has been already reported from Montenegro (presumably in the Montenegrin part of Shkodra Lake, KAPLAN 2010), and it is new for the flora of Albania.

A. Mesterházy

(68) *Potamogeton lucens* L. (Potamogetonaceae)

Albania, Shkodër County, Syri i Sheganit, c. 2 km W of village Premal, at the shore of Shkodra Lake; leg. A. Mesterházy, Z. Barina, M. Rakaj, A. Rigó & Z. Nemcsok. in the private herbarium of A. Mesterházy

This species is rather scattered in Albania (Barina 2017). Though in the reported population specimens both with sessile and shortly petiolate leaves occur, due to the acute and cuspidate leaves, the population can be identified clearly as *P. lucens*. Plants, collected here (BP 18324) and reported as *P. praelongus* (BARINA *et al.* 2011, MESTERHÁZY and BARINA 2017) also proved to be *P. lucens*. Consequently, *P. praelongus* has been reported erroneously from the Albanian flora.

A. Mesterházy & Z. Barina

(69) *Potamogeton pusillus* L. (Potamogetonaceae)

Albania, Shkodër County, in Shkodra Lake at Bishti i Qënisë (near Dobraq), 42.09194° N, 19.46000° E; leg. A. Mesterházy, 13.09.2017; in the private herbarium of the collector.

Albania, Shkodër County; in the outflow of Syri i Sheganit near Bajzë, 42.27389° N, 19.39444° E; leg. A. Mesterházy, Z. Barina, M. Rakaj, A. Rigó & Z. Nemcsok, in the private herbarium of A. Mesterházy.

The related *Potamogeton berchtoldii* Fieber is widely known in Albania. *P. pusillus* was reported from the Ohrid, Prespa and Shkodra Lakes. The reports of SCHÜTT (ined., PAPANISTO and QOSJA (1981), IMERI *et al.* (2008) and DHORA and RAKAJ (2010) are unvouchered, while the voucher specimens of JÁVORKA (1926) were identified by Z. Kaplan as *P. berchtoldii*. Treating the above reports as *P. pusillus* auct. and as a synonym of *P. berchtoldii*, TUTIN *et al.* (1980) regarded *P. pusillus* L. as missing in Albania. Considering that the only vouchers of “*P. pusillus*” (BP456146, BP264911, BP264912, BP4204, BP4205, BP4206) were all identified by Z. Kaplan as *P. berchtoldii*, MESTERHÁZY and BARINA (2017) followed the above treatment and regarded *P. pusillus* as missing in Albania.

This new record is the only report confirming the occurrence of *P. pusillus* L. in Albania.

A. Mesterházy

(70) *Verbena supina* L. (Verbenaceae)

Albania, Gjirokastrë County, Bulo; in the bed of the reservoir Rezervari i Bulos, 40.046439° N, 20.239797° E, 222 m; leg. Z. Barina, Z. Nemcsok & A. Rigó, 10.09.2017, Nr. 35143a.

It is distributed from the Mediterranean areas to Central Africa and Central Asia and an adventive in Australia (KERESZTY 2004).

Scattered specimens were found in the large and almost flat dry bed of a water reservoir in S Albania. It is a new native species for the flora of Albania.

Z. Barina, Z. Nemcsok & A. Rigó

Acknowledgements – Work of Péter Szűcs was supported by the ÚNKP-17-4 New National Excellence Program of the Ministry of Human Capacities. The study of G. Király was supported by the project “Agrárklíma.2 VKSZ-12-1-2013-0034”.

Összefoglaló: Jelen közleményünk a korábban megkezdett, regionális jelentőségű előfordulásokat és nevezéktani megjegyzéseket tartalmazó sorozat negyedik része. Ebben a részben egy mohafaj és tíz virágos növényfaj adatait ismertettjük.

Közülük egy behurcolt faj (*Ammannia coccinea*) új Macedónia területére, egy Magyarország területére (*Atriplex micrantha*), hat faj pedig Albánia területére. Utóbbiak közül 4 faj (*Ammannia coccinea*, *Chenopodium pumilio*, *Elodea nuttallii*, *Paspalum dilatatum*) behurcolt 3 (*Lindernia procumbens*, *Verbena supina*) pedig őshonos, további egy hibrid (*Potamogeton ×angustifolius*) pe-

dig szintén őshonos. Kimutattuk, hogy Albánia területéről egy faj (*Potamogeton praelongus*) korábban tévesen került jelzésre, illetve egy másik békaszőlő-faj (*Potamogeton pusillus*) első biztos adatát közöljük az országból. Egy mohafajt (*Ptilium crista-castrensis*) jelzünk újonnan a Dél-Nyírség területéről, az eperjes sást (*Carex pilulifera*) pedig az Aggteleki-karszt, a Bükk és a Zempléni-hegység területéről.

REFERENCES

- ARIANOUTSOU, M., BAZOS, I., DELIPETROU, P. and KOKKORIS, Y. (2010): The alien flora of Greece: taxonomy, life traits and habitat preferences. – *Biol. Invasions* 12(10): 3525–3549. <http://dx.doi.org/10.1007/s10530-010-9749-0>
- ASSYOV, B. and PETROVA, A. (2006): *Conspectus of the Bulgarian vascular flora*. – Bulgaria Biodiversity Foundation, Sofia, 453 pp.
- BARINA, Z. (ed.) (2017): *Distribution atlas of vascular plants in Albania*. – Hungarian Natural History Museum, Budapest, 492 pp.
- BARINA, Z., PIFKÓ, D. and MESTERHÁZY, A. (2011): Contributions to the flora of Albania, 3. – *Willdenowia* 41: 329–339. <http://dx.doi.org/10.3372/wi.41.41214>
- BARRAT-SEGRETAIN, M. H. (2001): Invasive species in the Rhône River floodplain (France): replacement of *Elodea canadensis* Michaux by *E. nuttallii* St. John in two former river channels. – *Arch. f. Hydrobiol.* 152(2): 237–251.
- BARTHA, D., KIRÁLY, G., SCHMIDT, D., TIBORCZ, V., BARINA, Z., CSIKY, J., JAKAB, G., LESKU, B., SCHMOTZER, A., VIDÉKI, R., VOJTKÓ, A. and ZÓLYOMI, Sz. (eds) (2015): *Distribution atlas of vascular plants of Hungary*. – Nyugat-magyarországi Egyetem Kiadó, Sopron, 330 pp.
- BAUER, N. and BARNA, J. (1999): *Dorog és Esztergom környékének növényvilága*. – Bakonyi Természettudományi Múzeum, Zirc, 79 pp.
- BOGOSAVLJEVIĆ, S. and ZLATKOVIĆ, B. (2017): *Dysphania pumilio* (R. Br.) Mosyakin & Clemants (Amaranthaceae), a new allochthonous species in the flora of Serbia. – *Botanica Serbica* 41(1): 83–87.
- BORHIDI, A. (1995): Social behaviour types, the naturalness and relative ecological indicator values of the higher plants in the Hungarian flora. – *Acta Bot. Hung.* 39(1–2): 97–181.
- BOROS, Á. (1968): *Bryogeographie und Bryoflora Ungarns*. – Akadémiai Kiadó, Budapest, 466 pp.
- BORŠIĆ, I., MILOVIĆ, M., DUJMOVIĆ, I., BOGDANOVIĆ, S., CIGIĆ, P., REŠETNIK, I., NIKOLIĆ, T. and MITIĆ, B. (2008): Preliminary check-list of invasive alien plant species (IAS) in Croatia. – *Natura Croatica* 17(2): 55–71.
- CHATER, A. O. (2010): *Carex*. – In: TUTIN, T. G., HEYWOOD, V. H., BURGESS, N. A., WEBB, D. A. and RICHARDSON, I. B. K. (eds): *Flora Europaea*. 5. Alismataceae to Orchidaceae. Cambridge University Press, Cambridge, pp. 290–323.
- CLEMENT, E. J. and FOSTER, M. C. (1994): *Alien plants of the British Isles*. – Botanical Society of the British Isles, London, 590 pp.
- DHORA, D. and RAKAJ, M. (2010): *Lista e specieve të bimëve dhe kafshëve të liqenit të Shkodrës. List of plant and animal species of Shkodra Lake*. – Botimet, Camaj-Pipa, 95 pp.
- DIMOPOULOS, P., RAUS, TH., BERGMEIER, E., CONSTANTINIDIS, TH., IATROU, G., KOKKINI, S., STRID, A. and TZANOUDAKIS, D. (2013): Vascular plants of Greece. An annotated checklist. – *Englera* 31: 1–372. <https://doi.org/10.3372/wi.46.46303>
- ELLENBERG, H., WEBER, H. E., DÜLL, R., WIRTH, W., WERNER, W. and PAULISSEN, D. (1991): *Zeigerwerte von Pflanzen in Mitteleuropa*. – Scripta Geobotanica 18. Goltze Verlag, Göttingen, 248 pp.

- GRANSTRÖM, A. (1998): Seed banks at six open and afforested heathland sites in southern Sweden. – *J. Appl. Ecol.* **25**: 297–306. <https://doi.org/10.2307/2403627>
- GRIESE, D. (1998): Die viatische Migration einiger neophytischer Pflanzensippen am Beispiel norddeutscher Autobahnen. – *Braunschw. Geobot. Arb.* **5**: 263–270.
- HAZSLINSZKY, F. (1866): A Tokaj-Hegyalja viránya. – *Math. Term. Közlem.* **4**: 105–143.
- ter HEERDT, G. N. J., VERWEIJ, G. L., BEKKER, R. M. and BAKKER, J. P. (1996): An improved method for seed bank analysis: seedling emergence after removing the soil by sieving. – *Funct. Ecol.* **10**: 144–151. <https://doi.org/10.2307/2390273>
- HODÁLOVÁ, I., FERÁKOVÁ, V., ZALIBEROVÁ, M. and MEREĎA, P. (2016): *Atriplex L.* – In: GOLI-AŠOVÁ, K. and MICHÁLKOVÁ, E. (eds): *Flóra Slovenska*, Vol. 6/4. VEDA, Bratislava, pp. 307–350.
- HOHLA, M. and MELZER, H. (2003): Floristisches von den Autobahnen der Bundesländer Salzburg, Oberösterreich, Niederösterreich und Burgenland. – *Linzer biol. Beitr.* **35**: 1307–1326.
- ILIJANIĆ, L. and TOPIĆ, J. (1986): *Paspalum dilatatum* Poirlet, a new adventitious plant in the flora of Yugoslavia. – *Acta Bot. Croat.* **45**: 141–144.
- IMERI, A. MULLAJ, A., GJETA, E., KALAJNXHIU, A., KUPE, L., SHEHU, J. and DODONA, E. (2008): Preliminary results from the study of flora and vegetation of Ohrid Lake. – *Natura Montenegro* **9**(3): 253–264.
- JAKAB, G. (1997a): Egy újabb ósláp a Nyírségben: a piricsei Júlia-liget botanikai értékei II. (Mohák-Bryophyta). – *Kitaibelia* **2**: 46–50.
- JAKAB, G. (1997b): A Nyírség mohaflórája I. – *Kitaibelia* **2**(2): 148–159.
- JÁVORKA, S. (1926): Adatok Albánia flórájához. (Additamenta ad floram Albaniae). – *A Magyar Tud. Akad. Balkán-kutatásainak tud. eredményei* **3**: 219–346.
- JERMY, A. C., SIMPSON, D. A., FOLEY, M. J. Y. and PORTER, M. S. (2007): *Carex pilulifera L.* – In: JERMY, A. C., SIMPSON, D. A., FOLEY, M. J. Y. and PORTER, M. S. (eds): *Sedges of the British Isles*. BSBI Handbook No. 1 (3rd ed.). Botanical Society of the British Isles, pp. 431–433.
- KAPLAN, Z. (2010): Hybridization of Potamogeton species in the Czech Republic: diversity, distribution, temporal trends and habitat preferences. – *Preslia* **82**: 261–287.
- KAPLAN, Z. (2013): Revision of chromosome numbers of Potamogetonaceae: a new basis for taxonomic and evolutionary implications. – *Preslia* **85**: 421–482.
- KERESZTY, Z. (2004): Taxonómiai vizsgálatok a *Verbena officinalis L.* és a *Verbena supina L.* alakörben. – *Bot. Közlem.* **91**(1–2): 87–107.
- KIRÁLY, G. (ed.) (2007): *Red list of the vascular flora of Hungary*. – Private edition of the Authors, Lővér Print, Sopron, 73 pp.
- KIRÁLY, G. (ed.) (2009): *Új magyar fűvészkönyv. Magyarország hajtásos növényei. Határozókulcsok*. – Aggteleki Nemzeti Park Igazgatóság, Jósavafő, 616 pp.
- KIRÁLY, G. and KIRÁLY, A. (1999): Adatok és kiegészítések a magyar flóra ismeretéhez. – *Kitaibelia* **4**(2): 229–246.
- KISS, Á. (1939): Adatok a Hegyalja flórájából. – *Bot. Közlem.* **36**: 181–278.
- KJELLSSON, G. (1985): Seed fate in a population of *Carex pilulifera L.* I. Seed dispersal and ant-seed mutualism. – *Oecologia (Berlin)* **67**: 416–423. <https://doi.org/10.1007/bf00384949>
- KOCIÁN, P. (2014): Nezpozorované a rýchle šírení lebedy rúznosemenné (*Atriplex micrantha*) a omanu smradlavého (*Dittrichia graveolens*) na dálnicích Moravy a Slezska (Česká republika). – *Acta Mus. Beskid.* **6**: 27–47.
- KOČIĆ, A., HORVATIĆ, J. and JELASKA, S. D. (2014): Distribution and morphological variations of invasive macrophytes *Elodea nuttallii* (Planch.) H. St. John and *Elodea canadensis* Michx in Croatia. – *Acta Bot. Croat.* **73**(2): 437–446. <https://doi.org/10.2478/botcro-2014-0011>

- MELZER, H. (1986): Notizen zur Flora des Burgenlandes, von Nieder- und Oberösterreich. – *Verh. zool.-bot. Gesell. Österreich* **124**: 81–92.
- MESTERHÁZY, A. and BARINA, Z. (2017): *Potamogeton*. – In: BARINA, Z. (ed.): Distribution atlas of vascular plants in Albania. Hungarian Natural History Museum, Budapest, pp. 386–387.
- MEUSEL, H., JÄGER, E., and WEINERT, E. (1965): *Vergleichende Chorologie der zentraleuropäischen Flora*. Vols 1, 2. – Gustav Fischer Verlag, Jena, 583 + 258 pp.
- NÉMETH, F. (1989): *Száras növények*. [Vascular plants]. – In: RAKONCZAY, Z. (ed.): Vörös Könyv. A Magyarországon kipusztult és veszélyeztetett állat- és növényfajok. Akadémiai Kiadó, Budapest, pp. 265–325.
- PAPARISTO, K. and QOSJA, XH. (1981): Kontribut për florën e RPS të shqipërisë. – *Buletin i Shkencave të Natyrës* **35**(4): 53–57.
- PAPP, B., ERZBERGER, P., ÓDOR, P., HOCK, Zs., SZÖVÉNYI, P., SZURDOKI, E. and TÓTH, Z. (2010): Updated checklist and red list of Hungarian bryophytes. – *Studia bot. hung.* **41**: 31–59.
- RADCHENKO, A. and ELMES, G. W. (2010): *Myrmica ants (Hymenoptera: Formicidae) of the old world*. – Natura optima dux Foundation, Warsaw, 789 pp.
- RAUS, TH. (1997): *Ammannia* (Lythraceae) in Greece and the Balkans. – *Lagascalia* **19**(1–2): 851–856.
- SIMON, T. (2001): *A magyarországi edényes flóra határozója. Harasztok–virágos növények*. – Nemzeti Tankönyvkiadó, Budapest, 846 pp.
- SIMPSON, D. A. (1990): Displacement of *Elodea canadensis* Michx by *Elodea nuttallii* (Planch.) H. St John in the British Isles. – *Watsonia* **18**: 173–177.
- SOÓ, R. (1970): *A magyar flóra és vegetáció rendszertani-növényföldrajzi kézikönyve IV*. – Akadémiai Kiadó, Budapest, 614 pp.
- SOÓ, R. (1973): *Synopsis systematico-geobotanica florae vegetationisque Hungariae V*. – Akadémiai Kiadó, Budapest, 724 pp.
- SOÓ, R. and KÁRPÁTI, Z. (1968): *Növényhatározó. Harasztok–virágos növények*. – Tankönyvkiadó, Budapest, 729 pp.
- SUCHORUKOW, A. P. (2007): Zur Systematik und Chorologie der in Russland und den benachbarten Staaten (in den Grenzen der ehemaligen USSR) vorkommenden *Atriplex*-Arten (*Chenopodiaceae*). – *Ann. Naturhist. Mus. Wien* **108B**: 307–420.
- SZÜCS, P. (2007): Mohaflorisztikai vizsgálatok az Őrség területén. – *Praenorica Folia Hist.-Nat.* **11**: 13–48.
- TAKÁCS, A., BARÁTH, K., CSIKY, J., CSIKYNÉ, R. É., KIRÁLY, G., NAGY, T., PAPP, V., SCHMIDT, D., TAMÁSI, B. and 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>
- TARTALLY, A. (2008): *Myrmecophily of Maculinea butterflies in the Carpathian Basin (Lepidoptera: Lycaenidae)*. – Manuscript, PhD Theses, University of Debrecen, Debrecen, Hungary, 237 pp.
- The Plant List (2013): Version 1.1. – Published on the Internet, <http://www.theplantlist.org/> [accessed on 07 November 2017]
- 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 05 November 2017]
- THOMPSON, K., BAKKER, J. and BEKKER, R. (1997): *The soil seed banks of North West Europe: methodology, density and longevity*. – Cambridge University Press, Cambridge, 276 pp.
- TOMOVIĆ, G., VUKOJIČIĆ, S., NIKETIĆ, M. and LAKUŠIĆ, D. (2007): New chorological data on some threatened and rare plants in Serbia. – *Arch. Biol. Sci., Belgrade* **59**(1): 63–73. <https://doi.org/10.2298/abs0701063t>

- TÖRÖK, P., MIGLÉCZ, T., VALKÓ, O., TÓTH, K., KELEMEN, A., ALBERT, Á., MATUS, G., MOLNÁR, V. A., RUPRECHT, E., PAPP, L., DEÁK, B., HORVÁTH, O., TAKÁCS, A., HÜSE, B. and TÓTHMÉRÉSZ, B. (2013): New thousand-seed weight records of the Pannonian flora and their application in analysing social behaviour types. – *Acta Bot. Hung.* **55**(3–4): 429–472. <https://doi.org/10.1556/abot.55.2013.3-4.17>
- TUTIN, T. G., HEYWOOD, V. H., BURGESS, N. A., MOORE, D. M., VALENTINE, D. H., WALTERS, S. M. and WEBB, D. A. (1980): *Flora Europaea Vol. 5*. – Cambridge University Press, Cambridge, 452 pp.
- VALKÓ, O., TÖRÖK, P., VIDA, E., ARANY, I., TÓTHMÉRÉSZ, B. and MATUS, G. (2009): The role of soil seed banks in restoration of two hay meadows. – *Term.véd. Közlem.* **15**: 147–159.
- VALKÓ, O., TÖRÖK, P., TÓTHMÉRÉSZ, B. and MATUS, G. (2011): Restoration potential in seed banks of acidic fen and dry-mesophilous meadows: can restoration be based on local seed banks? – *Restoration Ecol.* **19**(101): 9–15. <https://doi.org/10.1556/abot.55.2013.3-4.17>
- VERLOOVE, F. (2006): *Atriplex micrantha*, een nieuwe neofyt langs belangrijke verkeerswegen in België. – *Dumortiera* **88**: 15–20.
- VERLOOVE, F. (2017): *Atriplex. Manual of the alien plants of Belgium*. – Botanic Garden of Meise, Belgium. alienplantsbelgium.be [accessed on 05 November 2017]
- WEICHERDING, F.-J. (2007): Zur Verbreitung und Soziologie der adventiven Melden *Atriplex micrantha* Ledeb. (Verschiedensamige Melde), *Atriplex sagittata* Borkh. (Glanz-Melde) und *Atriplex oblongifolia* Waldst. et Kit. (Langblättrige Melde) (Chenopodiaceae) im Saarland und in angrenzenden Gebieten. – *Abh. Delattinia* **33**: 117–139.
- WELSH, S. L. (2003): *Atriplex heterosperma* Bunge. – In: Flora of North America Editorial Committee (eds): *Flora of North America North of Mexico*. Vol. 4. Oxford University Press, New York, etc., p. 336.
- ZALEWSKA-GAŁOŚZ, J., RONIĘK, J. and KAPLAN, Z. (2010): Discovery of a new, recurrently formed *Potamogeton* hybrid in Europe and Africa: molecular evidence and morphological comparison of different clones. – *Taxon* **59**(2): 559–566.
- ZHU, G., MOSYAKIN, S. L. and CLEMANTS, S. E. (2003): *Atriplex micrantha* C. A. Meyer in Ledebour. – In: ZHENG, W., RAVEN, P. H. and HONG, D. (eds): *Flora of China*, Vol. 5. Science Press and Missouri Botanical Garden Press, Beijing and St. Louis, p. 362.
- ZÓLYOMI, B. (1932): Adatok a Hanság flórájához II. – *Bot. Közlem.* **29**: 153–154.