

Contribution to the flora of Asian and European countries: new national and regional vascular plant records, 9

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Abstract: The paper presents new records for 39 vascular plant species from eight Eurasian countries. *Aniselytron treutleri* (Poaceae), *Hackelochloa granularis* (Poaceae), *Melica kozlovii* (Poaceae) and *Melica nutans* (Poaceae) are reported from China; *Dichondra micrantha* (Convolvulaceae) from Hungary; *Orobanche serbica* (Orobanchaceae) and *Viscum album* subsp. *austriacum* (Santalaceae) from Italy; *Petrorhagia prolifera* (Caryophyllaceae), *Puccinellia schischkinii* and *Stipa pulcherrima* (Poaceae) from Kyrgyzstan; *Megadenia speluncarum* (Brassicaceae), *Phelipanche lavandulacea* (Orobanchaceae), *Solanum physalifolium* (Solanaceae), *Thymus lenensis* (Lamiaceae) from Russia; *Rubus phoenicolasius* (Rosaceae) from Slovakia; *Atraphaxis karataviensis* (Polygonaceae) from Tajikistan; as well as *Rubus austroslovacus* and *R. crispomarginatus* (Rosaceae) in addition to *Taraxacum acervatum*, *T. aequilobum*, *T. amplum*, *T. ancistrolobum*, *T. bellicum*, *T. collarispinulosum*, *T. copidophyllum*, *T. corynodes*, *T. dentatum*, *T. gelertii*, *T. infuscatum*, *T. ingens*, *T. lucidum*, *T. paucilobum*, *T. plumbeum*, *T. portentosum*, *T. sinuatum*, *T. subhuelphersianum*, *T. telmatophilum*, *T. undulatifforme* and *T. undulatum* (Asteraceae) from Ukraine. For each species synonyms, general distribution, habitat preferences, notes on taxonomy with remarks concerning recognition and distinction of the species from the most similar taxa occurring in a given country, as well as a list of recorded localities (often far from the previously known areas) are presented.

Key words: Chorology, taxonomy, native species, alien species, Asia, Europe

1. Introduction

Although, it might seem that good knowledge on the general distribution of vascular plants has been attained

for the Eurasian flora, there are still many regions where new plant species are discovered (e.g. Lazkov & Sennikov, 2017; Nobis et al., 2018; Raab-Straube & Raus, 2019a,

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2019b). The present paper is dedicated to new national and regional vascular plant records, to broad our knowledge on their distribution and taxonomy.

During the field exploration across the vast area of European and Asian countries, as well as during taxonomic revisions of herbarium material of different groups of vascular plants, we found some species which are new to the floras of particular countries or its significant regions (provinces or republics). The purpose of this paper is to report new records for 39 vascular plant species from eight Eurasian countries. Four taxa (*Aniselytron treutleri*, *Hackelochloa granularis*, *Melica kozlovii*, *Melica nutans*) are reported from China, one (*Dichondra micrantha*) from Hungary, two (*Orobancha serbica*, *Viscum album* subsp. *austriacum*) from Italy, three (*Petrorhagia prolifera*, *Puccinellia schischkinii*, *Stipa pulcherrima*) from Kyrgyzstan, four (*Megadenia speluncarum*, *Phelipanche lavandulacea*, *Solanum physalifolium*, *Thymus lenensis*) from Russia, one (*Rubus phoenicolasius*) from Slovakia, one (*Atraphaxis karataviensis*) from Tajikistan, and 23 (*Rubus austroslovacus*, *Rubus crispomarginatus*, *Taraxacum acervatulum*, *Taraxacum aequilobum*, *Taraxacum amplum*, *Taraxacum ancistrolobum*, *Taraxacum bellicum*, *Taraxacum collarispinulosum*, *Taraxacum copidophyllum*, *Taraxacum corynodes*, *Taraxacum dentatum*, *Taraxacum gelertii*, *Taraxacum infuscatum*, *Taraxacum ingens*, *Taraxacum lucidum*, *Taraxacum paucilobum*, *Taraxacum plumbeum*, *Taraxacum portentosum*, *Taraxacum sinuatum*, *Taraxacum subhuelpersianum*, *Taraxacum telmatophilum*, *Taraxacum undulatifforme*, *Taraxacum undulatum*) from Ukraine. This work aims to contribute to a better understanding of spreading directions of particular vascular plants as well as species composition of selected countries and/or geographical regions of Eurasia.

2. Materials and methods

Field researches were conducted in 2015–2019 in addition to revision of herbarium specimens preserved at BP, KRA, KRAM, IRK, LE, MW, NS, OPUN, PE, PR, SLO, TK, WSRP.

For each species synonyms, general distribution, habitat preferences, taxonomy with remarks on recognition and differentiation the species from the most similar occurring in a given country, as well as a list of localities recorded (often far from the previously known areas) were presented. The taxa presented below are given in alphabetic order in two groups, for Asian and for European countries.

3. Results

New records for Asian countries

Aniselytron treutleri (Kuntze) Soják (Poaceae)

Synonyms: *Milium treutleri* Kuntze, *Aulacolepis treutleri* (Kuntze) Hack. (nom. illeg.), *Calamagrostis treutleri*

(Kuntze) U. Shukla, *Deyeuxia treutleri* (Kuntze) Stapf, *Neoaulacolepis treutleri* (Kuntze) Rauschert.

Contributor – Beata Paszko

Distribution and habitat

Aniselytron treutleri (Kuntze) Soják was recorded from Bhutan, China, Northeastern India (Darjeeling, Sikkim), Indonesia (N Sumatra), Japan, Malaysia (Sabah), North Myanmar, Philippines (Luzon), and North Vietnam (Merrill and Merritt, 1910; Korthof and Veldkamp, 1984; Noltie, 2000; Kress et al., 2003; Lu and Phillips, 2006). In China, it was previously known from the following provinces: Fujian, Guangxi, Guizhou, Hubei, Sichuan, Taiwan, and Yunnan (Lu and Phillips, 2006). Here, new records of *A. treutleri* are reported from the Xinning County of Hunan and from Anfu County of Jiangxi. The species grows in shaded, rocky places in midmontane to upper montane areas, often in ravines (Korthof and Veldkamp, 1984; Lu and Phillips, 2006).

Taxonomic notes

The concept of *Aniselytron* Merrill proposed by Korthof and Veldkamp (1984), comprising two species (*Aniselytron agrostoides* (Kuntze) Soják and *Aniselytron treutleri* Merrill), is usually used in some floristic treatments and checklists in southeast Asia [Hsu et al., 2000; Kress et al., 2003; Lu and Phillips, 2006]. At the same time, *Aniselytron* was placed in synonymy of *Calamagrostis* Adanson by Clayton and Renvoize (1986). The latter treatment has been followed by Shukla (1996) for northeastern India and Noltie (2000) for Bhutan. An illegitimate genus name, *Aulacolepis* Hackel, was also sometimes adopted by authors in their accounts for the above two species, i.e. Ohwi (1933, 1935), Keng (1959), Hsui (1971), Liu (1987). Zhao (1995) reestablished the genus *Aniselytron* in the Chinese flora, widened its circumscription, and recognized seven species and two varieties. Currently, *Aniselytron clemensae* (Hitc.) Soják and *Aniselytron pseudopoa* (Jansen) Soják are placed in synonymy of *Aniselytron treutleri* (Korthof and Veldkamp, 1984); *Aniselytron epileuca* (Stapf) Soják was moved to the genus *Poa*, as *Poa epileuca* (Stapf) Stapf (Veldkamp, 1994); *Aniselytron gracilis* (Keng) N.X. Zhao and *Aniselytron petelotii* (Hitc.) Soják were synonymised with *Deyeuxia abnormis* Hook. f. *emend.* Paszko (Korthof and Veldkamp, 1984; Paszko and Soreng, 2013; Paszko et al., 2017). Ma, Peng, and Li (2005) discovered that there are sharp differences between *Aniselytron* and *Calamagrostis* based on their leaf anatomy and provided valuable support that *Aniselytron* should be generically separated from *Calamagrostis*. Recently, Gillespie et al. (2008) recognized *Aniselytron* as accepted genus originated by ancient hybridization.

Aniselytron treutleri differs from *Aniselytron agrostoides* by its longer lower glumes (0.5–2.5 mm vs. absent or up to 0.75 mm long), number of veins on lower glumes

(1-veined vs. veinless), number of veins on upper glumes (3-veined vs. 1-veined), and wider leaf blades (5–15 mm vs. 3–6 mm wide) (Korthof and Veldkamp, 1984; Hsu et al., 2000; Lu and Phillips, 2006).

Examined specimens (new records)

China: Hunan Prov., Xinning Co., Mt. Ziyun, 1250 m a.s.l., 8 September 1984, *Ziyun Mt. Team 881* (PE); Xinning Co., Wanfeng, 13 May 1985, *Y.B. Luo 2340* (PE); Xinning Co., Wanfeng, 14 May 1985, *Y.B. Luo 2393* (PE); Xinning Co., Huangmuqiao, under the bamboo forest, 800 m a.s.l., 9 July, *Y.B. Luo 2549* (PE). Jiangxi Prov., Anfu Co., Mt. Wugong, 1250 m a.s.l., August 1963, *J.S. Yue 3625* (PE).

***Atraphaxis karataviensis* Pavlov & Lipschitz (Polygonaceae)**

Contributors – Arkadiusz Nowak, Marcin Nobis

Distribution and habitat

Atraphaxis karataviensis is an endemic species to the Karatu Mts., the westernmost range of the Tian-Shan (the Syrdarian subsection) and northwestern Pamir-Alai within Kyrgyzstan in Middle Asia (Pavlov, 1936). It is known from the few stations on screes and rock outcrops in desert-like, dry habitats in mid elevation zones, mainly between 1300–2000 m a.s.l. (Pavlov, 1936; Ovchinnikov, 1968). The species was supposed to occur in Tajikistan and mentioned in the 3rd volume of the country's flora (Ovchinnikov, 1968). During the field research in the northern Pamir-Alai (Tajikistan), we found a population of *Atraphaxis karataviensis* on rock faces in the Alaian range north from Damburacha settlement. Population including approximately 200 individuals composes a dwarf-shrub stand on southern exposition, on limestone outcrops. Also *Silene guntensis*, *Campanula lehmanniana* and *Asperulula albiflora* contribute to the plant community. The location is one of the highest of this species, elevated up to 3000 m a.s.l.

Taxonomic notes

Until now, five species of the genus *Atraphaxis* were reported from Tajikistan. The differences between species concern mainly flower structure and leaves position (Ovchinnikov, 1968). *Atraphaxis karataviensis* (Figure 1) can be easily distinguished from other *Atraphaxis* species by its 4-petal flowers and dwarf-shrub life form (10–30 cm tall). Additionally, *Atraphaxis karataviensis* has small leaves (ca. 2–3 mm long) whereas most similar *Atraphaxis spinosa* L. has longer leaves (up to 9 mm) and is a much higher plant (30–90 cm tall).

Examined specimens (new records) Tajikistan:

Alaian Range: near Damburacha settlement, dwarf-shrub rupicolous community dominated by *Atraphaxis karataviensis*; 39°16'23.7"N / 71°20'28"E, alt. 2951 m, 3 June 2015, A. Nowak & M. Nobis (OPUN).

***Hackelochloa granularis* (L.) Kuntze (Poaceae)**

Synonyms: *Cenchrus granularis* L., *Manisuris granularis* (L.) L. f., *Mnesithea granularis* (L.) de Koning and Sosef, *Rottboellia granularis* (L.) Roberty.

Contributor – Beata Paszko

Distribution and habitat

Hackelochloa granularis (Linnaeus) Kuntze has a more or less pantropical distribution. In China, *H. granularis* was recorded till now from the following provinces: Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Sichuan, Taiwan, Yunnan, and Zhejiang (Sun and Phillips, 2006). Here, the first records of *H. granularis* are reported from Hunan (Baojing, Dongkou, and Yizhang Counties) and Jiangxi (Dexing City and Tonggu County), Southeast China. *Hackelochloa granularis* occur in tropical, subtropical and warm temperate zones of the world. It grows on grassy slopes, in forest gaps and in disturbed areas, at elevation between 100 and 1000 m a.s.l. (Noltie, 2000; Sun and Phillips, 2006).

Taxonomic notes

Hackelochloa (Poaceae: Andropogoneae) is a genus including only two species: *Hackelochloa granularis* (Linnaeus) Kuntze and *Hackelochloa porifera* (Hackel) D. Rhind. Both of them are recorded in China. This genus is readily recognizable by its unique, globose or broadly oblong, sessile spikelets. The status of the genus itself and the species distinction itself have been questioned. Veldkamp, de Koning, and Sosef (1986), Veldkamp et al. (2013) and their followers, i.e. Soreng et al. (2015) placed its two members in the related genus *Mnesithea* Kunth, and *Hackelochloa porifera* has subsequently been treated as a synonym of *Mnesithea granularis* (L.) de Koning and Sosef. Recently, Arthan et al. (2016) supported the recognition of *Hackelochloa porifera* as distinct from *Hackelochloa granularis* and provided evidence that the genus *Hackelochloa* should be maintained. *Hackelochloa granularis* differs from *Hackelochloa porifera* in spikelet morphology. Both species differ in shape of sessile spikelet (subglobose in *Hackelochloa granularis* vs. broadly oblong in *Hackelochloa porifera*), structure of lower glume surface (pitted and tubercled on the back in *Hackelochloa granularis* vs. ridged and reticulate on the back in *Hackelochloa porifera*), lower glume length of sessile spikelet (0.8–1.3 mm long in *Hackelochloa granularis* vs. 1.5–2.5 mm long in *Hackelochloa porifera*), and length of racemes (up to 1.5 cm in *Hackelochloa granularis* vs. more than 2 cm in *Hackelochloa porifera*) (Noltie, 2000; Sun and Phillips, 2006; Arthan et al., 2016).

Examined specimens (new records)

China: Hunan Prov., Baojing Co., Qiapeng, 500 m a.s.l., 11 September 1958, *L.H. Liu 9759* (PE); Dongkou Co., Mt. Xuefeng, 1954, *W. Li s.n.* (PE); Yizhang Co. Mt. Mangshan, 550 m a.s.l., 24 August 2005, *B.Z. Xiao 4593* (PE). Jiangxi Prov., Dexing City, 9 October 1958, *M.X. Nie 5561* (PE); Tonggu Co., 300 m a.s.l., 25 September 1963, *S.K. Lai 3774* (PE).



Figure 1. *Atraphaxis karataviensis* Pavlov & Lipschitz near Damburacha settlement in Tajikistan, June 2015, phot. A. Nowak.

***Megadenia speluncae* Vorob., Vorosch. & Gorovoj (Brassicaceae)**

Contributors – Marina V. Olonova, Robert J. Soreng

Distribution and habitat

Megadenia speluncae was described (Vorobyev et al., 1976) from the samples collected near a calcareous cave in the Lozovoy mountain range (Chandalaz) in southern Primorsky Krai (Russian Far East). As a rare plant and narrow endemic *M. speluncae* is under protection in Russia (Malyshev, 2008).

A joint botanical expedition of Tomsk State University and Smithsonian Institution encountered a new population

of *Megadenia speluncae* about 300 km from its *locus classicus*, in the forest on the Vityaz Bay, near the road, in 2018. The population covered an area of about 4.5 m². It included vegetative as well as reproductive individuals (Figure 2). More localities of this rare species are likely to be found near the newly reported location.

Taxonomic notes

Previously, the genus *Megadenia* Maxim. includes three species. They are distributed on the Qinghai-Tibetan Plateau (*Megadenia pygmaea* Maxim.), in eastern Sayan Mts south of Lake Baikal (*Megadenia bardunovii* Popov), and Primorsky Krai, Lozovoy Ridge (*Megadenia*



Figure 2. *Megadenia speluncarum* Vorob., Vorosch. & Gorovoj at the Vitiaz' bay (Russian Far East, Primorskiy kray) aside the road between Alexeevka and Vitiaz', in shady broad-leaved forest, near the brook, June 2018, phot. M. Olonova.

speluncarum). Later the taxonomic status of these species was evaluated, and all three species, due their high morphological similarity, were synonymized as *Megadenia pygmaea* (Berkutenko, 1998; Zhou et al., 2001; Ostroumova and Berkutenko, 2010). Finally, detailed research, using molecular methods, allowed Artyukova, Kozzyrenko, and Gorovoy (2014) to restore the species status for *Megadenia speluncarum*. Their data on the plastid genome revealed a clear subdivision of the genus into three lineages matching the three described species.

Examined specimens (new record)

Russia: Primorskiy Krai, Khasanskiy District, Vityaz Bay, along the road between settlements Vityaz and Alekseevka, near the brook in shady *Betula - Quercus* forest. 27 Jun 2018, R.J. Soreng & M.V. Olonova (TK-004029).

***Melica kozlovii* Tzvelev (Poaceae)**

Contributor – Beata Paszko

Distribution and habitat

According to Wu and Phillips (2006) *Melica kozlovii* occurs in central Asia, in China and Mongolia. Till now, the species was recorded from the following Chinese provinces: Gansu, Qinghai, and Shanxi. Tzvelev (1968) described *M. kozlovii* based on two different collection events. Tzvelev (1968) cited as type the V.F. Ladygin's collection no. 367 gathered during the Tibet Expedition (1899–1901) led by Pyotr K. Kozlov (Andreev and Yusopova, 2015). The type locality is located in the vicinity

of Dulan-Chit (Dulankit Gompa, ca. 15 km NE of Wulan, Wulan Co., northeastern margin of Quaidam Basin) in Qinghai, China (Tzvelev 1968). Tzvelev cited also, M.I. Petrov's collection gathered 15 km N of Yongchang (Russian: Юнчэн) (Yongchang Co., Gansu, China) on 28 June 1958. This second locality was probably erroneously assigned to Mongolia by Wu and Phillips (2006) in the *Flora of China*. The second locality is prescribed by Tzvelev (1968) to the Mongolica Province, the Mongolia Subprovince, and the Chesi Region. These regions were defined by Grubov (1963) and the area of Mongolia Subprovince sensu Tzvelev (1968) does not correspond with the present borders of Mongolia. The Chesi region is located mostly in the present-day area of Gansu, what was shown on the map provided by Grubov (1963). Later, Grubov (1982) as well as Hempel (2011) did not listed *M. kozlovii* for Mongolia. Here, new record of *M. kozlovii* is reported from Helan Mountains at the Alxa Left Banner in the southwest Inner Mongolia, China. Wu and Phillips (2006) and Huang et al. (2011) provided eight Chinese endemic species in the genus *Melica*. *Melica kozlovii* was not listed by these authors. My findings showed that the distribution range of *M. kozlovii* is restricted to China, and this species should be recognized as a Chinese endemic. *Melica kozlovii* occurs in the middle and upper mountain areas, at rocky slopes and in mountain valleys, from 1950 m to 3900 m.

Taxonomic notes

The genus *Melica* is represented by 23 species in China (Wu and Phillips, 2006). *Melica kozlovii* belongs to the group consisting of several species characterized by branched panicles bearing more than 15 spikelets per panicle branch. *Melica kozlovii* differs from *Melica tangutorum* Tzvelev, *Melica tibetica* Roshevitz, and *Melica subflava* Z. L. Wu by the laxer panicles, presence of lobes, ca. 3 mm wide, at the junction of leaf sheath and blade, and longer anthers, 1.2–2.2 mm long (Wu and Phillips, 2006). According to Hempel (2011) *Melica kozlovii* together with *Melica secunda* Regel, *Melica tangutorum*, *Melica tibetica*, and *Melica subflava* are members of section *Melicella* Camus ex W. Hempel, subsection *Schizolemma* (Z. L. Wu) W. Hempel.

Examined specimens (new records)

China: Inner Mongolia, Alxa League, Alxa Left Banner, Helan Mts., arid roadside, 38°55'N / 105°56'E, 1990 m a.s.l., 8 June 2008, W.J. Yang & C.F. Zhang 080608122 (PE).

***Melica nutans* L. (Poaceae)**

Contributor – Beata Paszko

Distribution and habitat

Melica nutans is a widespread Eurasian woodland species. It is distributed in most of Europe, but it is rare in the Mediterranean region and its islands. In Asia, it occurs in Siberia, Soviet Far East, Soviet Middle Asia, the

Caucasus, northern China, and eastern Asia (Meusel et al., 1965; Tutin, 1980; Tyler, 2002). *Melica nutans* is quite rare in China. Till now, it was recorded from Heilongjiang and Xinjiang provinces (Wu and Phillips, 2006). Here, new records of *M. nutans* are reported from Changbai Mt. in the Antu County in the southern Jilin and in the Ningwu County of Shanxi, China. *Melica nutans* is a rhizomatous, perennial grass occurring in shady and often rocky places in deciduous woodland, and on woodland margins.

Taxonomic notes

There are three *Melica* species (*Melica grandiflora* Koidz., *Melica nutans*, *Melica pappiana* W.Hempel) that are characterized by racemelike panicles, bearing a few (3–15) spikelets. *Melica nutans* differs from *Melica grandiflora* and *Melica pappiana* by shorter spikelets, (5–8 mm long vs. 7–10 mm long, respectively), purplish red glumes (vs. glumes usually green), eventually nodding panicles (vs. erect panicles) (Wu and Phillips, 2006).

Examined specimens (new records)

China: Jilin–Antu Co., N slope of Mt. Changbai, forest edge, 1500 m a.s.l., 2 August 1957, J.Y. Qian et al. 620 (PE); Antu Co., Mt. Changbai, coniferous forest, 1750 m a.s.l., 3 August 1963, W.L. Wang et al. 2434 (PE). Shanxi – Ningwu Co., S of Majiazhuang village, pine forest, 2100 m a.s.l., 26 July 1957, J.M. Liu 1879 (PE).

Petrorragia prolifera (L.) P.W.Ball & Heywood (Caryophyllaceae)

Synonyms: *Dianthus prolifer* L., *Kohlrauschia prolifera* (L.) Kunth, *Tunica prolifera* (L.) Scop.

Contributors – Agnieszka Nobis, Marcin Nobis, Arkadiusz Nowak, Georgy A. Lazkov

Distribution and habitat

Natural range of *Petrorragia prolifera* includes central and southern Europe as well as southwest Asia (region between the Black Sea and the Caspian Sea) (Ball and Akeroyd, 2010). Besides, the species was introduced to Africa, North and South America and Australia (Global Biodiversity Information Facility 2019). In the mountains of central Asia the genus *Petrorragia* has been represented only by *Petrorragia alpina* (Habl.) P.W.Ball & Heywood (Bondarenko, 1971; Lazkov and Sultanova, 2014) and *Petrorragia cretica* (L.) P.W.Ball & Heywood, the latter restricted to Turkmenistan (Kopetdag) (Bondarenko, 1971). *Petrorragia prolifera* was recorded for the first time in central Asia in 2015. The occurrence of the species was confirmed in the next year. Population of the species was observed on the roadside in Kyrgyzstan (Figure 3), and it included several hundreds of individuals. Probably, *Petrorragia prolifera* has been accidentally introduced in this region and further localities will be found in near future.

Taxonomic notes

The genus *Petrorragia* (Ser. ex DC.) Link includes ca. 20 species distributed mainly in the Mediterranean



Figure 3. *Petrorragia prolifera* (L.) P.W.Ball & Heywood, roadside, ca. 6 km S of Jalalabad in Kyrgyzstan, July 2016, phot. M. Nobis.

region. All species are typical for dry, calcareous or sandy habitats (Ball and Akeroyd, 2010). *Petrorragia prolifera* can be easily distinguished from *Petrorragia alpina* and *Petrorragia cretica* which are annual plants with white petals (3–9 mm long in *Petrorragia alpina* and included in the calyx in *Petrorragia cretica*) whereas *Petrorragia prolifera* is perennial and has pink petals with darker veins (10–14 mm long).

Examined specimen (new record)

Kyrgyzstan: Fergana valley, roadside, ca. 6 km S of Jalalabad, 40°51'39"N / 73°01'05"E, 739 m a.s.l., 23 July 2016, M. Nobis & A. Nobis (KRA 0494223).

Puccinellia schischkinii Tzvelev (Poaceae)

Contributors – Anna Wróbel, Marcin Nobis, Ewelina Klichowska, Arkadiusz Nowak

Distribution and habitat

According to Tzvelev (Tzvelev, 1976) and Liang and Tzvelev (2006) the overall range of *Puccinellia schischkinii* extends from Siberia to Mongolia and central Asia, where it grows on saline soils within grasslands, meadows and marshes. The species' distribution, however, is still not well recognized and requires further field research. Although the occurrence of *P. schischkinii* was suggested from Kyrgyzstan and Tajikistan by some authors (Liang and Tzvelev, 2006), the species has not been listed in the flora of these countries (Ovchinnikov, 1957; Lazkov and Sultanova, 2014). In Middle Asia *P. schischkinii* has been confirmed only in Kazakhstan (Kamelin, 1998).

A population of *Puccinellia schischkinii* was discovered near the road A365 in the vicinity of At-Bashy (Naryn

Region, Kyrgyzstan) during expedition to Tian-Shan Mountains in 2018 (Figure 4). This is the first record of this species to Kyrgyzstan. At the locality, more than 100 individuals of *P. schischkinii* grew between roadside and small watercourse, on clay alkaline soil characterized by high concentration of salts (23050 $\mu\text{S}/\text{cm}$).

Taxonomic notes

Puccinellia schischkinii is a perennial diploid species ($2n = 14$) (Probatova et al., 2013) belonging to the section *Puccinellia* (Tzvelev, 1976). As still little is known about evolutionary history of *Puccinellia* in Middle Asia, further integrative studies are needed to shed more light on the phylogenetic relationship among taxa in the genus and refine their taxonomic classification (Wróbel et al. in prep.).

Useful morphological characters for *Puccinellia schischkinii* identification are: culm 15–55 cm long with short vegetative shoots near the base; lower leaf sheaths greyish-green; panicle up to 20 cm long, usually more than 1/3 of the culm length (length of a culm without panicle length), dense and contracted, rarely slightly open, scabrous; pedicels of lateral spikelets very short, up to 1 (–1.5) mm long; spikelets with up to 7 flowers, slender, ca. 1.5 mm wide, adhering tightly to primary branches; lemma of the lowest floret in spikelet ovate, slightly pilose at the base, with obtuse triangular apex, light green, usually with violet tinge in upper half and golden edge at the apex, 2.5–3 mm long; palea with numerous spinules in upper 1/2–2/3 of its length; anthers 0.8–1.2 mm long.

Puccinellia schischkinii can be confused with *Puccinellia roshevitsiana* (Schischk.) V.I.Krecz. ex Tzvelev but the latter taxon has shorter and more lax panicle which is up to 1/4 of the culm length (length of a culm without panicle length), longer anthers 1.6–2.5 mm long and slightly longer lemma 2.7–3.5 mm long (Tzvelev, 1976).

Examined specimens (new record)

Kyrgyzstan: Tian-Shan Mountains, Naryn Region, ca. 6.5 km NNW of At-Bashy, ca. 36 km SW of Naryn, (right roadside towards At-Bashy), saline site, 6 July 2018, M. Nobis, E. Klichowska, A. Wróbel & A. Nowak (KRA 0488781–0488783, 0488785, 0488787–0488792, 0488803–0488806, 0488809).

Solanum physalifolium Rusby var. *nitidibaccatum* (Bitter) Edmonds (Solanaceae)

Contributors – Nikita A. Vershinin, Igor V. Kuzmin

Distribution and habitat

Solanum physalifolium is a species native to the Andes (Argentina, Bolivia and Chile). It is adventive and naturalized in Europe, western Canada, the northwestern United States, equatorial regions of Africa, and it has been introduced into Australia and New Zealand where it persists as a weed of cultivation (Edmonds, 1986; Edmonds and Chweya, 1997). The species grows in ruderal habitats, on railways embankments, in fields and disturbed areas. In Russia, it was collected in Kursk, Moscow, Ryazan Oblasts, the Republic of Mordovia (Mayorov, 2014), Udmurt Republic (Melnikov, 2011), however, it has not been encountered in the eastern regions of the country.



Figure 4. *Puccinellia schischkinii* Tzvelev, near At-Bashy in Kyrgyzstan, July 2018, phot. M. Nobis.

We found a few new locations of the species on the potato field and on the roadsides, ca. 700 km eastwards of the previously known localities. Potato fields were also the habitat of this species in other Russian regions. *Solanum physalifolium* var. *nitidibaccatum* is a new alien established species to the flora of Siberia and Asian Russia.

Taxonomic notes

Solanum physalifolium belongs to sect. *Solanum*, which includes about 15 species of *Solanum nigrum* complex. Two varieties of *Solanum physalifolium* species have been recognized: var. *physalifolium* (which has a restricted South American distribution) and var. *nitidibaccatum* (synonyms: *Solanum nitidibaccatum* Bitter; *Solanum sarrachoides* Sendtn. pro parte), which successfully spreads beyond South America (Edmonds, 1986). Plants from the Tyumen region have 4–8-flowered inflorescences, broadly triangular sepals, and broadly ovoid berries with two sclerotic granules. On this basis they can be recognized as representing *Solanum physalifolium* var. *nitidibaccatum*.

Examined specimens (new records)

Russia: Tyumen Oblast, Tyumen District, 20,5 km to the West of Tyumen, near Uspenka, 57°05'31.7"N / 65°06'55.4"E, potato field, 30 July 2016, N. Vershinin s.n. (Univ. of Tyumen); Tyumen Oblast, Tyumen District, 20 km to the West of Tyumen, near highway Yekaterinburg–Tyumen, 57°05'32.6"N / 65°07'25.2"E, potato field, 1 August 2017, I. Kuzmin & N. Vershinin s.n. (MW, NS); Tyumen Oblast, Tyumen District, 20.5 km to the West of Tyumen, near Uspenka, 57°05'32.1"N / 65°07'09.9"E, potato field, 26 August 2017, N. Vershinin s.n. (Univ. of Tyumen); Tyumen Oblast, Tyumen District, 20 km to the West of Tyumen, near highway Yekaterinburg–Tyumen, 57°05'32.5"N / 65°07'18.1"E, 17 September 2017, I. Kuzmin s.n. (LE, Univ. of Tyumen), 10 August 2018 obs. N. Vershinin.

Stipa pulcherrima K.Koch (Poaceae)

Synonyms: *Stipa grafiana* Steven, *Stipa pennata* L. subsp. *pulcherrima* (K.Koch) Á.Löve & D.Löve, *Stipa pennata* L. subsp. *pulcherrima* (K.Koch) Freitag, *Stipa glabglabrinoda* Klokov, *Stipa pulcherrima* subsp. *glabrinoda* (Klokov) Tzvelev, *Stipa heterophylla* Klokov, *Stipa pulcherrima* var. *karadagensis* Tzvelev, *Stipa pulcherrima* subsp. *palatina* H.Scholz & Korneck.

Contributors – Ewelina Klichowska, Marcin Nobis, Anna Wróbel, Arkadiusz Nowak

Distribution and habitat

Stipa L. is one of the largest genera in the family Poaceae, subfamily Pooideae (Soreng et al., 2015), which in the narrow approach comprises over 150 species distributed in open habitats (grasslands, steppes, meadow steppes or forest steppes) of the Old World. *Stipa pulcherrima* K. Koch is a widely distributed Eurasian species. Its range extends from Siberia, through the southern Ural, the Black Sea, the

Caucasus, and the Mediterranean area to central Europe, where the species reaches the northwestern limit of its geographic range (Martinovský, 1980). Here, we report a new record of *S. pulcherrima* from central Tian-Shan Mts in Kyrgyzstan, where it grows in steppe community on steep, sunny slope of the river valley, with north exposition (Figure 5). The new locality is the easternmost known location of the taxon. *Stipa pulcherrima* is a new native species to Kyrgyzstan.

Taxonomic notes

Stipa pulcherrima belongs to the section *Stipa*, and is characterized by having dorsal line of hairs fused with subdorsals and ventral line of hairs always reaching the base of the awn, leaves of the vegetative shoots 0.7–1.4 mm in diameter, their adaxial (upper) surface covered by short, up to 0.08 mm prickles and short hairs (up to 0.15–0.3 mm long) present only on the sides of the ribes (Nobis et al., 2017), whereas abaxial (lower) surface is more or less scabrous due to hard hooks and short prickles. In Kyrgyzstan this species could be confused with *Stipa zalesskii* Wilensky (belonging to *Stipa dasyphylla* (Lindem.) Trautv. group), which differs from *Stipa pulcherrima* by having ventral line of hairs terminating at the distance of 0.3–1 mm below the top of the lemma, leaves of the vegetative shoots 0.3–0.8 mm in diameter, their abaxial surface scabrous due to mixture of prickles, spinules and hairs, whereas adaxial covered with mixture of short and long hairs (Nobis et al., 2019).

Examined specimens (new record)

Kyrgyzstan: Central Tian-Shan, ca. 36.5 km NNE of Naryn, ca. 63 km NE of At-Bashy, steppe on slope/shrubs, 41°29'41" N / 76°25'33" E, 2283 m a.s.l., exp. N, incl. 25°, 6 July 2018, M. Nobis, E. Klichowska, A. Wróbel, A. Nowak (KRA 0502537, 0502538, 0502540, 0502541, 0502542, 0502544).

Thymus lenensis Vasjukov (Lamiaceae)

Contributors – Vladimir M. Vasjukov, Denis A. Krivenko, Irina N. Egorova

Distribution and habitat

Thymus lenensis is an endemic plant species occurring along sandy-pebble river banks of the Lena River Basin, previously known from North-Eastern Siberia (in the central part of Yakutia) and only from the type specimens collected in 1962 (paratype: “Yakutia, Kobyayskiy District, right bank of the Lena River, 8 km from the Smorodichnogo, Solenaya duct, pebbles, 7 Aug 1962, E. R. Trufanova, № 100/1” – LE 01017945, s. n. TK) and 1970 (holotype: “Yakutia, Kobyayskiy District, right bank of the Lena River opposite to the mouth of the Vilyui River, pebbles on the bank of the Lena near the village Kitchan, 13 Aug 1970, E. R. Trufanova, № 44/2” – MW 0128679) (Vasjukov, 2016).



Figure 5. *Stipa pulcherrima* K. Koch, ca. 36.5 km NNE of Naryn in Kyrgyzstan, July 2018, phot. M. Nobis.

The revision of *Thymus* L. in the IRK herbarium (Irkutsk, Russia) resulted in finding specimens collected from Irkutsk Oblast and representing *Thymus lenensis*, providing the first record of this species from the southern part of Siberia.

Taxonomic notes

Thymus lenensis is a dwarf semishrub with short stalks (1–2 mm thick) ending in a generative shoot. Generative shoots erect, 7–15 cm high, roundish, densely pubescent with squarrose and rather short hairs under inflorescence, as well as on vegetative shoots. Cauline leaves oblong to elliptic and roundish, 6–12 mm long and (2–)3–7 mm wide, petiolate, with distinct veins beneath; hispidulous above and sometimes beneath; viscid glands well distinct. Inflorescence branched. Flowering calyx purple, 3.5–4 mm long; teeth of upper lip ciliate. Corolla 5–6 mm long, purple.

Thymus lenensis is closely related to *Thymus sergievskajae* Karav. Both species belong to the section *Verticillati* (Klokov et Des.-Shost.) Klokov. *Thymus sergievskajae* differs from *Thymus lenensis* by the shoots pubescent throughout with horizontally oriented long hairs ca. 1–1.2 mm long, cauline leaves 3–10 mm long and 2.5–4(–5) mm wide, hairy on both surfaces or glabrous above.

Examined specimens (new records)

Russia: Irkutsk Oblast, Kazachinsko-Lenskiy District, left bank of the Kirenga River–right tributary of the Lena River, vicinity of Ermaki village, meadow, alt. 370 m, 56°37'52"N / 107°46'57"E, 19 Jul 2010, I. N. Egorova 51380 (IRK).

New records for Europaeen countries

***Dichondra micrantha* Urb. (Convolvulaceae)**

Contributors – Gergely Király

Distribution and habitat

Dichondra micrantha is native to tropical and warm-temperate regions, with controversial reports on the precise range: some authors, e.g. Tharp and Johnston (1961), Correll and Correll (1982), Fang and Staples (1995), consider it to be native in both hemispheres, others restrict its native range to entral America (Silvestre, 2012), or to east Asia (Clement and Foster, 1994). In Europe, it is a cultivated plant used as a ground-cover plant or grass-substitute in lawns, and usually is treated as casual alien tending to establish only in regions of mild winter climate, e.g. Great Britain, Iberian Peninsula, Italy, and the Balkans (Euro+Med Plantbase, 2018). The closest populations to Hungary were observed in villages along the Adriatic Coast (Milović and Mitić, 2012; Tafra et al., 2013; Barina et al., 2015), and in northern Italy (Selvaggi et al., 2013).

The newly discovered locality of *Dichondra micrantha* is situated in southwestern Hungary, in the town centre of Kaposvár, where clones larger than 1 m in diameter were found in lawns, and in the cracks of pavements. Based on the extension of the clones they are multiannual, and could survive the winters here obviously due to the urban heat effect. The plants were observed on 18 January 2019 after a long cold period, and, especially in sheltered position, they were completely fresh and green.

Taxonomic notes

The genus *Dichondra* J. R Forst & G. Forst. includes creeping or sprawling perennial herbs with alternate,

long-petioled reniform leaves. In the subgenus *Dichondra* (where *D. micrantha* is placed), the fruits are deeply bilobed, and the carpels usually one-seeded. *Dichondra micrantha* has thin stolons (< 1 mm in diameter), leaves sparsely pubescent with appressed hairs, a corolla about as long as calyx at anthesis, and calyx-lobes twice as long as broad or less, shorter than the fruits (Tharp and Johnston, 1961; Correll and Correll, 1982; Silvestre, 2012). *Dichondra micrantha* is the only species of the genus with reliable records in Europe, other species probably have been reported erroneously (Clement and Foster, 1994; Otto and Verloove, 2016).

Examined specimen (new record)

Hungary: Somogy County, Kaposvár, Talián Gy. Street, in the cracks of the pavement and on the base of house walls, 152 m a.s.l., 46.36246°N / 17.79729°E, 18 January 2019, G. Király (BP 00013799).

***Orobanche serbica* Beck & Petrović (Orobanchaceae)**

Synonyms: *Orobanche ozanonis* F.W. Schultz ex Beck.

Contributors – Óscar Sánchez Pedraja, Renata Piwowarczyk, Gonzalo Moreno Moral

Distribution and habitat

Orobanche serbica is an exclusive parasite of *Artemisia alba* Turra (= *Artemisia camphorata* Vill). The species is known from few isolated localities situated in Bulgaria, Albania, Serbia, France and Spain, where it grows in mountainous areas, especially on rocky, calcareous and sunny slopes. New locality of *Orobanche serbica* has been found in Parma Province in Italy. The species is a new, native taxon to the flora of this country.

Taxonomic notes

Orobanche serbica was described from Serbia by Beck & Petrović in Petrović (1885) based on a plant material collected by Sava Petrović: “monte Visa supra monast. sv. Bogorodice”, parasitizing *Artemisia camphorata*. Previously, under the name of *Orobanche ozanonis* had been distributed by F.W. Schultz through his exsiccata (“F. Schultz, herbarium normale. Cent. 10. [exc. n.] 924 ... 10 July 1859”) made on the basis of a French gathering of Charles Ozanon: “Sur l’*Artemisia camphorata* dans les détritibus des rochers schisteux des Portes, à 2000 m, près de Lagrave (Hautes-Alpes)”; the name of Schultz’s exsiccata was later published correctly by Beck (1890). According to Carlón et al. (2008), *Orobanche serbica* and *Orobanche ozanonis* are the same species. Consequently, the priority name is *Orobanche serbica*, because it was the first published correctly according to ICN. Genetic studies indicated that *Orobanche serbica* is a relatively closely related to *Orobanche santolinae* Loscos & J. Pardo and *Orobanche loscosii* L. Carlón, M. Laínz, G. Moreno Moral & Ó. Sánchez Pedraja (Carlón et al., 2008) (*Orobanche santolinae* EU65516; *Orobanche loscosii* EU655617, sub *Orobanche ritro*; *Orobanche serbica* AY960723, La Grave,

France, sub *O. ozanonis*) which is in line with earlier assumptions of Beck (1890), but *Orobanche serbica*, due to the small size of the corolla lobes [(Carlón et al., 2002) sub *Orobanche* cf. *artemisiae-campestris*; (Carlón et al., 2005) sub *Orobanche ozanonis*; (Sánchez Pedraja et al. 2016)], is easily differentiated from *Orobanche santolinae* (Carlón et al., 2003; Sánchez Pedraja et al., 2016) and *Orobanche loscosii* [sub “*O. major* L. β *Ritro*” (Carlón et al., 2003, 2011)].

Examined specimens (new records)

Italy: Parma Province: “*Orobanche* dell’*artemisia* campestre. Passo della Cisa-Terenzo (PR), 700 m, giu 2018” (photos! by Ezio Sacchi [sub *O. artemisiae-campestris* Gaudin] in Acta Plantarum Flora delle Regioni italiane.

***Phelipanche lavandulacea* (Rchb.) Pomel (Orobanchaceae)**

Synonyms: *Orobanche lavandulacea* Rchb.

Contributors – Óscar Sánchez Pedraja, Renata Piwowarczyk, Gonzalo Moreno Moral

Distribution and habitat

Phelipanche lavandulacea is a species described from Italy (Reichenbach, 1829). It is characterized by a Mediterranean distribution (Sánchez Pedraja et al., 2016). *Phelipanche lavandulacea* is relatively common in the European part of the Mediterranean region as well as in the northwest part of Africa. Its occurrence in northeast Africa is doubtful. Finally, it is rare in southwest Asia (Turkey, Palestine, Israel). Some records from Asian countries (e.g. Syria, Iran) have not been confirmed so far. We encountered three sheets with specimens representing *P. lavandulacea* in the herbaria LE and MW. The plant materials were collected in the Russian district of Sochi (Krasnodar Krai). Thus, the eastern boundary of the species extends to the northeastern coast of the Black Sea. It usually occurs in rocky places, sunny slopes, the edges of shrublands, ruderal habitats. The species is indicated as a new, native taxon to the Russian flora.

Taxonomic notes

This species is easily recognizable by its habit (plants usually tall, inflorescences are simple or branched, dense and many-flowered, rarely lax and few-flowered, flowers 15–23 mm with calyx-teeth equalling or slightly longer than calyx-tube, corolla deep-violet and anthers hairy) and the fact that it has only one confirmed host-plant, *Bituminaria bituminosa* (L.) C. H. Stirt. (= *Psoralea bituminosa* L.). Two subspecies, i.e. subsp. *lavandulacea* and subsp. *trichocalyx* (Webb) Carlón, G. Gómez, M. Laínz, Moreno Mor., Ó. Sánchez & Schneew. (Carlón et al., 2008; Piwowarczyk, 2016), are distinguished within this taxon. The latter is considered to be endemic to the Canary Islands (Carlón et al., 2008). Reuter (1847) (sub *Phelipaea lavandulacea*) believed that *Orobanche lavandulacea* Rchb., *Phelypaea trichocalyx* Webb and *Orobanche schultzei*

Mutel are conspecific species. Recently, the last species is considered as clearly separate (e.g. by its long calyx teeth). According to Schultz (1842–1855) *Orobanche schultzei* differs from *Phelipanche lavandulacea* in both morphology and its host. Another species, *Phelipanche lavandulaceoides* Carlón, G. Gómez, M. Lainz, Moreno Mor., Ó. Sánchez & Schneew., is also parasitic on *Bituminaria bituminosa* and based on this common host could be confused with *Phelipanche lavandulacea*, but morphologically and genetically it is perfectly distinguishable. Besides, it is limited to the interior areas of the Iberian Peninsula (Carlón et al., 2008). This species has also been confused with other species of the same genus for its coloration or habit, e.g., *Phelipanche rosmarina* [(Welw. ex) Beck (1921)] Banfi, Galasso & Soldano, *Phelipanche cernua* Pomel, *Phelipanche schultzei* (Mutel) Pomel, *Phelipanche heldreichii* (Reut.) Soják, *Phelipanche libanotica* (Schweinf. ex Boiss.) Soják (*Phelipanche orientalis* (Beck) Soják), but their hosts, morphology, genetics and range of distribution are different (Sánchez Pedraja et al., 2016).

Examined specimens (new records)

Russia: Caucasus, Black Sea coast, Krasnodar Krai, Sochi distr.: Chernomorskaya gub., Sochinskiy okruh, urochische Ashe, on the southwestern slope of the mountain with the sea exposure, stony soil mixed with clay, [as *Orobanche dalmatica* (G. Beck) Tzvel. by Tzvelev 1988], 10 June 1904, *Afanasyeva* (*Afanas'eva*) (LE); Ashe, [as *Orobanche mutelii* F. Schultz by A. Zernov 2004], 20 May ??, *V. Miller* (MW0717030); Chermomorskaya oblast', Tuapsinskiy okruh [Tuapse], Lazarevskoye village [Lazarevsky City District - district of the city of Sochi], oak forest near the willow, [as *Orobanche coerulea* Vill.], 24 June 1917, *N. V. Pavlov* (MW0717052).

***Rubus austroslovacus* Trávn. (Rosaceae)**

Contributor – Gergely Király

Distribution and habitat

Rubus austroslovacus is a widespread central European bramble species that was reported from Austria, the Czech Republic, Hungary, Poland, Slovakia, Germany and France (Trávníček and Zázvorka, 2005; Kurtto et al., 2010). *Rubus austroslovacus*, as a thamnophilous species preferring semi-dry to mesic soils on limestone or base-rich eruptive bedrocks, usually occurs in mixed oak-hornbeam forests of submontane regions.

During the herbarium revisions in BP I found two specimens of *Rubus austroslovacus* in the material collected by Antal Margittai in the 1930s on the foothills of the Northeastern Carpathians in the surroundings of Mukacevo (at that time Czechoslovakia, today Transcarpathian region of Ukraine). These records extend the known range by about 75 km eastwards.

Taxonomic notes

Rubus austroslovacus belongs to the taxonomically complicated species-rich triploid group of *Rubus* ser.

Discolores (P.J.Müll.) Focke (Krahulcová et al., 2013). It is characterized by narrowly to broadly elliptical leaflets with parallel margins of the first-year stem, broadly cylindrical to pyramidal inflorescence with long erectopotent branches, white (rarely slightly pinkish) flowers, and densely hairy ovaries – for more details concerning identification and comparison with similar species see Trávníček and Zázvorka (2005).

Examined specimens (new records)

Ukraine: Transcarpathia (Zakarpattia Oblast): in fruticosis ad Sereďnĕ, Ung, c. 150 m [in coppices near Sereďnĕ, Ung County], 17 July 1935, *A. Margittai* (BP85227) (as *R. vestii* Focke); in monte Nagyhegy ad Ardó, Bereg [=Mt. Nagyhegy near Ardó (today part of Beregovo), Bereg County], 25 July 1935, *A. Margittai* (BP85179) (as *R. vestii* Focke).

***Rubus crispomarginatus* Holub (Rosaceae)**

Contributor – Gergely Király

Distribution and habitat

Rubus crispomarginatus was described as a regional species from the Czech Republic and Slovakia (Holub, 1991). Later it was also recorded in southern Poland (Zieliński, 2004) and in northeastern Hungary, whereas its presence in Austria is uncertain (Kurtto et al., 2010). The species occurs in sunny fringes of oak-hornbeam or beech forests mainly on base-rich, shallow soils. One herbarium sheet with *Rubus crispomarginatus* (identified earlier erroneously as *Rubus vestii* Focke [= *Rubus constrictus* Lefèvre & P.J.Müll.]) was recognized during recent herbarium revisions in BP, in the material collected by Antal Margittai in 1935 in the Northeastern Carpathians north of Uzhorod (at that time Czechoslovakia, today Transcarpathian region of Ukraine). This is one of the easternmost localities of the species, and is apparently connected with the adjacent populations in eastern Slovakia and southeastern Poland (Zieliński, 2004; Kurtto et al., 2010).

Taxonomic notes

Rubus crispomarginatus is a representative of the taxonomically complicated triploid group of *Rubus* ser. *Discolores* (P.J.Müll.) Focke (Krahulcová et al., 2013), however, contrary to the other species, it can be easily distinguished by the strongly furrowed stem and the deeply serrated and conspicuously crispate leaves of the primocane (Holub, 1991; Trávníček and Zázvorka, 2005).

Examined specimen (new record)

Ukraine: Transcarpathia (Zakarpattia Oblast): in silvis ad N. Berezna, Ung, c. 150 m [in forests near Nagy-Berezna (today Velikij Bereznij), Ung County], 18 June 1935, *A. Margittai* (BP85435) (as *R. vestii* Focke).

***Rubus phoenicolasius* Maxim. (Rosaceae)**

Contributors – Gergely Király, Pavol Eliaš jun

Distribution and habitat

Rubus phoenicolasius, native to the Far East, was brought to European and North American gardens between 1870 and 1890 (Weber, 1995). It is naturalized and widespread in central Europe and the British Isles (Kurtto et al., 2010). The species has not been mentioned by Kurtto et al. (2010) from Slovakia, however, there is a note in Medvecká et al. (2012) that it was found as a casual alien in this country in 1948. Nevertheless, after long search for the latter record, we could not find any supporting herbarium material or exact source of the publication.

During the revision of bramble collections in Slovak herbaria, a specimen of *R. phoenicolasius* collected in 1979 in Bratislava, most probably originated from a spontaneous stand, was found in SLO and it represents the only known voucher for this species in Slovakia.

Taxonomic notes

Rubus phoenicolasius is a diploid member of *Rubus* subgen. *Ideobatus* (Focke) Focke (Weber, 1995; Kurtto et al., 2010). This subgenus is represented in the European flora only by *Rubus idaeus* L. Distinctive morphological characters of *R. phoenicolasius*: leaves 3–5-foliolate, densely tomentose beneath; stem, rachis and pedicels pubescent with reddish bristles, stalked glands and prickles; inflorescences few-flowered, petals red, significantly longer than sepals; drupelets orange or red (Lingdi and Boufford, 2003).

Examined specimen (new record)

Slovakia: Bratislava, Devínska Kobyla, za blatom, cesta Hrdinov SNP, 16 Aug 1979, M. Mičieta (SLO).

Taraxacum acervatum* Rail., section *Taraxacum

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Taraxacum acervatum is a broad-range species occurring in western Europe (Spain, France, Germany), central Europe (the Czech Republic, Slovakia, Poland) and in Finland (Kirschner and Štěpánek, 2007). According to our study, *T. acervatum* should be considered a new native species to Ukraine (Figure 7). Recently, several hundred individuals have been found in Lviv. The species occurs in meadows and on grassy anthropogenic habitats.

Taxonomic notes

Taraxacum acervatum sect. *Taraxacum* belongs to the *Taraxacum retroflexum* H. Lindb. group, which includes plants with outer bracts usually recurved, broad, brightly coloured, with clear and narrow margin; leaves with more or less red petioles and wide, often divided, terminal lobes. Main diagnostic features of *Taraxacum acervatum* are: petioles red and narrowly winged; leaves lobed, side lobes recurved, deltoid, often with large teeth on the upper and lower edges; terminal lobes greater than the side lobes, often divided with a distinct tip; outer bracts recurved, with clearly distinct margin, 3–4.5 mm wide; capitulum

with a diameter of ca. 55 mm, convex; stigmas discolored; pollen present.

Examined specimens (new records)

Ukraine: Lviv, High Castle, urban lawn 49°50'44"N / 24°02'06"E, 9 May 2017, J. & P. Marciniuk (WSRP); Lviv, Lychakiv Cemetery, lawns at cemetery avenues 49°49'56"N / 24°03'11"E, 8 May 2017, J. & P. Marciniuk (WSRP).

***Taraxacum aequilobum* Dahlst., section *Taraxacum* (Asteraceae)**

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Taraxacum aequilobum has a broad range comprising the western, central, eastern and northern Europe. Up to now the species has been recorded from Spain, Belgium, the Netherlands, Germany, Switzerland, the Czech Republic, Slovakia, Poland, Denmark, Norway, Sweden, Finland, Estonia, Latvia, Lithuania, the European part of Russia and Belarus; in the British Isles it is probably an alien species (Kirschner and Štěpánek, 2007). A new population of *T. aequilobum* (about 100 individuals) was found along the roadside in Fraga (western Ukraine). The species grows there in meadows and in grassy anthropogenic habitats. *Taraxacum aequilobum* is a new native species to Ukraine.

Taxonomic notes

Taraxacum aequilobum sect. *Taraxacum* in terms of morphology belongs to the *Taraxacum retroflexum* group. The group includes plants with leaves with numerous uniform usually entire lobes pairs and winged petioles; the outer bracts are quite large and irregularly arranged. Main diagnostic features of this taxon are: red clearly winged petioles; leaves with numerous symmetrical and usually identical pairs of lobes; side lobes recurved, deltoid, medium acute with falcate upper edge; terminal lobe similar to side lobes blunt to acute sometimes with distinct tip; outer bracts irregularly recurved and strongly twisted 4–9.9 mm wide, 15–17 mm long, without a margin; capitulum with a diameter of ca. 50 mm, convex; stigmas discolored; pollen present (Figure 7).

Examined specimens (new record)

Ukraine: Fraga, 49°28'04"N / 24°26'48"E, roadside (on limestone soil), 12 May 2017, K. Oklejewicz, M. Wolanin (KRA).

***Taraxacum amplum* Markl., section *Taraxacum* (Asteraceae)**

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Taraxacum amplum is a species widespread in central, northern and eastern Europe. As a native species has been noted in Denmark, the Netherlands, Germany, the Czech Republic, Slovakia, Poland, Ukraine, Latvia, Estonia, Finland, Norway, Sweden and the northern part

of European Russia. It is probably alien to the flora of the British Isles (Kirschner and Štěpánek, 2007). A few localities of *T. amplum* were encountered during field studies conducted in the western part of the Ukraine in 2017. The populations of the species were quite large, each consisted of several hundred individuals. The species was noted in meadows and on grassy anthropogenic habitats. We consider *Taraxacum amplum* as a new, native species to the flora of Ukraine.

Taxonomic notes

Taraxacum amplum sect. *Taraxacum* belongs to the *Taraxacum copidophyllum* Dahlst. group. The group includes species morphologically similar to taxa from *Taraxacum* sect. *Palustria* having leaves with few, usually undivided, side lobes and large terminal lobes; the outer bracts ovate or broadly lanceolate, erect or horizontally arranged with distinct margins. Main diagnostic features of *Taraxacum amplum* include: light green leaves; petioles unwinged, red, side lobes not very numerous, recurved deltoid, usually with entire edges; terminal lobes large, sagittate; outer bracts broadly lanceolate 4–4.9 mm wide and 14–15 mm long, horizontally or slightly recurved, clearly bordered; capitulum 50 mm in diameter, usually strongly convex; stigmas discolored; pollen present (Figure 7).

Examined specimens (new records)

Ukraine: Lviv, city park, lawn 49°50'13"N / 24°01'28"E, 8 May 2017, J. & P. Marciniuk (WSRP); Lviv, Lychakiv Cemetery, lawns at cemetery avenues 49°49'56"N / 24°03'11"E, 8 May 2017, J. & P. Marciniuk (WSRP); Lelechovka, Yavorivskiy National Park, meadow 49°57'01"N / 24°41'25"E, 11 May 2017, J. & P. Marciniuk (WSRP); Fraga, roadside (on limestone soil), 49°28'04"N / 24°26'48"E, 12 May 2017, K. Oklejewicz, M. Wolanin (KRA).

***Taraxacum ancistrolobum* Dahlst., section *Taraxacum* (Asteraceae)**

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Taraxacum ancistrolobum is known from central, northern and western Europe. It was recorded from France, British Isles, Switzerland, Belgium, the Netherlands, Denmark, Germany, the Czech Republic, Poland, Slovakia, Sweden, Norway, Finland and northwestern Russia (Kirschner and Štěpánek, 2007). It occurs in meadows and on grassy anthropogenic habitats. A new locality of the species was found during field studies in the western Ukraine in 2017. The population of *T. ancistrolobum* occurred on a marshy meadow and comprises about 200 individuals. We consider the species as a new, native species to the flora of Ukraine.

Taxonomic notes

Taraxacum ancistrolobum sect. *Taraxacum* belongs to the *Taraxacum lucidum* Dahlst. group. The group comprises taxa with stout, often crispate leaves, usually with a large terminal lobe, side lobes blunt to obtuse; the outer bracts are ovate or ovate-lanceolate, usually clearly bordered. Its main diagnostic features include: late flowering, stout, dark green leaves, sometimes with tarry spots in interlobes, lateral lobes undivided, broad, blunt, with usually entire, convex upper edge and concave lower edge; terminal lobe is not larger than the side lobes, blunt, broadly triangular, petioles broadly winged, green sometimes slightly pink on the inside; outer bracts ovate-lanceolate 4.0–4.9 mm wide and 12–13 mm long, horizontally arranged, usually narrowly bordered; capitulum convex with a diameter of ca. 50 mm; stigmas discolored; pollen present (Figure 7).

Examined specimens (new record)

Ukraine: Hodortivts (Hodorkowce), 49°35'00.1"N / 24°16'46.0"E, marshy meadow, 12 May 2017, K. Oklejewicz, M. Wolanin (KRA).

***Taraxacum bellicum* Sonck, section *Erythrosperma* (Asteraceae)**

Synonyms: *Taraxacum prunicolor* M. Schmid, Vašut & Oosterveld

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Taraxacum bellicum has been previously reported from: Austria, Switzerland, the Czech Republic, Slovakia, Poland, Germany, and Finland (Kirschner and Štěpánek, 2007; Marciniuk et al., 2009). We found one population (consisting of several dozen individuals) growing along a sandy forest road in the Yavorivskiy National Park, western Ukraine. *Taraxacum bellicum* is a new, native species to the flora of Ukraine.

Taxonomic notes

Taraxacum bellicum sect. *Erythrosperma* (Figure 6) is very similar to *Taraxacum scanicum* Dahlst. The two species differ in arrangement and coloration of the outer bracts. Main diagnostic features of *Taraxacum bellicum* are: leaves strongly cut, medium-green, glabrous; lateral lobes in 3–5 pairs, straight or slightly recurved, sharp-ended, their upper edges entire or slightly denticulate; terminal lobe of outer leaves triangular, while of inner leaves usually slightly elongated, lingulate with more dense small lobes below; petiole unwinged, pale purple to pale brown-purple; scapes usually green, covered with araneous hairs only below capitulum; outer bracts lanceolate, regularly recurved 1.0–3.0 mm wide, 6.5–9.0 mm long, usually red-violet, indistinctly bordered, more or less distinctly corniculate; capitulum slightly convex, 20–30 mm in diameter, flowers dark yellow, stigmata discolored, pollen present; achenes greyish purple-

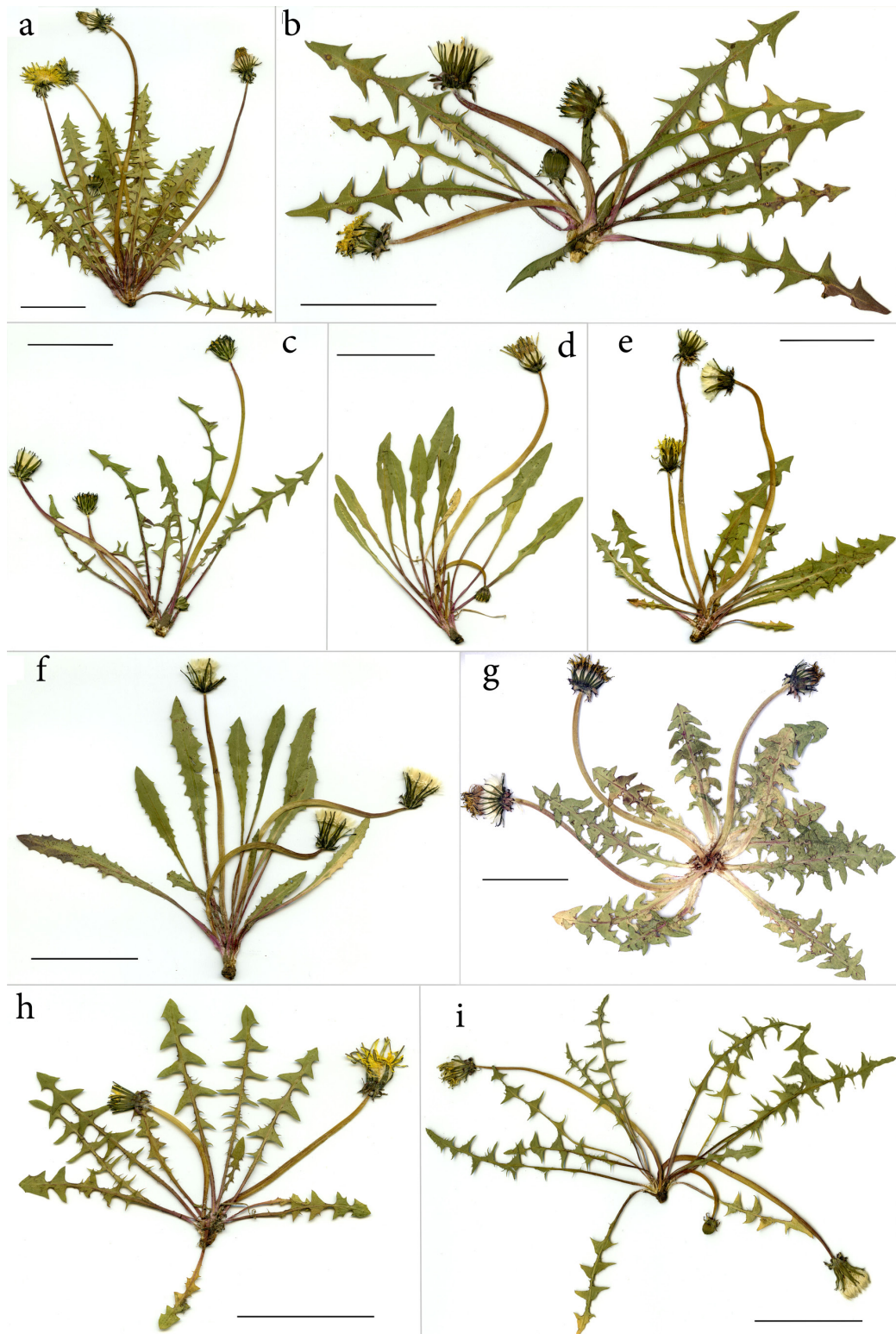


Figure 6. *Taraxacum collarispinosum* Uhlemann from Lviv (a), *Taraxacum dentatum* Kirschner & Štěpánek from Lozina/Dabrovnitsa (b), *Taraxacum portentosum* Kirschner & Štěpánek from Novosilky (c), *Taraxacum paucilobum* Hudziok from Lelechovka (d), *Taraxacum gelertii* Raunk. from Lelechovka (e), *Taraxacum telmatophilum* Kirschner & Štěpánek from Novosilky (f), *Taraxacum undulatum* H. Lindb. (Lindb. et Markl.) from Lozina/Dabrovnitsa (g), *Taraxacum bellicum* Sonck from Lelechovka (h), *Taraxacum plumbeum* Dahlst. from Stradcz (i) in Ukraine, phot. M. Wolanin, J. Marciniuk & P. Marciniuk.

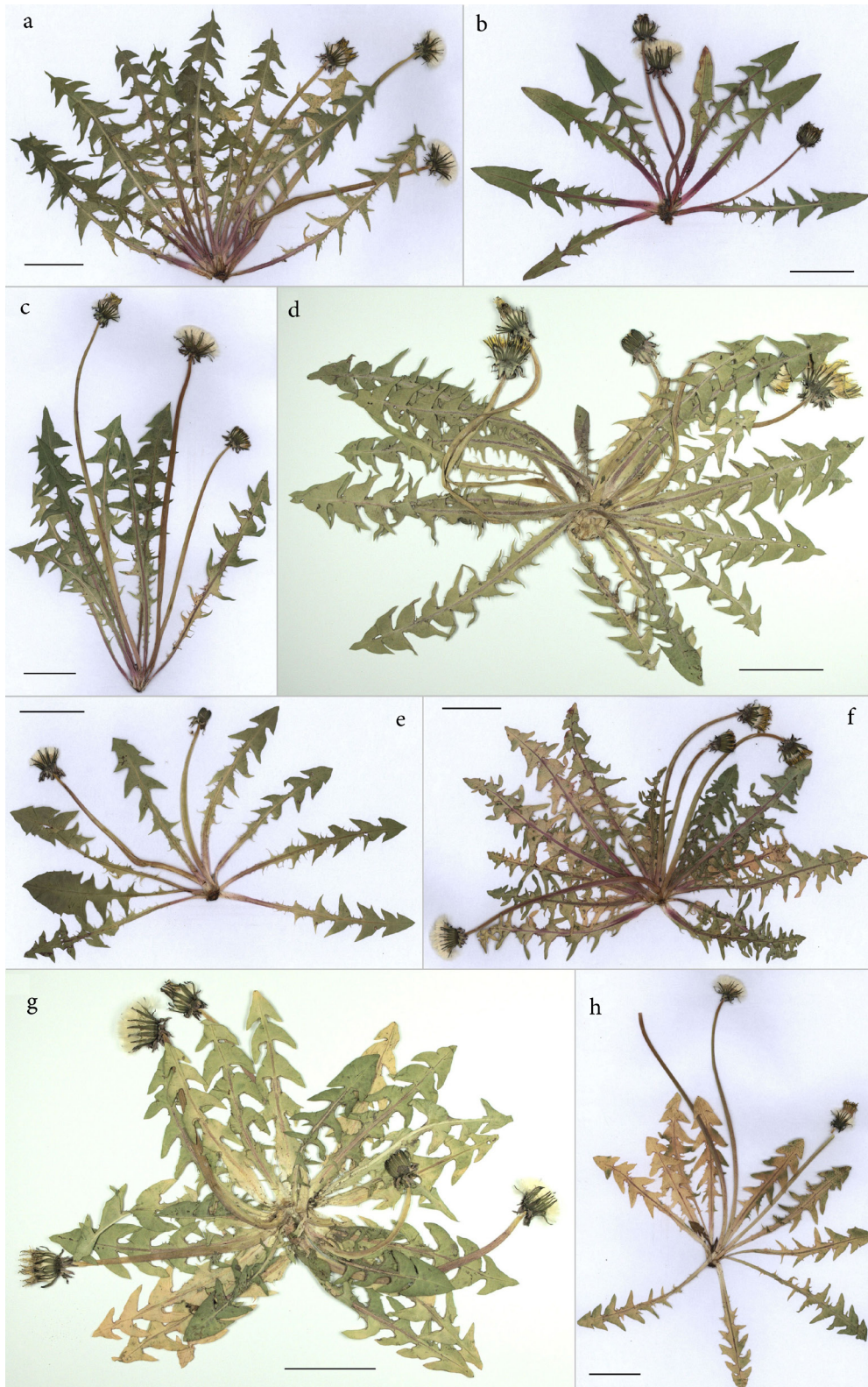


Figure 7. *Taraxacum acervatum* Rail. from Lviv (a), *Taraxacum copidophyllum* Dahlst. from Lozina/Dabrovnitsa (b), *Taraxacum amplum* Markl. from Lviv (c), *Taraxacum aequilobum* Dahlst. from Fraga (d), *Taraxacum subhuelphersianum* M.P.Chr. from Lviv (e), *Taraxacum sinuatum* Dahlst. from Lozina/Dabrovnitsa (f), *Taraxacum ancistrolobum* Dahlst. from Hodortivts (g), *Taraxacum undulatifforme* Dahlst. from Wola (h) in Ukraine, phot. M. Wolanin, J. Marciniuk & P. Marciniuk.

brown, brown after drying, rarely spinulose on the top, 3.2–3.6 mm long, cone narrow 0.9–1.1 mm long, rostrum 6–7 mm long, pappus ca. 6 mm long, white.

Examined specimens (new record)

Ukraine: Lelechovka, Yavorivskiy National Park, roadside in the forest, 49°56'45"N / 23°41'21"E, 11 May 2017, M. Wolanin (KRA).

***Taraxacum collarispinulosum* Uhlemann, section *Borea* (Asteraceae)**

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Distribution of *Taraxacum collarispinulosum* is very poorly recognized. It has been previously reported only from central and eastern Germany (Uhlemann, 2004; Kirschner and Štěpánek, 2007). We found quite a large population (consisting of about 250 individuals) of this species on lawns in the southern periphery of the city of Lviv. We consider the species as new native species to the flora of Ukraine.

Taxonomic notes

Uhlemann (Uhlemann, 2004) assigned *Taraxacum collarispinulosum* to *Taraxacum* section and to *Taraxacum melanostigma* H.Lindb. group. This group is 'transitional' between the *Borea* and *Taraxacum* sections. The features such as: relatively small capitulae, narrow outer bracts and the lack of pollen indicate close relationship of *Taraxacum collarispinulosum* with the *Borea* section. As Kirschner, Štěpánek, and Greuter (Kirschner and Štěpánek, 2007) assigned *Taraxacum melanostigma* to the *Borea* section based on the same characters, we incline to the view that *Taraxacum collarispinulosum* should also be included in the *Borea* section. Main diagnostic features of *Taraxacum collarispinulosum* (Figure 6) are: green to grey-green leaves, usually smooth or poorly hairy lateral lobes in (5)–6–7 pairs, deltoid, patent or slightly recurved, acute, while upper edge usually with parallel cut or large tooth, more rarely with a row of small teeth; terminal lobe usually small, often ligulate-elongated; interlobes acute, often tar-coloured; petiole narrowly winged, pale violet, midrib green or brown-flushed; scape below the capitulum covered densely with araneous hairs; involucre blackish; outer bracts grey-green without white edge, regularly recurved, narrowly lanceolate, 1.5–2.5 mm wide, 14–17 mm long; capitulum, 35–40 mm in diameter, stomata dark, blackish, pollen absent or residual; achenes dark straw-coloured, 3.3–3.8 mm long (without cone), collar-shaped spinulose on the top; cone cylindrical, smooth, ca. 0.5 mm long; rostrum ca. 10 mm long; pappus white ca. 6 mm long.

Examined specimens (new record)

Ukraine: Lviv, Czerniowiecka street, 49°50'13"N / 24°00'00"E lawn, 9 May 2017, M. Wolanin (KRA).

***Taraxacum copidophyllum* Dahlst., section *Taraxacum* (Asteraceae)**

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Species known from the: Belgium, Netherlands, Denmark, Germany, Poland, the Czech Republic, Slovakia, Norway, Sweden, Finland, northwestern part of Russia and mountain areas of Greece (Kirschner and Štěpánek, 2007). We found two localities of this species during field studies in the western Ukraine. The species grew in wet meadows and pastures. Its populations consisted of about 500 individuals in total. To our knowledge *Taraxacum copidophyllum* is a new native species to Ukraine.

Taxonomic notes

Taraxacum copidophyllum sect. *Taraxacum* belongs to the *T. copidophyllum* group. Main diagnostic features of this taxon (Figure 7) are: leaves dark-green with few (2–3) recurved, undivided side lobes and large hastate terminal lobes; petioles lucidly purple usually unwinged; outer bracts erect, ovate above 5 mm wide and 10–11 mm long, dark colored with a strongly contrasting white edge; capitulum with a diameter of ca. 40 mm, convex; stigmas discolored; pollen present.

Examined specimens (new records)

Ukraine: Between Lozina and Dabrovnitsa, 49°57'21.4"N / 23°48'45.7"E, wet meadow, 11 May 2017, J. & P. Marciniuk (WSRP); Hodortivts (Hodorkowce), 49°35'00.1"N / 24°16'46.0"E, wet pasture, 12 May 2017, K. Oklejewicz, M. Wolanin (KRA).

***Taraxacum corynodes* G.E.Haglund, section *Taraxacum* (Asteraceae)**

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Species known from central and northern Europe: Denmark, Sweden, Finland, Germany, Poland, the Czech Republic, Slovakia and Ukraine. It is considered to be alien to the British Isles (Kirschner and Štěpánek, 2007). It occurs in meadows and on grassy anthropogenic habitats. We found one location of this species in the Lviv region (western Ukraine). Dozens of individuals grew on an extensively used wet meadow. To our knowledge *Taraxacum corynodes* is a new, native species to Ukraine.

Taxonomic notes

Taraxacum corynodes sect. *Taraxacum* belongs to the *Taraxacum lucidum* group. Main diagnostic features of this taxon are: side lobes densely arranged, recurved deltoid or patent triangular, blunt with a pronounced tendency to divide, upper edges straight or irregular, often with large teeth, lower edges irregularly concave usually with conspicuous teeth, petioles green clearly winged; outer bracts 4–4.9 mm wide and 12–13 mm long, recurved,

unbordered; capitulum convex ca. 50 mm in diameter, stigmas discolored, pollen present.

Examined specimens (new record)

Ukraine: Between Lozina and Dabrovnitsa, 49°57'21.4"N / 23°48'45.7"E, wet meadow, 11 May 2017, J. & P. Marciniuk (WSRP).

***Taraxacum dentatum* Kirschner & Štěpánek, section *Palustria* (Asteraceae)**

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Taraxacum dentatum is a central European species, occurring from eastern Germany, through Poland, the Czech Republic, Slovakia, up to the area of Hungary (Kirschner and Štěpánek, 1998). We found three locations of *Taraxacum dentatum* in the Lviv District. The species occurred on extensively used wet meadows, preferring places with low vegetation. In total, the population consisted of several hundred individuals. In Ukraine (similarly as in other countries), it is probably a rare species. According to our study, *T. dentatum* should be now regarded as a new native species to Ukraine.

Taxonomic notes

Taraxacum dentatum sect. *Palustria* (Figure 6) is included by Kirschner and Štěpánek (1998) to the group of *Taraxacum turfosum* (Sch.Bip.) Soest and *Taraxacum dentatum*. The two species differ in achenes length (ca. 3.5 mm vs. ca. 4 mm, respectively) and shape of the distal margins of lateral lobes (*Taraxacum dentatum* has dentate *Taraxacum turfosum* has entire margins). Main diagnostic features of *Taraxacum dentatum* are: leaves erect and straight, narrow, up to 1.5 cm wide, medium-green, sinuate-dentate or deeply lobed, more rarely only toothed; lateral lobes 2 or 3, (rarely more), slightly recurved, wide-triangular, upper edge straight, usually toothed; terminal lobe narrow-triangular, fairly sharp-ended, interlobes short or medium-sized, entire; petiole narrow, purple; scape pale brownish-greenish, sparsely covered with araneous hairs capitulum, 2–3 cm in diameter, stigmata greenish-greyish, pollen present; outer bracts (11–)12–14(–18), loosely adpressed or sometimes recurved at the base, not imbricate, smooth, non-ciliate, narrowly lanceolate, 6.5–8.5 mm long, 1.5–2.8 mm wide, their edge sometimes clearly narrower than the rest part of the bract; borders of bracts indistinct, greenish to whitish-greenish, 0.4–0.9 mm wide (together with membranous 0.1–0.2 mm wide edge), gradually turning into the middle part; achenes (2.9–)3.3–3.8 mm long, spinulose on the top, fairly rapidly narrowing into more or less cylindrical 0.5–0.7(–0.8) mm long cone; rostrum 6.5–7.0(–8.0) mm long; pappus 5.5–6.0 mm long.

Examined specimens (new records)

Ukraine: Between Lozina and Dabrovnitsa, 49°57'21"N / 23°48'45"E, wet meadow, 11 May 2017, J. & P. Marciniuk

(KRA); Iwano-Franko, 49°54'36"N / 23°44'33"E, meadow in the Wereszczycza river valley, 11 May 2017, J. & P. Marciniuk (WSRP); Novosilky, wet pasture, 49°38'42"N / 24°01'19"E, 8 May 2017, K. Oklejewicz (KRA).

***Taraxacum gelertii* Raunk., section *Naevosa* (Asteraceae)**

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Taraxacum gelertii is the most widespread species from the subatlantic section *Naevosa*. It has been reported from Portugal, Belgium, the British Isles, Denmark, Germany, the Czech Republic, Poland, Sweden, Finland, Latvia and Estonia (Kirschner and Štěpánek, 2007). For the first time the species was found in Ukraine in three localities (several hundred individuals) where it grew mainly on wet meadows, rarely in anthropogenic habitats: parks, urban lawns, cemeteries. To our study, *T. gelertii* should be regarded as a new native species (and the section *Naevosa* as a new section) to the flora of Ukraine.

Taxonomic notes

Taraxacum gelertii (together with *Taraxacum praestans* H.Lindb. and *Taraxacum adamii* C.Claire) occupies a marginal position within the section *Naevosa*. This is due to the lack of scattered spots on the leaf, which are characteristic for this section. *Taraxacum gelertii* (Figure 6) clearly differs from *Taraxacum adamii* and *Taraxacum praestans* by having green, not purple, leaf midrib. Main diagnostic features of *Taraxacum gelertii* are: leaves usually nearly erect, greyish-green, usually shallowly lobed, more rarely only denticulate; lateral lobes (small lobes, teeth) usually 3–4(–5), protruded at the right angle, narrowly triangular or nearly linear (in young plants developing under extreme conditions), irregularly denticulate or small-lobed, upper edge usually concave; interlobes denticulate and small-lobed, terminal lobe small, triangular; petiole narrow, pale purple; scape suffused with brownish-purple, araneous hairy; capitulum 2.5–3.0 cm in diameter, flowers yellow; stomata green; pollen present; the outer bracts (10–)13–15, adpressed to loosely adpressed, not imbricate, ciliated, blackish, narrowly lanceolate or lanceolate (6.5–)7.0–8.0(–9.5) mm long, (2.7–)2.9–3.3 mm wide; border of bracts distinctly limited to whitish and narrow 0.2–0.3 mm wide edge; achenes 4.2–4.5 mm long, evidently spinulose on the top, fairly rapidly narrowing into +/- cylindrical cone 0.9–1.0 mm long; rostrum 7.0–8.0 mm long; pappus 5.5–6.0 mm long.

Examined specimens (new records)

Ukraine: Lelechovka, 49°56'45"N / 23°41'21"E, marshy meadow, 11 May 2017 J. & P. Marciniuk, M. Wolanin (WSRP); Stradcz, 49°54'02"N / 23°45'34"E, meadow, 11 May 2017 J. & P. Marciniuk, K. Oklejewicz (WSRP); Lviv, Lyczakov Cemetery, lawn 49°49'58"N / 24°03'12"E, 8 May 2017, J. & P. Marciniuk (WSRP).

***Taraxacum infuscatum* H. Øllg., section *Taraxacum* (Asteraceae)**

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Taraxacum infuscatum is a species with poorly known distribution. It was previously reported from France, the Netherlands, Denmark, Sweden, Finland, Germany, the Czech Republic and Poland (Kirschner and Štěpánek, 2007). It occurs in meadows and on grassy anthropogenic habitats. We found the species in the anthropogenic habitats in Lviv and along the forest road in the Yavorivskiy National Park, Ukraine. During our field study in the western Ukraine a total of several hundred individuals were noted. *Taraxacum infuscatum* should be regarded as a new, native species to the flora of Ukraine

Taxonomic notes

Taraxacum infuscatum belongs to the *Taraxacum retroflexum* group. Main diagnostic features of this taxon are: petioles green, inside sometimes pink, winged; leaves with pronounced tar spots in interlobes and numerous curved deltoid side lobes, usually with a strongly serrated upper edge; terminal lobe small, triangular, often elongated; outer bracts vertical hanging, twisted and very long, 3–3.9 mm wide, 18–20 mm long, unbordered; capitulum with a diameter of ca. 50 mm, convex; stigmas discolored; pollen present.

Examined specimens (new records)

Ukraine: Lviv, Lychakiv Cemetery, lawn 49°49'56"N / 24°03'11"E, 8 May 2017, J. & P. Marciniuk (WSRP); Lviv, High Castle, lawn 49°50'44"N / 24°02'06"E, 9 May 2017, J. & P. Marciniuk (WSRP); Lelechovka, Yavorivskiy National Park, forest road 49°57'01"N / 24°41'25"E, 11 May 2017, J. & P. Marciniuk (WSRP).

***Taraxacum ingens* Palmgr., section *Taraxacum* (Asteraceae)**

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Taraxacum ingens is a species with a somewhat disjunctive range that is currently insufficiently recognized. It has been so far noted in Denmark, Germany, the Czech Republic, Slovakia, Poland, as well as in Latvia, Estonia and Finland (Kirschner and Štěpánek, 2007). *Taraxacum ingens* occurs in meadows and on grassy anthropogenic habitats. We found about 50 individuals of the species on a wet meadow in Stradcz (western Ukraine). The species should be now considered a new native species to Ukraine.

Taxonomic notes

Taraxacum infuscatum sect. *Taraxacum* belongs to the *Taraxacum retroflexum* group. Main diagnostic features of this taxon are: petioles winged, green without traces of red; leaves usually with numerous curved, deltoid side lobes

with strongly serrated upper edges; terminal lobe obtuse to acute often with symmetrically placed large teeth; outer bracts large 4–4.9 and more mm wide and 15–17 mm long, often violet colored; capitulum over 60 mm, convex; stigmas discolored; pollen present.

Examined specimens (new record)

Ukraine: Stradcz, 49°50'44"N / 24°02'06"E, meadow, 11 May 2017, J. & P. Marciniuk (WSRP).

***Taraxacum lucidum* Dahlst., section *Taraxacum* (Asteraceae)**

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Taraxacum lucidum is a species with a fairly wide range, known from Spain, the British Isles, Belgium, the Netherlands, Denmark, Sweden, Norway, Finland, Estonia, Latvia, Germany, the Czech Republic, Slovakia and Poland (Kirschner and Štěpánek, 2007). A new locality of *Taraxacum lucidum* was found during fieldstudy in the western Ukraine. The population of the species included about 80 individuals. The species grows together with *Taraxacum corynodes* on a wet meadow. To our knowledge *Taraxacum lucidum* is a new native species to Ukraine. It occurs in wet meadows.

Taxonomic notes

Taraxacum lucidum sect. *Taraxacum* belongs to the *T. lucidum* group. Main diagnostic features of this taxon are: leaves stout, medium green with few recurved, medium-acute side lobes, their upper edges are strongly dentate, lower edges usually entire, terminal lobes large, blunt, more or less hastate, petioles of outer leaf usually pale outside and lucidly purple inside, inner leaves on both sides purple, unwinged; outer bracts large ovate over 5 mm wide and 12–13 mm long, erect or arranged horizontally, with clear margin; capitulum convex with a diameter of ca. 55 mm; stigmas discolored; pollen present.

Examined specimens (new record)

Ukraine: Between Lozina and Dabrovnitsa, 49°57'21.4"N / 23°48'45.7"E, wet meadow, 11 May 2017, J. & P. Marciniuk (WSRP).

***Taraxacum paucilobum* Hudziok, section *Palustria* (Asteraceae)**

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Taraxacum paucilobum is a central European species occurring in Poland, Slovakia, the Czech Republic, northern Austria, eastern and central Germany, and very rarely in Hungary, Romania, Bosnia and Herzegovina (Kirschner and Štěpánek, 1998). We found five populations of *T. paucilobum* (a total of 1000 individuals). The species occurred on extensively used wet meadows and wet pastures. To our knowledge, *T. paucilobum* is a new, native

species to Ukraine. It is probably the most common species from the section *Palustria* in western Ukraine.

Taxonomic notes

Taraxacum paucilobum sect. *Palustria* (Figure 6) is included in the group of *Taraxacum paucilobum* and *Taraxacum vindobonense* Soest by Kirschner and Štěpánek (Kirschner and Štěpánek, 1998). It differs from the other species of the group (especially from the most similar *Taraxacum polonicum* Małecka & Soest and *Taraxacum vindobonense*), by having slender achenes with a short rostrum, typically shallowly lobed leaves and tightly adpressed outer bracts. *Taraxacum polonicum* and *Taraxacum vindobonense* have thicker achenes, different leaf shape and loosely adpressed outer bracts. Main diagnostic features of *Taraxacum paucilobum* are: leaves prostrate to horizontally erected, longitudinally reversely lanceolate, medium-green, sinuate-serrated, sinuate-small lobate or lobate, more rarely almost entire; lateral lobes 2–3, more or less triangular; terminal lobe often elongated; petiole narrow, often long, purple; scape usually almost bare (below the capitulum very sparsely covered with araneous hairs), purplish from the top; capitulum small, 2.0–2.5 cm in diameter, flowers yellow; outer bracts 10–12, closely adpressed, not imbricate, sparsely ciliated, dark green and usually redish on the top, lanceolate or widely lanceolate, 4.0–6.0 mm long, 2.5–3.0 mm wide; borders of bracts +/- visible, pale greenish and suffused with pink, 0.5–1.0 mm wide membranous edge +/- nonvisible, gradually transformed into the middle part; achenes 4.0–4.5 mm long, thin (0.8–0.9 mm thick), sparsely spinulose on the top, fairly gradually narrowing into nearly cylindrical small cone, (0.7–)0.8–0.9 mm long; rostrum 6.0–7.0 mm long; pappus 5.0–6.0 mm long.

Examined specimens (new records)

Ukraine: Nowosilky, 49°38'42"N / 24°01'19"E, wet pasture, 8 May 2017, M. Wolanin (KRA); Lelechovka, 49°56'45"N / 23°41'1"E, wet meadow, 11 May 2017, M. Wolanin (KRA); Stradcz, 49°53'58"N / 23°45'19"E, wet meadow, 11 May 2017, J. & P. Marciniuk (WSRP); between Lozina and Dabrovnitsa, 49°57'21"N / 23°48'45"E, wet meadow, 11 May 2017, J. & P. Marciniuk (WSRP); Iwano-Franko, 49°54'36"N / 23°44'33"E, wet meadow in the valley of the Wereszczyca River, 11 May 2017, J. & P. Marciniuk (WSRP).

***Taraxacum plumbeum* Dahlst., section *Erythrosperma* (Asteraceae)**

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

In Europe, *Taraxacum plumbeum* is a rare species. It has been reported so far from Italy, Switzerland, Austria, Slovakia, the Czech Republic, Poland, Germany, and Sweden (Kirschner and Štěpánek, 2007). The species

occurs in dry, extensively used grasslands, on sandy forest roads and dry lawns. We found three locations of this taxon in the Lviv region (a total of several hundred individuals). *Taraxacum plumbeum* should be considered a new native species to the flora of Ukraine.

Taxonomic notes

In terms of morphology *Taraxacum plumbeum* (Figure 6) is similar to *Taraxacum brachyglossum* (Dahlst.) Raunk. The two species differ in coloration of the outer leaves (green vs. violet, respectively). Main diagnostic features of *Taraxacum plumbeum* are: leaves dark green, usually deeply cut, young leaves pilose; lateral lobes in 5–6 pairs, patent, or (in outer leaves) falcate, their upper edge often convex, entire or regularly toothed, interlobes with thread-like teeth and folded edge; terminal lobe of outer leaves usually small, triangular, while of inner leaves often lingulate-elongated with denticulate edge; petioles unwinged, usually red; scapes covered with araneous hairs; capitula convex, ca. 3 cm in diameter, stigmata (olive-green); pollen present; the outer bracts erect, 2.0–2.9 mm wide, 7.0–9.0 mm long, unbordered or very narrowly bordered, usually not corniculate; achenes yellowish light reddish brown, 3.9–4.1 mm long, densely spinulose on top; spinules fairly long and sturdy; cone cylindrical, 0.7–0.8 mm long; rostrum 8.0–9.0 mm long, pappus ca. 6 mm long, white.

Examined specimens (new records)

Ukraine: Wola, 49°32'13"N / 24°01'14"E, dry grassland with *Orchis morio*, 10 May 2017, J. Marciniuk (WSRP); Stradcz, 49°53'58"N / 23°45'19"E, meadow, 11 May 2017, J. & P. Marciniuk (WSRP, KRA); Lelechovka, Yavorivskiy National Park, 49°56'45"N / 23°41'21"E, meadow and sandy roadside in the forest, 11 May 2017, J. & P. Marciniuk (WSRP, KRA).

***Taraxacum portentosum* Kirschner & Štěpánek, section *Palustria* (Asteraceae)**

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Taraxacum portentosum is known chiefly from the area of Poland. Besides, it was also reported from few (probably no longer existing) locations in the Czech Republic and Slovakia (Kirschner and Štěpánek, 1998; Marciniuk and Marciniuk, 2006). We found three populations of the species in the Lviv region (western Ukraine). *Taraxacum portentosum* was recorded on extensively used wet meadows and waterlogged pastures. The populations of the species included several hundred individuals in total. *Taraxacum portentosum* should be considered as a new native species to Ukraine. *Taraxacum portentosum* is often recorded in the eastern Poland, so it is also probably quite a common species in the western part of Ukraine.

Taxonomic notes

Taraxacum portentosum sect. *Palustria* (Figure 6) is included by Kirschner and Štěpánek (1998) to the group of *Taraxacum fluviatile* Kirschner & Štěpánek and *Taraxacum inundatum* Kirschner & Štěpánek. *Taraxacum portentosum* is closely related with *Taraxacum fluviatile* and *Taraxacum ambrosium* Kirschner & Štěpánek. It clearly differs from the two mentioned species in the shape of the leaves – with irregular, narrow lateral lobes and very narrow interlobes. *Taraxacum fluviatile* and *Taraxacum ambrosium* have regularly arranged side lobes and wider interlobes. Main diagnostic features of *Taraxacum portentosum* are: 10–35 cm; leaves almost stretched or raised, medium-green, deeply cut, lateral lobes usually 3–4 in number, deltoid with wide protruding base +/- abruptly tightened into narrow endings irregularly directed upwards or downwards, interlobes very narrow, usually entire or sparsely denticulate; terminal lobe triangular, hastate or triple, sometimes large; petiole narrow, purple scape pale greenish-brownish, below the capitulum densely covered with araneous hairs; capitulum 3.0–4.0 cm in diameter, flowers yellow; stigmas green; pollen present; the outer bracts numbering 16–21, more or less adpressed, in older capitulae often protruding, imbricate, ciliated, usually pale green, with very narrow, 0.3–0.6(–1.0) mm wide central strip, often pink on the top, lanceolate or ovate-lanceolate (utmost external usually longitudinally lanceolate, not wider than 1.5 mm), usually (7.0–)7.5–10.0 mm long and 2.0–3.5 mm wide; achenes 4.1–4.5(–4.8) mm long, spinulose on the top, gradually narrowed into more or less cylindrical cone, 0.9–1.2 mm long; rostrum 9.0–11.0 mm long; pappus 5.5–6.5 mm long.

Examined specimens (new records)

Ukraine: Novosilky, 49°38'42"N / 24°01'19"E, wet pasture, 8 May 2017 M. Wolanin, K. Oklejewicz (KRA); Stradcz, 49°54'02"N / 23°45'34"E, wet meadow, 11 May 2017 J. & P. Marciniuk, K. Oklejewicz (WSRP); between Lozina and Dabrovnitsa, 49°57'02"N / 23°48'45"E, wet meadow, 11 May 2017, J. & P. Marciniuk (WSRP).

***Taraxacum sinuatum* Dahlst., section *Taraxacum* (Asteraceae)**

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Taraxacum sinuatum is a species with quite a broad range extending from France, the British Isles, the Netherlands, Denmark, Sweden, Norway, Finland, Latvia, to Germany, Poland, the Czech Republic and Slovakia (Kirschner and Štěpánek, 2007). A new locality of *T. sinuatum* was found in western Ukraine in 2017. The population of the species consists of about 50 individuals. *Taraxacum sinuatum* occurs in meadows and on grassy anthropogenic habitats. The species was found together

with *Taraxacum corynodes* and *Taraxacum lucidum* on a wet meadow. We consider the species as a new and native to the flora of Ukraine

Taxonomic notes

Taraxacum sinuatum sect. *Taraxacum* (Figure 7) belongs to the *Taraxacum lucidum* group. Main diagnostic features of this taxon are: leaves medium green with broad, blunt, sometimes divided side lobes, their upper edges usually falcate, entire or with large teeth, lower edges straight or slightly concave with single large teeth; terminal lobe wide-triangular, blunt not larger from side lobes; petioles unwinged or very narrowly winged from the outside pale on the inside pink to lucidly purple; outer bracts horizontally, approximately 5 mm wide and 12–13 mm long, narrowly (sometimes faintly) bordered; capitulum convex ca. 45 mm in diameter; stigmas discolored; pollen present.

Examined specimens (new record)

Ukraine: Between Lozina and Dabrovnitsa, 49°57'21.4"N / 23°48'45.7"E, wet meadow, 11 May 2017, J. & P. Marciniuk (WSRP).

***Taraxacum subhuelphersianum* M.P.Chr., section *Taraxacum* (Asteraceae)**

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Taraxacum subhuelphersianum is a species of poorly known distribution, previously reported from Finland, Norway, Sweden, Denmark, the Netherlands, Germany, the Czech Republic and Poland. It is considered to be alien to the flora of the British Isles (Kirschner and Štěpánek, 2007). Recently, we have found this species in one locality (30 individuals) at the Lychakiv cemetery in Lviv, Ukraine. We consider the species as a new and native to the flora of Ukraine. The species occurs in meadows and on grassy anthropogenic habitats.

Taxonomic notes

Taraxacum subhuelphersianum sect. *Taraxacum* (Figure 7) belongs to the *Taraxacum retroflexum* group. Main diagnostic features of this taxon are: petioles narrowly winged, from the outside pale on the inside red; leaves light green, side lobes recurved, deltoid, usually acute and entire on both edges; terminal lobe greater than side lobes blunt to acute without tip, often with one or two notches; outer bracts hanging, with clear margins, 3–4.5 mm wide; capitulum with a diameter of ca. 45 mm, convex, dense; stigmas yellowish; pollen absent.

Examined specimens (new record)

Ukraine: Lviv, Lychakiv Cemetery, lawn 49°49'56"N / 24°03'11"E, 8 May 2017, J. & P. Marciniuk (WSRP).

***Taraxacum telmatophilum* Kirschner & Štěpánek, section *Palustria* (Asteraceae)**

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Taraxacum telmatophilum is a very rare Pannonian species occurring in the southern part of Slovakia, in Hungary, and in a few localities in Austria, and eastern Poland (Kirschner and Štěpánek, 1998). *Taraxacum telmatophilum* is confined to subhalophilous vegetation, often growing along canals or shores of small ponds in pastures (Kirschner and Štěpánek, 1998). A new locality of *T. telmatophilum* was found in western Ukraine in 2017. It was recorded in wet pastures. We considered *T. telmatophilum* as a new native species to the flora of Ukraine. Discovered populations are located between the northern and southern part of the species' range.

Taxonomic notes

Taraxacum telmatophilum sect. *Palustria* (Figure 6) belongs to the group of *Taraxacum cognatum* Kirschner & Štěpánek and *Taraxacum telmatophilum* (Kirschner and Štěpánek, 1998). *Taraxacum telmatophilum* is the most similar to *Taraxacum potor* Kirschner & Štěpánek. The two species differ in the shape of leaves. The leaves of *Taraxacum telmatophilum* are lobed whereas those of *Taraxacum potor* are usually not lobed, but only lobulate or dentate.

Main diagnostic features of *Taraxacum telmatophilum* are: plants slender, 10–20 cm high; leaves usually nearly erect, greyish-green, usually shallowly lobed, more rarely only denticulate; lateral lobes (small lobes, teeth) usually 3–4(–5), protruded at the right angle, narrowly triangular or nearly linear (in young plants developing under extreme conditions), irregularly denticulate or small-lobed, upper edge usually concave; interlobes denticulate and small-lobed; petiole narrow, pale purple; scape brownish-purple, covered with araneous hairs; capitulum 2.5–3.0 cm in diameter, flowers yellow; stomata green, pollen present; the outer bracts (10–)13–15, adpressed to loosely adpressed, not imbricate, ciliated, blackish, narrowly lanceolate or lanceolate (6.5–)7.0–8.0(–9.5) mm long, (2.7–)2.9–3.3 mm wide; border of bracts distinctly limited to whitish narrow 0.2–0.3 mm wide edge; achenes 4.2–4.5 mm long, evidently spinulose on the top, fairly rapidly narrowing into +/- cylindrical cone 0.9–1.0 mm long; rostrum 7.0–8.0 mm long; pappus 5.5–6.0 mm long.

Examined specimens (new record)

Ukraine: Novosilky, 49°38'42"N / 24°01'19"E waterlogged pasture, 8 May 2017 M. Wolanin, K. Oklejewicz (KRA).

***Taraxacum undulatifforme* Dahlst., section *Taraxacum* (Asteraceae)**

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Taraxacum undulatifforme is a species with poorly known distribution range, previously reported from France, Belgium, the Netherlands, Denmark, Norway, Sweden, Estonia, Germany, the Czech Republic, Slovakia

and Poland (Kirschner and Štěpánek, 2007). A new locality of *T. undulatifforme* was found in the western Ukraine in 2017. It occurs in meadows and on grassy anthropogenic habitats. We considered *T. undulatifforme* as new, native species to the flora of Ukraine.

Taxonomic notes

Taraxacum undulatifforme sect. *Taraxacum* (Figure 7) in terms of morphology belongs to the *Taraxacum lucidum* group. *Taraxacum undulatifforme* is very similar to *Taraxacum undulatum*, from which it differs by the absence of distinct margin of the outer bracts, which are narrower and longer 4–4.9 mm wide and 13–15 mm long (*Taraxacum undulatum*: 5 mm wide and 12–13 mm long).

Examined specimens (new record)

Ukraine: Wola, 49°32'13"N / 24°01'14"E, dry grassland with *Orchis morio*, 10 May 2017, J. Marciniuk (WSRP).

***Taraxacum undulatum* H.Lindb. & Marklund, section *Taraxacum* (Asteraceae)**

Contributors – Jolanta Marciniuk, Paweł Marciniuk, Mateusz Wolanin

Distribution and habitat

Taraxacum undulatum is a species reported from France, the British Isles, Belgium, the Netherlands, Denmark, Germany, Poland, the Czech Republic, Slovakia, Norway, Sweden, Finland, Latvia and the northern part of European Russia (Kirschner and Štěpánek, 2007). A few localities of *T. undulatum* were found in Ukraine during field studies conducted in 2017. These are the first records of the species for this country. It was met in meadows and on grassy anthropogenic habitats. *T. undulatum* is probably a fairly common species in the western Ukraine. We considered the species as native to the flora of Ukraine.

Taxonomic notes

Taraxacum undulatum sect. *Taraxacum* (Figure 6) belongs to the *Taraxacum lucidum* group. Main diagnostic features of this taxon include: leaves stout medium green, side lobes recurved, blunt, upper edges convex, undivided, lower edges straight or concave with a single large tooth; terminal lobe blunt broadly triangular; petioles green, winged; outer bracts horizontal, large area 5 mm wide and 12–13 mm long, clearly bordered; capitulum convex, 45–50 mm in diameter; stigmas discolored; pollen present.

Examined specimens (new records)

Ukraine: Stradcz, 49°54'02.2"N / 23°45'34.0"E, grazed meadow, 11 May 2017, J. & P. Marciniuk (WSRP); Iwano-Franko, 49°54'36"N / 23°44'33"E, meadow over the Wereszczyca River, 11 May 2017, J. & P. Marciniuk (WSRP); between Lozina and Dabrovnitsa, 49°57'21.4"N / 23°48'45.7"E, wet meadow, 11 May 2017, J. & P. Marciniuk (WSRP); Hodortivts (Hodorkowce), 49°35'00.1"N / 24°16'46.0"E, wet pasture, 12 May 2017, K. Oklejewicz, M. Wolanin (KRA).

***Viscum album* L. subsp. *austriacum* (Wiesb.) Vollm. (Santalaceae)**

Contributors – Giacomo Mei, Adriano Stinca

Distribution and habitat

Viscum album subsp. *austriacum* is an Eurasian taxon. Its range is still not fully known (Zuber, 2004). It is widely distributed in all countries of central and southern Europe (Uotila, 2011). It was noted on Mount Etna in Sicily one century ago (as *Viscum album* L. γ *laxum* Boiss. et Reut. (Fiori, 1923)). Later its occurrence in the flora of the island was considered doubtful (Giardina et al., 2007) thus it was not given in the Italian check-lists (Conti et al., 2005; Bartolucci et al., 2018). However, the presence of *V. album* subsp. *austriacum* was confirmed on Mount Etna in 2018.

Viscum album subsp. *austriacum* is a hemi-parasitic, dioecious shrub growing predominantly in mountain areas on the branches of some coniferous trees (*Pinus* spp., rarely *Picea* spp. and *Larix* spp.). On Mount Etna it was found in pioneer Corsican pine forest (Camerano et al., 2011) in communities of *Junipero hemisphaericae-Pinetum calabrica* Brullo & Siracusa and other pioneer associations occurring on lavic materials.

Taxonomy

The cosmopolitan genus *Viscum* L. includes approximately 100 species (Zuber, 2004) two of which are recorded in Europe: *Viscum album* L. and *Viscum cruciatum* Boiss. *Viscum album* is divided into several commonly accepted subspecies, which are morphologically very similar, but parasitize different host species. In Europe, four subspecies are recognized (Zuber, 2004; Uotila, 2011; Böhling et al., 2002): *Viscum album* subsp. *album* that parasitizes on deciduous trees; *Viscum album* subsp. *abietis* (Wiesb.) Abrom. that parasitizes solely on *Abies* spp.;

Viscum album subsp. *austriacum* that, as mentioned before, is found on *Pinus* spp. or rarely *Picea* spp. and *Larix* spp.; *Viscum album* subsp. *creticum* N.Böhling, Greuter, Raus, B.Snogerup, Snogerup & Zuber which grows on *Pinus halepensis* Mill. subsp. *brutia* (Ten.) Holmboe exclusively in Crete.

Examined specimens (new record)

Italy: Sicily, Mt. Etna, province of Catania, Linguaglossa in locality Mt. Conca, UTM WGS84: 33N zone, 37°47'22.95"N / 15°02'30.05"E, alt. 1805 m a.s.l., ENE exp., parasite *Pinus nigra* J.F. Arnold subsp. *laricio* Palib. ex Maire, 7 April 2018, G. Mei & A. Stinca (ANC, PORUN-Herb. Stinca).

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Contribution of authors

All the authors contributed in the field studies and preparation of selected parts of the manuscript. Marcin NOBIS, in the project coordinator.

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