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Contribution to the flora of Asian and European countries: new national and regional vascular plant records, 5

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ABSTRACT

The paper presents new records for 19 vascular plant species from 14 Eurasian countries. Two taxa (*Siphonostegia chinensis* and *Utricularia macrorhiza*) are reported from Russia, two (*Achnatherum botschantzevii* and *Stipa zalesskii*) from Kyrgyzstan, one (*Allium petraeum*) from Uzbekistan, three (*Crambe orientalis*, *Eleocharis mamillata* and *Geranium pratense L. fater pratense. sergievskajae*) from Kazakhstan, two (*Atriplex crassifolia* and *Petrosimonia brachyphylla*) from China, one (*Crambe orientalis*) from Tajikistan, one (*Stipa krylovii*) from India, one (*Agrostis lazica*) from Iraq, two (*Orobanche coerulescens* and *Orobanche zajaciorum*) from Armenia, one (*Phelipanche lavandulacea*) from Montenegro, one (*Panicum riparium*) from Bosnia and Herzegovina, Romania and Sweden, one (*Sporobolus vaginiflorus*) from Bosnia and Herzegovina and two (*Ranunculus penicillatus* subsp. *pseudofluitans* and *Scutellaria minor*) from Poland. Three of the taxa presented (*Crambe orientalis*, *Panicum riparium* and *Sporobolus vaginiflorus*) are regarded as alien to the studied areas, whereas the remaining 16 are native elements to the flora of the countries. For each species, synonyms, general distribution, habitat preferences, taxonomy with remarks on recognition and differentiation 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.

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Alien species; Asia; chorology; Europe; native species; taxonomy

Introduction

This paper is the continuation of previous works dedicated to new national and regional vascular plant records (Nobis, Nowak et al. 2014; Nobis, Ebel et al. 2014; Nobis, Nowak et al. 2015; Nobis, Ebel et al 2015). During field exploration across the vast area of 10 European and Asian countries as well as during taxonomic revisions of herbaria materials of different groups of vascular plants, the authors found some species that are new to the floras of particular countries or to significant regions (provinces or republics). The aim of this paper is to report new records for 19 vascular plant species from 14 Eurasian countries, namely Armenia, Bosnia and Herzegovina, China, India, Iraq, Kazakhstan, Kyrgyzstan, Montenegro, Poland, Romania, Russia, Sweden, Tajikistan and Uzbekistan. Three of the taxa presented here are regarded as alien to the studied areas, whereas the other 16 are native elements to the flora of the countries.

New records for Asian countries

Achnatherum botschantzevii Tzvelev (Poaceae)

Contributors – Marcin Nobis, Arkadiusz Nowak

Distribution and habitat

Achnatherum botschantzevii is an endemic species known to date only from locus classicus, which is

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located between the Isfara and Sokh River valleys, in the northwestern part of the Alai Mountains in western Kyrgyzstan (Tzvelev 1974), and from one holotypic specimen. During revision of herbarium materials from the genus *Achnatherum*, we found specimens of *Achnatherum botschantzevii* collected from calcareous rocks near Kok-kul Lake, in the border zone of Kyrgyzstan and Uzbekistan. Individuals of the species can probably be found in both of these countries.

Taxonomic notes

Achnatherum botschantzevii is similar to *Achnatherum turkomanicum* (Roshev.) Tzvelev, however it differs from *Achnatherum turkomanicum* by having shorter culms (15–35 versus 40–120 cm long), shorter lemmas (3–4.5 versus 4–5 mm long) and longer awns (20–25 versus 10–15 mm long). *Achnatherum botschantzevii* is also slightly similar to *Achnatherum longiaristatum* (Boiss. & Hausskn.) Nevski (syn. *Stipa kurdystanica* Bor) from Kurdistan, from which it differs by shorter anthecia (3–4.5 versus 5.3–6.2 mm long), bearded versus unbearded anthers and also somewhat longer awns (20–25 versus 15–22 mm long; Freitag 1985).

It is worth noting that in the description of *Achnatherum botschantzevii* (Tzvelev 1974) there is a mistake regarding the length of the lemma. Biometrical studies of both the holotype of *Achnatherum botschantzevii* and the specimens from the new locality, show that they have lemmas 3–4.5 mm long, not 1.8–2.2 mm long (as was given by Tzvelev 1974, 1976). This is important information because, based on the protologue of this taxon (Tzvelev 1974) as well as on the later keys to identification of *Achnatherum* (Tzvelev 1976), correct determination of the taxon is impossible. What is more, specimens having long awns and lemmas longer than 2.2 mm could be described as a new taxon.

Examined specimens (new record)

KYRGYZSTAN/UZBEKISTAN: UdSSR: Fergana / Alai=Gebirge: Umgebung des Sees Kok-kul c. 9 km südöstlich Schachimardan (Chamsaabad); Wiederasen; c. 1800 m s.m., 5 July 1989, *K.-F. Günther, H.-J. Zündorf, M. Schnittler 758* (JE) – two sheets.

Agrostis lazica Balansa (Poaceae)

Contributor – Beata Paszko

Distribution and habitat

Agrostis lazica was collected and described by Balansa (1874, 12) based on a gathering from Rize district in northeastern Turkey. Until now, *Agrostis lazica* was recorded from Armenia, Azerbaijan, Georgia, Russia (Dagestan) and Turkey (Bitlis, *Kayseri,* Rize) (Rzazade 1950; Tzvelev 1976, 2006; Doğan 1985; Nersesian 2004; Kurchenko 2010; Nakhutsrishvili 2013). *Gillet 9731* is the first record of *Agrostis lazica* for the Kurdistan Region of Iraq, and extends its known distribution southwards by about 300 km from the closest locality where it was previously recorded at *Süphan Dağı (Bitlis,* Turkey*)* (Doğan 1985).

Agrostis lazica grows in alpine meadows at about 2500–3300 m above sea level (a.s.l.) (Tzvelev 1976; Doğan 1985; Nakhutsrishvili 2013). According to Zazanashvili, Gagnidze, and Nakhutsrishvili (2000) *Agrostis lazica* is a characteristic element of alpine grasslands in the lower alpine belt, from 2400 to 2750 m. In Iraq it was collected at about 3200 m in a damp alpine meadow.

Taxonomic notes

The genus *Agrostis* L. in Iraq is represented by three species, *Agrostis gigantea* Roth, *Agrostis stolonifera* L. and *Agrostis olympica* (Boiss.) Bor (Bor 1968). An on-going revision of the *Agrostis olympica* complex and its close relatives in the Himalayan region, Near East and Central Asia (Paszko and Pendry 2013; Paszko 2014a, 2014b; Paszko, unpubl. data) revealed a first record of *Agrostis lazica* Balansa (*Gillet 9731*) housed at K herbarium, from Ser Kurawa (northeast of Erbil) within Rowanduz district (MRO) in the Kurdistan Region (northeast Iraq). Previously, the Iraqi specimen was misidentified by N.L. Bor as *Agrostis olympica*, and as such was cited by him in *Flora of Iraq* (Bor 1968) and in *Flora Iranica* (Bor 1970).

Agrostis lazica is often confused with other species, particularly *Agrostis balansae* (Boiss.) Tzvelev (Doğan 1985). It can also be confused with *Agrostis olympica* (Paszko, unpubl. data), as it was by Bor. *Agrostis lazica* differs from *Agrostis balansae* by its relatively dense panicle, short panicle branches (0.5–1.5 cm) and shorter anthers (0.6–0.8 mm) (Doğan 1985). *Agrostis lazica* differs from *Agrostis olympica* by longer callus hairs and anthers, shorter paleas, usually glabrous lemmas (hairy all over in *Agrostis olympica*), and absence of mucros at the tips of lemmas (2–4 mucros up to 0.5 mm long in *Agrostis olympica*) (Doğan 1985; Paszko, unpubl. data).

Examined specimens (new record)

IRAQ: [Northeast Iraq, Kurdistan Region, Rowanduz distr. (MRO)], Erbil liwa, Ser Kurawa, damp alpine grassland, altitude (alt.) 3200 m, 11 August 1947, *J.B. Gillett 9731* (K000482663).

Allium petraeum Kar. & Kir. (Amaryllidaceae)

Contributor – Alexey P. Seregin

Distribution and habitat

Allium petraeum is a widely distributed species of the Central Asian mountains, where it usually occurs on rocks and stony slopes. The most recent revision by Seregin, Anačkov, and Friesen (2015) reports the species from Kazakhstan, Kyrgyzstan, and China.

In Kazakhstan, where *locus classicus* is situated (Karelin and Kirilow 1842), it is known to occur in Tarbagatai,

Dzungarian Alatau, Trans-Ili Alatau, Chu-Ili Mountains and Karatau (Pavlov and Poljakov 1958). Later, Vvedensky (1971) have identified Karatau plants of *Allium petraeum* as *Allium talassicum* Regel. Multiple records either from Tarbagatai or Sauro-Monrak (Pavlov and Poljakov 1958; Bajtenov and Kameneckaja 1990; Kotuhov, Danilova, and Anufrieva 2011) are erroneous and clearly refer to the resurrected *Allium dshungaricum* Vved. (Seregin, Anačkov, and Friesen 2015). Thereby, correct distribution of the species in Kazakhstan covers Dzungarian Alatau, Trans-Ili Alatau and Chu-Ili Mountains.

In Kyrgyzstan, the species was initially recorded only from Kyrgyz Alatoo (Nikitina and Kaschenko 1951) and claimed to be of 'rare occurrence' in the republic. Lazkov and Sultanova (2011) have also reported *Allium petraeum* from Northern Kyrgyzstan.

In China, *Allium petraeum* is known from northwest Xinjiang only (Xu and Kamelin 2000). Egorova (1977) has cited correctly specimens from Dzungarian Alatau and E. Tian-Shan. Her record for Dsharkent Depression based on Regel's collection from Suydun [=Shuiding] is erroneous because the locality is situated in the Ili River valley. Another Chinese record by Egorova (1977) based on Potanin's collection from the Kandagatai River in Paraaltai is phytogeographically problematic and most probably refers to another species.

There were no records of *Allium petraeum* from Uzbekistan (Vvedensky 1941, 1971).

Taxonomic notes

Three collections from Uzbekistan cited below were incorrectly identified as dwarf *Allium talassicum* Regel. *Allium petraeum* is a much taller plant (30–50 cm) with exserted stamens, long valves, white papery bulb tunics and terete sheaths with prominent ribs.

Allium petraeum is a taxonomically heterogeneous species from the section *Oreiprason*, which deserves further studies. Preliminary molecular (internal transcribed spacers) results by Seregin and Friesen (2015) suggest that at least three distinct genetic entities co-exist within this species. The sampled specimens examined showed that the situation might be even more complicated. Egorova (1977) correctly reported the presence of red-flowered plants within *Allium petraeum* s.l. Such plants from Dzungarian Alatau are forming a well-supported clade in molecular analysis (Seregin and Friesen 2015) but they were also collected in Sidzhak (Uzbekistan). Specimens from Chimgan are yellow-flowered and look similar to those from Central Tian Shan in Kyrgyzstan.

Vvedensky (1941) considered 65 wild species for Uzbekistan whereas Khassanov (1992) has listed 103 species. Multiple new records as well as new protologues were published afterwards, but no modern estimates on a number of *Allium* species of the Uzbek flora were published afterwards.

Examined specimens (new records)

UZBEKISTAN: the Pskem River basin, Sidzhak, 14–15 July 1957, *Pyatayeva* (LE); eastern spur of the Greater Chimgan, s.d., *anonymous* (LE); [cultivated in Gatersleben in Germany, Nr. TAX 5883], origin: Uzbekistan, stream terrace covered with grasses and shrubs in Aksaj on northern slope of Chimgan Massif, locally common (May 2001, leg. *R. Fritsch & M. Hoffmann* 1755), 11 July 2005, *anonymous* (GAT 20125, barcode GAT2554332).

Atriplex crassifolia C.A. Mey. (Chenopodiaceae–Amaranthaceae)

Contributors – Alexander P. Sukhorukov, Maria Kushunina

Distribution and habitat

Atriplex crassifolia is one of the common plants on the saline substrates ('solonchaks') in semi-deserts of central and eastern Kazakhstan and southern Siberia (Novosibirsk, Omsk provinces and Altai Krai) at the altitudes 0–1000 m a.s.l. The eastern range border was known near Lake Zaysan (Kazakhstan), close to the Xinjiang province in China.

A new record for the native flora of China, not reported by Zhu, Mosyakin, and Clemants (2003), is here reported after the revision of herbarium specimens at PE.

Taxonomic notes

Atriplex crassifolia is a member of *Atriplex* sect. *Teutliopsis*, the group of annual representatives with a C_3-photosynthetic pathway, isolateral leaf anatomy, mixed male and female flowers arranged in clusters, and herbaceous bract-like covers enclosing female flowers (Moser 1934; Kadereit et al. 2010). *Atriplex crassifolia* is clearly distinguished from morphologically similar species by its rhombic and succulent leaves. Previously, its range was considered to include the Lower Volga region of European Russia (Ivanov 1989; Medvedeva 1996), Central Asia and Northern India (Hooker 1890; Paul 2012). However, the revision of the material in many Asian and European herbaria has shown that all records from European Russia belong to *Atriplex patens* (Litv.) Iljin, and those from Northern Himalaya belong to several C_4-*Atriplex* species (Sukhorukov 2006), especially *Atriplex tatarica* L. and *Atriplex pallida* (Moq.) Sukhor., formerly known as *Atriplex schugnanica* Iljin (Sukhorukov and Kushunina 2015).

Examined specimens (new record)

CHINA: Xinjiang, [Ili-Kazakh Autonomous prefecture] near Shiqihu, 1000 m, 9.IX.1931, *T.N. Niu 3717* (PE). Original text in Chinese.

Crambe orientalis L. (Brassicaceae)

Crambe amabilis Butkov & Majlun
Contributors – Marcin Nobis, Arkadiusz Nowak, Aleksandr L. Ebel

Distribution and habitat

Crambe orientalis is native to western Asia, ranging from Turkey to Turkmenistan (Hedge 1968; Nikitin and Geldykhanov 1988). The first record of the alien *Crambe orientalis* in western Tian-Shan is dated from 1922 when a specimen was collected from the foothills between Shymkent Town (Kazakhstan) and Angren River (Uzbekistan). Recently, it was found as spreading in Kazakhstan and Kyrgyzstan (Lazkov and Redina 2007; Lazkov and Sennikov 2014), and further localities of the species were found by us during the exploration in Kazakhstan (see below). The species occurred abundantly on grain fields, abandoned lands, along roadsides and on railway embankments.

Crambe orientalis was found in Tajikistan for the first time by us in 2009 and the species was observed at the locality also in 2011, 2013 and 2015. It grows fairly abundantly, spreading along roadsides, on arable fields and especially on fallows in the Mogendarya River valley, near the Mogien and Gezani-Bolo villages. It is a newly established and potentially invasive alien species in Tajikistan.

Taxonomic notes

There are three species of *Crambe* known to date from Tajikistan: *Crambe schugnana* Korsh., *Crambe kotschyana* Boiss. and *Crambe gordjaginii* Spryg. & M. Pop. (Yunusov 1978). In accordance with the identification key (Yunusov 1978) of Tajik *Crambe* spp., *Crambe orientalis* can be misidentified with the last two species. Similarly to *Crambe kotschiana* it has white petals; however, the most conspicuous character distinguishing both taxa is the shape of the leaves, which are dentate and deeply pinnately lobed in *Crambe orientalis* and broadly cordate at base, ovate to broadly lobate and dentate in *Crambe kotschiana*. The examined species differs from *Crambe gordjaginii* in having white, not yellow petals.

Examined specimens (new records)

TAJIKISTAN: Western Zeravshan Mountains, Mogendarya River valley, near Gezani-Bolo settlement, fallows, roadsides, 29 May 2015, *M. Nobis, A. Nowak* (KRA)
KAZAKHSTAN: Almaty, near Baum's grove, on gravelly embankment of the railway along the avenue Suyunbay, 43.3224303 N/76.958456 E, 5 July 2014, *A. Ebel* (TK); c. 290 km northwest of Almaty, roadside, near southwest part of the Balkhash Lake, 21 May 2014, observation *M. Nobis*.

Eleocharis mamillata (H. Lindb.) H. Lindb. (Cyperaceae)

Contributor – Aleksandr L. Ebel

Distribution and habitat

Eleocharis mamillata s.str. is a holarctic species quite common in northern, central and eastern Europe (Walters 1980; Gregor 2003; Egorova 2007). In Asia, this species is diffusely distributed mainly in Siberia, predominantly south of 60° N, and in adjacent areas of Russian Far East and northern Mongolia (Bubnova 1990; Gubanov 1996; Egorova 2001; Ebel 2012). Recently, it has been discovered in North America where it seemed to be previously confused with *Eleocharis palustris* (L.) Roem. & Schultes and *Eleocharis macrostachya* Britton (Smith et al. 2002). It usually grows in shallow waters, swampy watersides, and on grassy swamps.

Eleocharis mamillata is a rare native species in Kazakhstan. It was not listed in the flora of Kazakhstan to date (Poljakov 1958; Abdulina 1999; Egorova 2001) although one location in Central Kazakhstan based on a specimen collected in 1929 in Ulutau by N. Pavlov was mentioned at least twice (Alekseev 1991; Gregor 2003).

Taxonomic notes

Limits of *Eleocharis mamillata* are debatable. *Eleocharis mamillata* s.l. comprises two or three subspecies: subsp. *mamillata*, subsp. *austriaca* (Hayek) Strandh. (=*Eleocharis austriaca* Hayek), and East Asiatic subsp. *ussuriensis* (Zinserl.) T.V. Egorova (=*Eleocharis ussuriensis* Zinserl., *Eleocharis austriaca* subsp. *ussuriensis* (Zinserl.) T.V.Egorova). The last one is not accepted by some authors who consider it a synonym of *Eleocharis mamillata* (e.g. Gregor 2003) or, on the contrary, count it as separate species – *Eleocharis ussuriensis* (The Plant List 2013). We prefer to follow the latest opinion of Egorova (2001, 2007) who recognized *Eleocharis austriaca* (including ssp. *ussuriensis*) and *Eleocharis mamillata* as two different species.

Eleocharis mamillata differs from *Eleocharis palustris* in having fragile stems with an orbicular rather than oval cross-section, fewer vascular bundles, dense conical flowering heads, and the number of perianth bristles at the base of the fruit usually exceeding four (e.g. Walters 1980; Egorova 2001).

All cited specimens from Kazakhstan belong to *Eleocharis mamillata* subsp. *mamillata* (*Eleocharis mamillata* s.str.).

Examined specimens (new records)

KAZAKHSTAN: Akmolinsk Region, Kokchetaw district, Borovoe, bog with bushes, 4 July 1909, *V.F. Semenov* (TK); North Kazakhstan Region, Sergeevskij district, village Beloglinka surroundings, lake Malyj Tarangul, southwest shore, 4 July 1983, *B.F. Sviridenko* (TK).

Geranium pratense L. subsp. *sergievskajae* Peschkova (Geraniaceae)

Contributor – Aleksandr L. Ebel

Distribution and habitat

Geranium pratense subsp. *sergievskajae* is an Asian subspecies, partly substituting the Eurasian subspecies *Geranium pratense* subsp. *pratense* in continental regions of Asian Russia. It is widely distributed in Siberia, from Russian Altai and south of Tomsk Region in western Siberia to Buryatia and Sakha (Yakutia) in eastern Siberia (Peschkova 1996; Baikov 2005, 2012). Although this taxon was recognized at the level of subspecies almost 20 years ago, no location in adjacent countries beyond Russia has been recorded so far (Peschkova 1996; Abdulina 1999; Urgamal et al. 2014). It grows predominantly in mountain areas, in coniferous and deciduous forests (dominated by *Pinus sylvestris* L., *Larix* spp. and *Betula* spp.) frequently on forest margins, in river valleys, sometimes in upland meadows, usually in conditions of high humidity of soils and atmosphere.

Geranium pratense subsp. *sergievskajae* is a new native taxon to Kazakhstan. Specimens of this subspecies were revealed among materials of *Geranium pratense* collected in the first half of the twentieth century. Moreover, at TK there is an old specimen from Omsk Region (Russia) where this subspecies was not previously recorded.

Taxonomic notes

This taxon was first separated in 1934 by Sergievskaja as *Geranium pratense* var. *typicum* Kryl. f. *molle* Serg., and much later its status was raised up to subspecies (Peschkova 1996). Only recently was the lectotype of *Geranium pratense* f. *molle* deposited in the Krylov Herbarium (TK) was designated (Troshkina 2015). *Geranium pratense* subsp. *sergievskajae* differs from *Geranium pratense* subsp. *pratense* mainly by type of pubescence. Stems of subsp. *sergievskajae* almost from base are covered by long simple and glandular trichomes more or less of equal length, whereas stems of subsp. *pratense* are covered up to inflorescence by only long simple trichomes. Additionally, leaf blades of subsp. *sergievskajae* are usually more deeply divided into narrower lobes than subsp. *pratense*. The two subspecies also differ in the sculpture of exine and ornamentation of the pollen grain surface (Ivleva 2010).

Examined specimens (new records)

KAZAKHSTAN: Akmolinsk Region, Borovoe, wet boggy meadow with bushes, 26 June 1908, *V.F. Semenov* (TK); South Altai, Katon-Karagai neighbourhood, canyon Sarymsak, meadows along riverside, 27 June 1928, *V. Evseenko* (TK).

Orobanche coerulescens Stephan in Willd. (Orobanchaceae)

Contributors – Renata Piwowarczyk, Magdalena Denysenko

Distribution and habitat

Orobanche coerulescens is a Eurasian holoparasite species, occurring from eastern Germany, through eastern Europe and from central Asia to Japan (Pusch 2009; Piwowarczyk & Przemyski 2009). It parasitizes *Artemisia* spp., mainly in the sandy or rocky grasslands or *Artemisia* steppes (Piwowarczyk 2012). From the Caucasus, the species was known only from Dagestan (Novopokrovskij and Tzvelev 1958) and recently a new locality has been found in the Lesser Caucasus in Georgia (Piwowarczyk, and Kwolek in Nobis, Ebel, et al. 2015). New localities of *Orobanche coerulescens* have been found in the Lesser Caucasus in Armenia, and it is a new, native taxon to the flora of this country.

Taxonomic notes

The flora of Armenia consists of 39 species of *Orobanche* s.l. (Takhtajan 1987). The distribution of this genus and its hosts in Armenia and in the whole area of the Caucasus is not sufficiently known, as shown by new findings (e.g. Rätzel and Uhlich 2004; Piwowarczyk 2015a; Piwowarczyk et al. 2015).

Orobanche coerulescens was included in the section *Inflatae* (Beck) Tzvelev, subsection *Coerulescentes* (Beck) Teryokhin (Teryokhin et al. 1993). Taxonomic problems and relations with similar species were described in detail in previous works (Piwowarczyk 2015b; Piwowarczyk and Kwolek in Nobis, Ebel, et al. 2015; Piwowarczyk, Madeja, and Nobis 2015).

Examined specimens (new record)

ARMENIA: Northern Armenia, Lesser Caucasus, Gegharkunik province, between Semyonovka and Tsovagyugh, rocky grasslands, on slope with southwestern exposure, parasitizes *Artemisia* spp., alt. 2005 m, 9 July 2015, *R. Piwowarczyk* (KTC).

Orobanche zajaciorum Piwow. (Orobanchaceae)

Contributor – Renata Piwowarczyk

Distribution and habitat

Orobanche zajaciorum was recently described as a probably endemic species to the Caucasus (Piwowarczyk 2015a). It was known only from one locality in the Lesser Caucasus in Georgia. It grows on rocky grasslands and parasitizes *Scutellaria sosnowskyi* Takht. (Piwowarczyk 2015a). It is not excluded that the species may parasitize known hybrids of *Scutellaria sosnowskyi* (Çiçek and Yaprak 2011), or other species of the genus *Scutellaria* L., and family Lamiaceae. The new locality of *Orobanche zajaciorum* has been found in the Lesser Caucasus in Armenia, 180 km southeast of the *locus classicus* The species is a new, native taxon to the flora of this country. The population of the species is small, comprising only five shoots, and is located outside protected areas.

Taxonomic notes

Orobanche zajaciorum has been included in the section *Orobanche* Teryokhin subsection *Galeatae* (Beck) Teryokhin. The corolla shape of *Orobanche zajaciorum*, especially due to the helmet-shaped upper lip, is very similar to that of *Orobanche caryophyllacea* Sm., *Orobanche teucrii* Holandre or *Orobanche lutea* Baumg. However, these three taxa are much taller (usually up to 20 cm) and bear larger flowers (usually 18–30 mm long), bidentate and broad calyx segments, and parasitize different hosts, while *Orobanche zajaciorum*, is usually 10–17 cm high, with distinctively curved geniculate and small flowers (up to 17 mm, usually < 15 mm), simple and narrow calyx segments. These characters make it difficult to confuse it with other taxa of that subsection (Piwowarczyk 2015a).

Examined specimens (new record)

ARMENIA: Northern Armenia, Lesser Caucasus, Gegharkunik province, northwest of Lake Sevan, between Semyonovka and Tsovagyugh, rocky grasslands, on slope with southwestern exposure, parasitize *Scutellaria* cf. *sosnowskyi*, alt. 2005 m, 9 July 2015, *R. Piwowarczyk* (KTC).

Petrosimonia brachyphylla (Bunge) Iljin (Amaranthaceae)

Contributors – Alexander P. Sukhorukov, Maria Kushunina

Distribution and habitat

Petrosimonia brachyphylla is widely distributed in Kazakhstan with extensions into the steppes and semi-deserts of European Russia (Sukhorukov 2014). The westernmost recorded specimen was collected by A. Sukhorukov in Kalmykia in 2012 (G, LE, MW). The eastern range border was known near Zaysan and Balkhash lakes (Kazakhstan). *Petrosimonia brachyphylla* prefers clayey saline soils and often grows together with other native *Petrosimonia* species or other annual halophytes (Sukhorukov 2005). A cited record from Xinjiang is the first one for China.

Taxonomic notes

The identification of *Petrosimonia* representatives is difficult, and herbarium specimens are often misidentified. The most distinctive features of the genus are the indumentum type, the length of lower leaves (however, they are present in young plants only), the bract/perianth length ratio, the shape of the bracteoles, the number of perianth segments and stamens, and the anthers that can be fused or not fused apically. Short (up to 2 cm), slightly pubescent leaves and apically gibbous bracts surrounding the fruit distinguish *Petrosimonia brachyphylla* from closely related *Petrosimonia crassifolia* (Pall.) Bunge and *Petrosimonia glauca* Bunge, which also have two perianth segments and five stamens with apically fused anthers.

Examined specimen (new record)

CHINA: Xinjiang, Altay, Salhushun, alt. 450 m, 17 September 2008, *Zhai Wei, Wang Guangfu 2405* (SHI).

Siphonostegia chinensis Benth. (Orobanchaceae)

Contributor – Olga D. Chernova

Distribution and habitat

Siphonostegia chinensis is an annual species native to East Asia (Starchenko 2008). It occurs in China, Japan, Korea (Hong et al. 1998) as well as in the far east of Russia. For the Russian territory, it is only reported in Manchurian continental and Sakhalin oceanic floristic provinces (Ivanina 1991; Baikov 2012). The species is not reported for Siberian Flora (Baikov 2005). It grows in steppes, on rocky hills, scrublands, light forests, meadows and sod fields (Ivanina 1991). In China, it is typical of dry mountain slopes and meadows at a height between 800 and 3400 m (Hong et al. 1998).

Siphonostegia chinensis is a new native species for Siberia. The species has been found in Trans-Baical Territory (at 3 km and 17 km from the border with China, Inner Mongolia Autonomous Region) on mid-mountain lots of the southeastern spurs of the Gazimur Range, in the lower course of the river Budyumkan (left tributary of the river Argun) within petrophilous Sheep Fescue associations in the upper part of steep steppe slopes. According to the zonation of Asian Russia (Baikov 2012), this territory belongs to the Baikal hemiboreal province.

Taxonomic notes

The genus *Siphonostegia* Benth. includes two or three annual East Asian species and one eastern Mediterranean perennial species, the latter one sometimes separated into monotypic genus *Lesquereuxia* Boiss. & Reut. (Hong et al. 1998; Fischer 2004). All of them are hemiparasitic plants. *Siphonostegia chinensis* is a single species of the genus having bi-pinnatisect leaves.

Examined specimens (new records)

RUSSIA: Zabaykalye Territory, Gazimuro-Zavodskoy district, Relic Oaks State Reserve, 6 km south of Uryupino outpost, left bank of the river Budyumkan, upper part of the steppe rubble slope at southwestern exposition, 52°41' N, 120°01' E; alt. 425 m, 19 July 2010, *O.D. Chernova* (TK); Zabaykalye Territory, Gazimuro-Zavodskoy district, 3 km from Budyumkan village, road fork district, left bank of the river Budyumkan, upper part of the steppe rubble slope at southern exposition, 52°37' N, 119°47' E; alt. 486 m, 21 July 2013, *O.D. Chernova* (TK).

Stipa krylovii Roshev. (Poaceae)

Stipa capillata var. *coronata* Roshev., *Stipa densiflora* P.A.Smirn., *Stipa densa* P.A.Smirn., *Stipa decipiens* P.A.Smirn., *Stipa sareptana* subsp. *krylovii* (Roshev.) D.F.Cui, *Stipa sareptana* var. *krylovii* (Roshev.) P.C.Kuo & Y.H.Sun

Contributors – Marcin Nobis, Arkadiusz Nowak, Polina Gudkova

Distribution and habitat

Stipa krylovii is a widely distributed central Asian taxon, ranging from southern Russia (Siberia) through Kazakhstan, Mongolia, Kyrgyzstan, Tajikistan and China, to Tibet, Nepal and northeastern India (Tzvelev 1976; Wu and Phillips 2006; Gudkova and Nobis unpbl. data). Occurrence of the species in India is given for the first time by us. Specimens of this taxon were found in Ladakh by L. Klimeš, but identified as *Stipa capillata* L. *Stipa krylovii* is a new native taxon to the flora of India. It occurs on high mountain steppes and semi-deserts.

Taxonomy

To date, c. 20 taxa of Stipaeae are known from India (Bor 1960; Cope 1982; Freitag 1985; Dickoré 1995; Klimeš and Dickoré 2005; Nobis 2011, 2014; Nobis, Nobis, et al. 2014). *Stipa krylovii* is close to *Stipa capillata* L., but differs in having shorter ligules of the vegetative shoots (0.1–0.3 versus 0.6–2.5 mm long, respectively), thinner leaves (0.3–0.5 versus 0.5–1.2 mm wide, respectively) and the presence of a well-developed ring of hairs on the top of lemma (in *Stipa capillata* top of anthecium is glabrous, rarely with single short prickles). *Stipa krylovii* can also be confused with *Stipa sareptana* A.K.Becker. The two taxa differ mainly in the character of vegetative leaves (glabrous to slightly scabrous in *Stipa krylovii* versus distinctly scabrous covered by tubercles and spinules in *Stipa sareptana*), somewhat shorter ligules of the vegetative shoots (0.1–0.3 versus 0.2–1.0 mm long, respectively) as well as in the pattern of general distribution (Tzvelev 1976). There are conflicting opinions about the systematic position of *Stipa krylovii*, but most researchers treat it at the specific level (Roshevitz 1934; Pazij 1968; Tzvelev 1976; Lomonosova 1990; Nobis and Gudkova 2016).

Examined specimen (new record)

INDIA NW: Jamu and Kashmir State, Ladakh, Indus Vy: Zhung (Leh), Chkirmo, 33°49.5' N/77°39.1 E, alt. 4150 m a.s.l., 8 September 2001, *L. Klimeš 1626* (PR).

Stipa zalesskii Wilensky (Poaceae)

Contributors– Marcin Nobis, Arkaduiusz Nowak

Distribution and habitat

Stipa zalesskii is a widely distributed taxon ranging from central Europe to central Asia (Kazakhstan, Russia) (Martinovský 1980; Conert 1998; Tzvelev 1976, 2012; Freitag 1985). In central Asia, the species is know to date only from Kazakhstan. The species is not mentioned in the checklist flora of Kyrgyzstan (Lazkov and Sultanova 2011). During field studies in Kyrgyzstan in 2013 and 2015 we found several abundant populations in the Sasuumyr River valley on the bottom of the Kyrgyzian Mountains and Talas Alatau. This is a new, native species in the flora of the country.

Taxonomy

In the flora of Kyrgyzstan, there are c. 30 species of *Stipa* (Lazkov and Sultanova 2011; Nobis 2012, 2013; Nobis, Ebel, et al. 2014, 2015; Nobis, et al. 2016). Localities of *Stipa zalesskii* in Kyrgyzstan are situated on the easternmost range limit of the taxon. *Stipa zalesskii* belongs to the section *Stipa* and is well distinguished from others Kyrgyz feather grasses from the section, namely *Stipa kirghisorum* P.A.Smirn., *Stipa macroglossa* P.A.Smirn. subsp. *macroglossa*, *Stipa macroglossa* subsp. *kazachstanica* (Kotukhov) M.Nobis, *Stipa turkestanica* Hack. subsp. *trichoides* (P.A.Smirn.) Tzvelev (Nobis et al. 2016) by the longest anthecia (18.5–23 cm) and the ventral line of hairs on the anthecium reaching the base of the awn or ending at 0.3 mm below the base of awn.

According to Tzvelev (1976) *Stipa zalesskii* is characterized by having the lemma 16–19 mm long, ventral line of hairs on lemma reaching or at 0.5–1.3 mm not reaching the base of the awn, leaves of the vegetative shoots with mixed short and long hairs at the adaxial surface and scabrous with more or less dense admixture of spinules or short hairs at the abaxial surface. However, the specimens of *S. zalesskii* found by us in Kyrgyztan have distinctly longer anthecia (18.5–23 mm long), which make them similar to *Stipa turkomanica* P.A.Smirn. [=*Stipa zalesskii* subsp. *turkomanica* (P.A.Smirn.) Tzvelev)] ocurring in Turkmenistan. The only difference is the length of awn seta, which is generally shorther in *Stipa zalesskii* (up to c. 35 cm versus over 35 cm long respectively) and character of sheaths of the vegetative shoots, which are shortly pubescens in Kyrgyz specimens versus glabrous in *Stipa turkomanica*. This character (pubescence or its lack on sheaths) is often considered as a natural variation, and glabrous and pubescent sheaths can be observed within one population; however, after preliminary revision of the herbarium materials belonging to both of these taxa at LE, MW, KRA, TK and MHA, we did not note such a situation in specimens identified as *Stipa zalesskii* and *Stipa turkomanica*. Nevertheless, some researchers treat *Stipa turkomanica* as conspecific with *Stipa zalesskii* (Freitag 1985). In the *Stipa zalesskii* group belong such morphologically similar taxa as *Stipa dasyphylla* (Lindem.) Trautv., *Stipa rubens* P.A.Smirn., *Stipa rubentiformis* P.A.Smirn., *Stipa glabrata* P.A.Smirn., *Stipa pontica* P.A.Smirn., *Stipa canescens* P.A.Smirn. ex Roshev., Stipa iljinii Roshev., *Stipa maeotica* Klokov

and Ossucznjuk, and *Stipa smirnovii* Martinovský. This group of taxa requires taxonomic revision (Nobis et al. unpubl. data).

Examined specimens (new records)

KYRGYZSTAN: steppe grassland, 20 km west-northwest of Suusamyr (Suusamyr River valley, Talasski Alatau), roadside, alt. 2250 m a.s.l., slope 20°, inclination south, 7 July 2015, *M. Nobis, A. Nowak* (KRA); steppe grassland, 27 km west-northwest of Suusamyr (Suusamyr River valley, Talasski Alatau), by the road, alt. 2280 m a.s.l., slope 40°, inclination southwest, 30 June 2015, *M. Nobis, A. Nowak* (KRA); steppe grassland, 12 km northwest of Suusamyr (escarpement by the road), alt. 2312 m a.s.l., slope 15°, inclination southwest, 7 July 2015, *M. Nobis, A. Nowak* (KRA); steppe grassland, 11 km northwest of Suusamyr (by the road), alt. 2287 m a.s.l., slope 5°, inclination northwest, 7 July 2015, *M. Nobis, A. Nowak* (KRA); steppe grassland, 7 km northwest of Suusamyr (escarpement by the road), alt. 2010 m a.s.l., slope 25°, inclination east, 7 July 2015, *M. Nobis, A. Nowak* (KRA); Talasskii Alatau, grasslands by the main road in the Suusamyr River valley, alt. 2270 m a.s.l., slope 30°, inclination south, 30 June 2013, *M. Nobis* (KRA).

Utricularia macrorhiza Le Conte (Lentibulariaceae)

Contributor – Laura M. Kipriyanova

Distribution and habitat

Utricularia macrorhiza is distributed in North America and temperate regions of Asia: Kamchatka, Sakhalin, Amur and Ussuri regions, Mongolia and China (Taylor 1989). The author noted that the species extends west to the Altay; however, the observation was not based on relevant herbarium samples. Recently, this species was found as quite common in East Siberia (Chepinoga and Rosbakh 2012; Pazdnikova and Chepinoga 2013) as well as in West Siberia in Khanty-Mansi Autonomous District – Yugra (Kapitonova, Kapitonov, and Ilminskikh 2014). The authors suggested that *Utricularia macrorhiza* is likely to be common in aquatic habitats in West Siberia, but that it is not distinguished by collectors due to external similarities with *Utricularia vulgaris* L. (Kapitonova, Kapitonov, and Ilminskikh 2014). *Utricularia macrorhiza* was also not included in the manual of the Siberian species (Olonova 1996) and other regional manuals, and the species was skipped by researchers also on those grounds.

Utricularia macrorhiza was confirmed in the three lakes of Altai Region (West Siberia) namely: Lena, Bol'shoe, and Rakity in 2014. The salinity of the water from Lena Lake was 4.2 g/dm^3. In this lake only *Chara tomentosa* L. was noted in the community with the dominance of *Utricularia macrorhiza*. Salinity of the Bol'shoe Lake was 0.262 g/dm^3. The lake is transformed into a swamp, and bladderwort was found in the water among the floating communities of *Thelypteris palustris* Schott, *Carex diandra* Schrank, *Phragmites australis* (Cav.) Trin. ex Steud. *Hydrocharis morsus-ranae* L., *Utricularia minor* L. and other aquatic plants were found with *Utricularia macrorhiza*. Salinity of the Rakity Lake was 0.689 g/dm^3, the bladderwort formed coenoses in the near-shore zone with *Lemna minor* L. Plants were blooming in all the lakes; some of them were beginning to form fruits.

Taxonomic notes

Utricularia macrorhiza differs from *Utricularia vulgaris* mainly by the distal half of the spur, which is narrow and cylindrical. The spur at the end is relatively acute and visibly bent upward, while the distal half of the *Utricularia vulgaris* spur is shortly conical and straight with a blunt tip (Taylor 1989). It should be noted that it is very useful to take pictures in nature, because the flowers in the herbarium often fall off or become deformed.

There are glands on the inside of the dorsal and ventral surfaces of the spur of *Utricularia macrorhiza* (Lisitsyna and Papchenkov 2000; Taylor 1989) whereas in *Utricularia vulgaris*, the glands develop only on the inside of the dorsal surface. However, the collection should be representative enough because an attribute based on glands is not well expressed in each flower. Some variations in the severity of attributes appear to be associated with an overlapping of the areas of distribution of the two species. Lisitsyna and Papchenkov (2000) note that *Utricularia macrorhiza* is a more 'gentle' plant; the extreme segments of the leaves are subulate-filiform with few spines on the surface and ending in spines whereas in the case of the more rigid *Utricularia vulgaris*, the extreme segments of leaves are covered with sparse cilia.

Examined specimens (new records)

RUSSIA: Altai Region, Baevsky district, lake Lena, 2 km to the northwest of Baevo village, 53°16'07.5" N, 80°41'00.1" E, 6 July 2014, *L.M. Kipriyanova* (NS); Altai region, Uglovsky district, lake Bol'shoye close to Lyapunovo village, 51°18'30.7" N, 80°09'28.7" E 13 July 2014, *L.M. Kipriyanova* (NS); Altai region, Rubtsovsky district, lake Rakity, 51°33'30.5" N 81°11'49.8" E, 14 July 2014, *L.M. Kipriyanova* (NS).

New records for Europaean countries

Panicum riparium H. Scholz (Poaceae)

Contributor – Gergely Király

Distribution and habitat

In Europe, *Panicum riparium*, an adventive taxon originated from North America, was recognized for the first time in Germany (Scholz 2002); later, it was observed in several other countries: Austria (Hohla 2006), Hungary

(Király et al. 2009), Switzerland (Ciardo et al. 2011), Italy (Wilhalm 2011), France and Great Britain (Amarell 2013), Belgium (Verloove 2014), Croatia (Király and Alegro 2015). However, herbarium revisions showed that this taxon was formerly overlooked, because it has been present – accompanied by *Panicum capillare* – in Europe since the eighteenth century (Amarell 2013; Király and Alegro 2015). *Panicum riparium* grows both in ruderal habitats and (often as a noxious weed) in corn and winter wheat cultures (Clements et al. 2004; Nagy et al. 2012). The species seemed to have a rather sub-Atlantic character and reports of its occurrence in eastern parts of Europe are rare or missing.

In the course of revision of herbarium material of the *Panicum capillare*-complex, specimens of *Panicum riparium* were recognized from Bosnia and Herzegovina (Bihać), and for Romania (Moldova Veche and Gigheria); the species was formerly not recorded in these countries. The Romanian localities represent the easternmost outposts of this species. Amarell (2013) reported a specimen from Sweden (LINN 80.50) but from the botanical garden of Uppsala. Hence, a new herbarium specimen collected in Göteborg in ruderal habitats is the first confirmation of its presence in the wild for Sweden, and, in addition, for Scandinavia.

Taxonomy

The representatives of the *Panicum capillare* complex (*Panicum* sect. *Panicum*, 'witchgrasses') are native to North America; in Europe a single species, *Panicum capillare* L., is considered as an often naturalized alien; other species were recorded as casuals only (Clayton 1980; Ryves at al. 1996; Freckmann and Lelong 2007). A new species of the complex, *Panicum riparium*, was recently described from Germany by Scholz (2002) who emphasized that it has been spontaneously created from American parents. Later, the species was reported under the name *Panicum riparium* from several European countries and seems to be widely accepted. On the other hand, Amarell (2013) argued for *Panicum barbipulvinatum* Nash being an older valid name for this taxon; in his opinion both names are synonyms. Although some authors (e.g. Hohla 2013) have already adopted the name *Panicum barbipulvinatum*, its use is not yet widespread. At present we also prefer to keep the name *Panicum riparium*.

Panicum riparium is easily distinguishable from *Panicum capillare* by pedicels of subterminal spikelets shorter than 3 mm and appressed to the branch (*Panicum capillare* has pedicels of subterminal spikelets longer than 5 mm and patent from the branch). The mature spikelets of *Panicum riparium* are 2.7–3.4 times as long as broad, acuminate with a long tapering apex; lemmas are 5(–7) veined. In the case of *Panicum capillare* mature spikelets are 2.2–2.7 times as long as broad, acute with a short pointed apex; lemmas (7–)9 are veined (for further details see Amarell 2013; Király and Alegro 2015).

Examined specimens (new records)

BOSNIA and HERZEGOVINA: Una-Sana Canton, 'Wüste Orte bei Bihać' [Ruderal places near Bihać], n. d., *Boller* as '*Panicum capillare* L.', rev. *K. Pagitz* as '*P. barbipulvinatum* Nash' (WU, Halácsy Herbarium Europaeum). ROMANIA: Caraş-Severin County: 'Flora Romaniae Exsiccata. In cultis saepe inundatis insulae Ostrov prope Moldova Veche. Alt. cc. 90 m. s. m.', 23 September 1968, *D. & M. Cîrţu* as '*Panicum capillare* L.', rev. *G. Király* as '*P. riparium* H. Scholz' (BP 638480 and W 23888). Dolj County: "Flora Olteniae Exsiccata. In arenosis '*Astragalus contortuplicatus – Chlorocyperus glomeratus* ass' ad ripam fluminis Danubium, inter pagos Gighera et Nedeia. Alt. cc. 15 m. s. m.", 1 September 1971, *I. Morariu, P. Ularu & M. Danciu* as '*Panicum capillare* L.', rev. *K. Pagitz* as '*P. barbipulvinatum* Nash' (WU). SWEDEN: 'Göteborg, Delsjöupplaget, in ruderatis', 11 October 1953, *C. Blom* as '*Panicum capillare* L.', rev. *G. Király* as '*P. riparium* H. Scholz' (W 13288).

Phelipanche lavandulacea (Rchb.) Pomel (Orobanchaceae)

Orobanche lavandulacea Rchb.
Contributor – Renata Piwowarczyk

Distribution and habitat

Phelipanche lavandulacea occurs in the Mediterranean region from the Iberian Penisula eastwards through southern Europe and northern Africa up to Asia Minor, Syria and Lebanon (Beck von Mannagetta 1930; Carlón, et. al. 2015). It is parasitic strictly on *Psoralea bituminosa* L. (Fabaceae). Recently, it was found in Albany (Malo and Shuka 2008), but was probably mistakenly listed on *Thymus*. Some new localities were also found in Croatia (Frajman and Schönswetter 2008; Piwowarczyk unpubl.). New localities of *Phelipanche lavandulacea* were found in Montenegro, so complementing its range in the southern Balkans. It is a new, native taxon to the flora of this country. In Montenegro, it grows on limestone roadsides, often in ecotone areas between the main roads and rock walls, on rock ledges as well as in ruderal habitats. Populations of the species varied from a few individuals to over 70 shoots.

Taxonomic notes

Phelipanche lavandulacea is easily recognized from the rest of the southeastern European species of *Phelipanche* Pomel, by the often branched and tall stem, deeply dark purple, violet or blue flowers and its specific host. The sub-species *Phelipanche lavandulacea* subsp. *trichocalyx* (Webb & Berthel.) Carlón, G.Gómez, M.Laínz, Moreno Mor., Ó.Sánchez & Schneew. may be only a geographic

race of the Mediterranean *Phelipanche lavandulacea* s. str. in the Canary Islands (cf. Carlón et al. 2008). *Phelipanche lavandulacea* subsp. *trichocalyx* parasitizes also on *Psoralea*, but differs from typical species mainly by calyx teeth, which have the same length as the tube (0.80–1.18), the corolla more intensively violet on the margins of petals, which are also longer, the folds of the corolla and the anthers glabrous (Carlón et al. 2008).

Possible confusion can also arise with the recently described species that are endemic to Spain, from Ebro basin – *Phelipanche lavandulaceoides* Carlón, G.Gómez, M.Laínz, Moreno Mor., Ó.Sánchez & Schneew. (Carlón et al. 2008). Although it shares the same host and some morphological features with *Phelipanche lavandulacea*, it differs substantially both genetically and morphologically (less branched stem, calyx always violet on the entire surface, longer teeth of the calyx and tube 0.94–1.25(–1.5), corolla ± tubular-funnel, clearly widened towards the throat wider, with broadly rhombic-spatulate lobes) (Carlón et al. 2008).

Examined specimens (new records)

MONTENEGRO: Southern Montenegro, Valdanos Penisula, near Čivlak, roadsides, edges of scrub, also near the fences of buildings, alt. 80 m, 2 May 2015, R. Piwowarczyk (KTC); between Budva and Boreti, serpentine road towards Cetinje, roadside, ecotone zones of roads and rock walls, steep rock shelves, alt. 197 m, 5 May 2015, R. Piwowarczyk (KTC); Ulcinj, c. 150 m west of the cemetery in the old town, ruderal habitat in the area of ecotone roadside and rocks at buildings, alt. 23 m, 6 May 2015, R. Piwowarczyk (KTC); CROATIA: Southeast Croatia, between Čilipi and Popovići, south of Komaji, rural roadside, alt. 150 m, 8 May 2015, R. Piwowarczyk (KTC).

Ranunculus penicillatus subsp. pseudofluitans (Syme) S. D.Webster (Ranunculaceae)

Contributor – Joanna Zalewska-Gałosz

Distribution and habitat

Ranunculus penicillatus subsp. *pseudofluitans* occurs throughout Europe except in the extreme north and the Balkan Peninsula (Cook 1966). It grows in rivers and streams, mainly over calcareous or base-rich substrates (Webster 1988). Although *Ranunculus penicillatus* subsp. *pseudofluitans* is known from Eastern Germany, it has never been recorded in Poland to date. It is a new native taxon for the flora of the country.

Taxonomic notes

Ranunculus penicillatus (Dumort.) Bab. comprises a heterogenic group of aquatic buttercups in the section *Batrachium* (DC) A. Gray, which occur predominantly in swiftly flowing water in rivers and streams (Cook 1966). In terms of formal taxonomy, individual taxa of *Ranunculus penicillatus* were differently classified. Homophyllous plants, developing long submersed leaves were described as *Ranunculus calcareus* Butcher (1960). The name *Ranunculus pseudofluitans* (Syme) Newbould ex Baker & Foggitt was also applied to such homophyllous plants; however, nowadays, this name is synonymised with *Ranunculus penicillatus* subsp. *penicillatus.* In the monograph of *Batrachium*, Cook (1966) distinguished three varieties within *Ranunculus penicillatus*, namely var. *penicillatus*, var. *calcereus* (Butcher) C.D.K.Cook and var. *vertumnus* C.D.K.Cook. Later, Webster (1988) recognized two subspecies within the group: subsp. *penicillatus* and subsp. *pseudofluitans* (Syme) S.D.Webster. Webster's approach (1988) is now widely accepted and it is also applied here.

Ranunculus penicillatus subsp. *pseudofluitans* is most similar to *Ranunculus fluitans* Lam.; however, some differences allow the differentiation of both taxa. The leaves of *Ranunculus penicillatus* subsp. *pseudofluitans* are more divided than those of *Ranunculus fluitans* (often seven or eight divisions versus up to four divisions). Also, *Ranunculus fluitans* rarely forms roots at the nodes whereas subsp. *pseudofluitans* usually does. In the generative stage, differentiation is more straightforward. *Ranunculus fluitans* has receptacles that are totally glabrous or with only a few hairs, whereas those of subsp. *pseudofluitans* are densely pubescent.

Ranunculus penicillatus subsp. *pseudofluitans* is morphologically very variable. To reflect this variation, Webster (1988) distinguished two varieties within the subspecies; a robust one, with leaves longer than adjacent internodes – var. *pseudofluitans* (Syme) S.D.Webster and a smaller one, with more divided leaves, conspicuously shorter than adjacent internodes – var. *vertumnus* C.D.K.Cook.

Individuals from Poland are also very variable and a continuous series of intermediates between both morphotypes can be observed. In the river Płytnica, robust plants similar in appearance to *Ranunculus fluitans* were noticed whereas in the river Piława, small morphotypes with dense and relatively short leaves were evidenced. Moreover, in the river Rurzyca, morphologically variable individuals grew side by side. Hence, the great variation suggests a hybridogenous origin for this taxon, which was previously suggested for all taxa from the *Ranunculus penicillatus* group (Cook 1966; Holmes 1979) and which, for some of them, was recently evidenced based on molecular studies (Zalewska-Gałosz, Jopek, and Ilnicki 2015; Bobrow et al. 2015). Probably, *Ranunculus penicillatus* subsp. *pseudofluitans* is also of hybridogenous origin, but this demands further studies.

Examined specimen (new record)

POLAND: northwestern Poland, river Piława in Szwecja village, 53°21'09" N, 16°34'18.62" E, 13 August 2013, *J. Zalewska-Gałosz* (KRA); northwestern Poland, river Płytnica in Płytnica village, 53°18'16.4"

N, 16°47'31.45" E, 13 August 2013, *J. Zalewska-Gałosz* (KRA); northwestern Poland, river Rurzyca in Krępsko village, 53°15'48.3" N, 16°46'38.8" E, 13 August 2013, *J. Zalewska-Gałosz* (KRA).

Scutellaria minor Huds. (Lamiaceae)

Contributors – Paweł Nejfeld, Adam Stebel

Distribution and habitat

Scutellaria minor is a species with oceanic distribution (Ellenberg et al. 1992). In Europe, it is found in the Azores, Belgium, Great Britain, France, Germany, Holland, Ireland, Italy, Portugal, Spain, Sweden and Austria [http://www.ecoflora.co.uk] (Fitter and Peat 1994). In Poland, *Scutellaria minor* has been classified as a temporarily introduced alien plant species (ephemerophyte) (Urbisz 2011; Tokarska-Guzik et al. 2012), with a single location near Wolsztyn in the Greater Poland Voivodeship, reported by Szulczewski (1951). Careful literature studies pointed out that the species is rather a native one and was reported only in the nineteenth century, on two sites: the bank of Święte Lake near Wolsztyn in Greater Poland Voivodeship (Hellwig 1897, cited by Szulczewski 1951) and a place called 'Fasanen Garten' between Jeziory Dolne and Suchodół villages, near Lubsko in Lubusz Voivodeship (Baenitz 1861; Decker 1911). Probably, nowadays, both sites do not exist. The wet meadows between Jeziory Dolne and Suchodół were overgrown by tall herb and thicket communities (S. Rosadziński pers. comm.) and in the regional red list of Greater Poland Voivodeship, this species was given the DD category (Jackowiak et al. 2007).

A new, abundant locality (about 250 individuals) of *Scutellaria minor* has been found in Silesia Province, southwestern Poland. *Scutellaria minor* grows there in sedge mire. The floristic composition in the patch of community with *S. minor* has been studied, with relevés using a standard Braun-Blanquet method. Vascular plant names follow Mirek et al. (2002), while mosses follow Ochyra et al. (2003). Area of 25 m^2, cover of the herb layer c: 90%, cover of the moss layer d: 90%, number of species in the relevé: 32. *Scutellaria minor* 1; *Sphagnum palustre* 4; *Carex echinata* 3; *Potentilla erecta* 3; *Sphagnum flexuosum* 3; *Briza media* 2; *Carex panicea* 2; *Drosera rotundifolia* 2; *Epipactis palustris* 2; *Equisetum fluviatile* 2; *Holcus lanatus* 2; *Sanguisorba officinalis* 2; *Sphagnum teres* 2; *Anthoxanthum odoratum* 1; *Carex nigra* 1; *Cirsium palustre* 1; *Dactylorhiza fuchsi* 1; *D. majalis* 1; *Eriophorum angustifolium* 1; *E. latifolium* 1; *Festuca rubra* 1; *Juncus articulatus* 1; *Lotus uliginosus* 1; *Lysimachia vulgaris* 1; *Nardus stricta* 1; *Crepis paludosa* +; *Danthonia decumbens* +; *Epilobium palustre* +; *Equisetum palustre* +; *Galium uliginosum* +; *Juncus effusus* +; *Myosotis palustris* +.

The floristic composition of this phytocoenosis with *Scutellaria minor* corresponds with the phytosociological preferences of the species in literature (Ellenberg 1996; Costa et. al. 2012). It is most frequenltly recorded within the plant associations with Atlantic and sub-Atlantic range like *Anagallido tenellae-Juncion bulbosi* alliance from *Scheuchzerio-Caricetea nigrae* and *Juncion acutiflori* alliance from the *Molinio-Arrhenatheretea* class. The newly discovered station in Poland is located at the eastern distribution limit of the species in Europe. In the light of the new data, *Scutellaria minor* seems to be a native species in the flora of Poland.

Taxonomic notes

In Poland, the genus *Scutellaria* comprises four species: *Scutellaria altissima* L., *Scutellaria galericulata* L., *Scutellaria hastifolia* L., and *Scutellaria minor*. *Scutellaria minor* differs from the most similar *Scutellaria galericulata* mainly by the colour and shape of corolla, which is 6–7(–10) mm long and pink to pinkish-purple with straight tube in *Scutellaria minor* versus 15–22 mm and blue, violet, rarely pink with folded tube at an angle of about 45° in *Scutellaria galericulata* and leaves predominantly entire or 1-2 pairs slightly serrated in lower part of stem in *Scutellaria minor* versus all leaves slightly serrated in *Scutellaria galericulata*. The hybrids between *Scutellaria minor* and *Scutellaria galericulata*, *Scutellaria* × *hybrida* Strail, are observed.

Examined specimens (new record)

POLAND: Western Carpathians, Beskid Mały range, Kocoń village near Ślemień, 49°44'05"'N/19°23'58" E, alt. 575 m, exp. south, slope 7°, in the community from the *Scheuchzerio-Caricetea nigrae* class, 22 July 2015, *A. Hulbój, P. Nejfeld* (KRA).

Sporobolus vaginiflorus (Torr. ex A. Gray) Alph. Wood. (Poaceae)

Contributor – Gergely Király

Distribution and habitat

Sporobolus vaginiflorus is a grass species native to North America (Hansen 1980; Peterson, Hatch and Weakley 2007), which was first reported from Europe (Italy) in 1951 (Wilhalm 1998). Due to its rapid expansion, it later reached more Southeastern and Central European countries; the furthest points of its European range are now in southern Germany and Hungary (Fürnrohr 2015;, Király and Hohla 2015). In some regions of moderate climate, it is classified as an invasive species (Melzer 2003; Tinner 2013).

Sporobolus vaginiflorus has not been reported from Bosnia and Herzegovina, but it is probably not rare and is only overlooked (in the neighbouring Croatia it has been known since the 1950s; Horvatić and Gospodarić 1960). On the first recorded locality in the northern part of the country (near Bosanski Petrovac), the species composes homogeneous stands

on the shoulders of an asphalt road at a considerably high elevation (near 800 m a.s.l.). Detailed phytocoenological studies on European *Sporobolus vaginiflorus* stands have not yet been published, but all floristic reports mentioned it from species-poor ruderal places. Conservational threats caused by the species have not yet been reported.

Taxonomy

The genus *Sporobolus* involves two rather rare species native to the European Mediterranean. Additionally, several exotic representatives of the genus were recognized in Europe; however, only two species: *Sporobolus neglectus* Nash and *Sporobolus vaginiflorus* were reported to be invasive in the southeastern part of the continent (Alegro et al. 2003; Melzer 2003; Hohla, Diewald and Király 2015).

Sporobolus vaginiflorus is an unimpressive, morphologically variable species (Harms 2015). It is distinguishable from the only similar representative of the genus (*Sporobolus neglectus*) in Europe by the strigose lemmas, by spikelets 2.5–6.0 mm long, and by mature fruits longer than 1.8 mm. The uppermost leaf sheet overhangs the top of the inflorescence.

Examined specimen (new record)

BOSNIA and HERZEGOVINA: Una-Sana Canton, 3 km west of Jasenovac along the road to Bosanski Petrovac, roadsides, alt. 785 m, 44°33'29" N, 16°30'14" E, 29 September 2013, *G. Király, Z. Barina & D. Pifkó* (BP).

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Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

The interests of all the authors lie in taxonomy, chorology and ecology of plants.

Marcin Nobis: Contributions the idea and project coordination, field and/or laboratory research, preparing the manuscript

All others authors: Contributions field and/or laboratory research and preparing selected parts of the manuscript.

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