 Contribution to the flora of Asian and European countries: new national and regional vascular plant records, 7

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The paper presents new records for 29 vascular plant species from 12 Eurasian countries. Seven taxa (Agave sisalana, Austrocyclodropuntia subulata, Lagurus ovatus subsp. nanus, Opuntia stricta, Orobanche serbica, Oxalis articulata, Vitis × instabilis) are reported from Albania, one (Allium carinatum) from the European part of Russia, six (Dipsacus fullonum, Gagea shmakoviana, Mentha × dalmatica, Thymus indigirkensis, Thymus sergiyevskii, Viola × sukaczewii) from the Asian part of Russia, two (Agratis sozanensis, Poa mustangensis) from China, two (Carex muskingumensis, Sedum rubens) from Poland, two (Crateagus macrocarpa, Dactylorhiza lappica) from Russia, two (Oxygraphis delavayi, Ranunculus eriuwenensis) from Nepal, two (Erigeron bonariensis, Ophioglossum vulgarum) from Tajikistan, one (Ranunculus olgae) from Kazakhstan, one (Najas guadalupensis) from Hungary, one (Orobanche bartlingii) from Armenia, one (Crateagus petrodivisi) from Azerbaijan and one (Amaranthus powellii) from Georgia. For each species, synonyms, general distribution, habitat preferences, taxonomy with remarks on recognition, and differentiation 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.

INTRODUCTION

During field explorations across the vast area of 10 European and Asian countries, the authors found some species that are new to the floras of particular countries or their significant regions (provinces or republics). The paper is the continuation of previous works (Nobis et al. 2014, 2015, 2016, 2017), which similarly to the works of Sukhorukov et al. (2016, 2017), are dedicated to new national and regional vascular plant records, to broaden our knowledge on their distribution and taxonomy. The aim of this paper is to report new records for 29 vascular plant species: 16 from Asian and 13 from European countries.
New records for Asian countries

_Agrostis sozanensis_ Hayata (Poaceae)

**Contributors** – Beata Paszko, Bing Liu

**Distribution and habitat**

The genus _Agrostis_ L. in China is represented by 25 species (Lu and Phillips 2006). An ongoing revision of the genus _Agrostis_ for _Flora of Nepal_ (Paszko 2012, 2014; Paszko and Pendry 2013; Paszko and Soreng 2013) revealed the first records of _Agrostis sozanensis_ Hayata from two Chinese provinces: Guangxi and Shandong. Previously, these specimens, housed at the PE herbarium, were misidentified as _Agrostis clavata_ Trin. _Agrostis sozanensis_ was described by Hayata (1918: 85) based on a gathering from Taiwan (formerly known as Formosa). Until now, _Agrostis sozanensis_ was recorded only from China, from the following Chinese provinces: Anhui, Fujian, Guangdong, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Taiwan, Yunnan and Zhejiang (Lu and Phillips 2006). _Agrostis sozanensis_ is not recorded by Zheng (1990) and Li (2004) from Shandong Province. The new record at Shandong Peninsula (E. Shandong) extends its known distribution northwards from the closest localities at Anhui, Henan and Jiangsu, whereas two new records from Guangxi Province cover the gap in its distribution in the southern part of China. The distribution limit of _Agrostis sozanensis_ in China is similar to that of _Calamagrostis extremiorientalis_ (Tzvel.) Prob. (Paszko, Liu, and Ma 2017; Paszko and Ma 2011).

_Agrostis sozanensis_ prefers moist growing conditions and is commonly found growing along roadsides, in ditches, at stream and river sides, nearby to lakes and ponds; at low elevations below 1300 m. Hsui (1971) noted that _Agrostis sozanensis_ is very common in northern Taiwan at low elevations.

**Taxonomic notes**

_Agrostis sozanensis_ is similar in spikelet morphology to _Agrostis clavata_ Trinius, but it usually has awned spikelets (awn 0.5–2.5 mm long) and longer anthers (0.6–1.2 vs. 0.2–0.7 mm long). About 10% of spikelets of _Agrostis sozanensis_ have awnless lemmas and 10% of its spikelets have very short lemma awns, less than 0.5 mm long (Paszko, unpubl. data). Previously, Chinese specimens of _Agrostis sozanensis_ were misidentified as _Agrostis canina_ L., i.e. by Rendle (in Forbes and Hemsley 1904), as noted by Yang (1987). _Agrostis sozanensis_ is very close to _Agrostis canina_ and _Agrostis infirma_ Buse. It is distinguished from _Agrostis canina_ by the presence of creeping surface stolons and an awn arising from the lower part of the lemma back (Lu and Phillips 2006), and from _Agrostis infirma_ by the presence of awns and longer anthers in relation to lemma length (0.48–0.81 vs. 0.29–0.48) (Paszko, unpubl. data).

_Amaranthus powellii_ S.Watson (Amaranthaceae)

**Contributors** – Alexander P. Sukhorukov, Maria Kushunina

**Distribution and habitat**

_Amaranthus powellii_ is a ruderal species of American origin that is now widespread in Western and Central Europe (e.g. Chytrý 2009; Forman 2003). The first survey on its range in Eastern Europe was provided by Mosyakin (1996). Further field investigations in Russia have shown that _A. powellii_ is common in the Central Black Earth Region, with scattered records eastwards and northwards (Sukhorukov 2012). In the Caucasus, it was reported only from the Black Sea coast (Sochi floristic district: Zernov 2006) and is not known in any other parts (Takhtajan 2012). The revision of _Amaranthus_ specimens in the herbarium WIR (Saint-Petersburg, Russia) led to the discovery of several records from different parts of Georgia from 1970, which suggest that _A. powellii_ started to spread in the Western Caucasus rather a long time ago. The easternmost record of the species is in the eastern Kazakhstan (Sukhorukov 2009).

**Taxonomic notes**

_Amaranthus powellii_ is similar in many aspects to _Amaranthus retroflexus_ L. or _Amaranthus hybridus_ L., but it can be easily recognized by its dark green, long and stiff inflorescence, bracts approximately twice longer than the perianth, and acute perianth segments (Iamónico 2015; Sukhorukov 2012). In herbaria it is often erroneously labelled as _Amaranthus retroflexus_.

**Examined specimens (new records)**

CHINA: Guangxi Prov.: Xing’an Co., Simen Township, valley, May 1953, Guangxi Exped. Team 95 (PE); Hengxian Co., Zhenlong distr., Dazhan Township, Gujin, Taodailing, grassland on slope, 640 m, 22 Aug. 1963, Z.Z. Chen 50304 (PE). Shandong Prov.: Muping Co., Yuxiahe, 27 May 1930, T.N. Liu 935 (PE).

_Crataegus petrodavisii_ Dönmez (Rosaceae)

**Contributors** – Ali A. Dönmez, Zübeyde Uğurlu Aydın, Tunzala Qasimova, Parvana Garakhani
**Distribution and habitat**

Crataegus petrodavisi has been described from Hakkari (Turkey) by Browicz (1972a) (under the name of Crataegus davisi Browicz) and its occurrence in Turkey has been confirmed by further field works by the first author. The species has also been reported from Iran by Khatamsaz 1992 (as Crataegus davisi), and has been collected by the first author from various locations around the country.

The specimens of Crataegus petrodavisi were collected from Baku (Azerbaijan) during a field trip in 2015. They were identified using the relevant literature and floras (Browicz 1972b; Christensen 1992; Dönmez 2014; Pojarkova 1939) as a new record for Azerbaijani flora. The population of the species is composed of a few individuals that are similar to the populations present in Turkey and Iran. Both herbarium studies and field works have shown that this species is not commonly present in Azerbaijan. We propose that Crataegus petrodavisi should be put in the EN category of Azerbaijani flora.

**Taxonomic notes**

Crataegus petrodavisi is a new name of Crataegus davisi recently established by Dönmez (2014) due to homonymy with a name previously published from N. America (Christensen 1992).

Crataegus petrodavisi is clearly a distinct species from Crataegus pentagyna Waldst. & Kit. ex Willd. in terms of morphological characteristics. Moreover, their ecological preferences are also somewhat different. Crataegus pentagyna naturally grows in humid forests, hedges of forests or openings of these forests, while Crataegus petrodavisi prefers humid areas along riverbanks or forest openings in dry steppes.

**Examined specimens (new record)**

AZERBAIJAN: Baku, Xizi, National Park of Altiaghaj, 837 m, 40°53′66″N, 048°58′23″E, 15 September 2015, A.A. Dönmez 19681- Z. Üngurlu- P. Garakhani- T. Qasimova (HUB, BAK).

Dipsacus fullonum L. (Dipsaceae)

Dipsacus sylvestris Huds

**Contributors** – Elena Yu. Zykova, Aleksandr L. Ebel

**Distribution and habitat**

Dipsacus fullonum is a species with natural distribution in Europe, the Mediterranean and Asia Minor (Bobrov 1978), where it grows in the river valleys, in the bushes and in weedy places. As a decorative, honey-bearing, industrial plant, as well as a feed for birds and a seed pollutant of other cultures, it was introduced to North and South America, South Africa, China, Australia and New Zealand (Encyclopedia of Life 2007; The Plant List 2013), where it was naturalized, forming a secondary distribution area. In North America, Dipsacus fullonum is currently considered an invasive species (National Invasive Species Information Center 2005).

In the European part of Russia it is found on the banks of reservoirs, on vacant lots and as a weed in holiday villages, sometimes in large numbers; it is able to survive for a few years on some habitats, even in the meadow communities (Mayorov 2014; Mayorov et al. 2012). When studying the species in the culture of the Moscow Botanical Garden since 1965, its winter hardiness has been identified, as well as its very high resistance to diseases and pests (Demidov 2011). These properties contribute to the successful naturalization of the species in new territories.

This is a new alien species for Asian Russia.

**Examined specimens (new record)**

RUSSIA: Altay Republic, Turochak district, Turochak village, streets of the village, near the roads, 5 August 2016, E. Zykova (NS).
**Erigeron bonariensis** is a thermophilous species, occurring on dry and sunny places mostly in ruderal habitats such as roadsides, pavements, fences or railway tracks (Negrean and Ciortan 2012; Verloove 2017). According to Kochkareva and Zhogoleva (1988), and Nobis et al. (2017) in the Flora of Tajikistan there are 26 species of *Erigeron*. After revision of the material preserved at KRA, we report *E. bonariensis* as new to the flora of Tajikistan.

**Taxonomic notes**

*Erigeron bonariensis* represents *Erigeron* sect. *Conyza* (Lessing) Baillon, which contains annual and perennial species with stems erect, simple or branched, hirsute to strigose, often with glands. Leaves usually linear to lanceolate with margin coarsely serrate, less often entire. Ray florets usually white, gathered into several inflorescences. Achenes 0.8–2 mm, 2-veined. Pappus 1-seriate, 10–25 bristles (Chen and Brouillet 2011).

*Erigeron bonariensis* differs from most similar and widely dispersed *Erigeron canadensis* L. by having phyllaries usually hispidulous or strigose, receptacles 3–5 mm diameter in fruit, pistillate florets 60–150+, pappus 3–4+ mm vs. phyllaries glabrous or sparsely strigose, receptacles 1–3 mm diam. in fruit, pistillate florets 20–45+ and pappi 2–3 mm. *Erigeron sumatrensis* Retz. is another species that is morphologically similar to *Erigeron bonariensis*, but differs from the latter species by shorter peduncles 3–5 mm, involucre ca. 4 mm, pappus white, later yellowish brown, ray floret lamina short, filiform vs. peduncles 10–15 mm, involucrce ca. 5 mm, pappus reddish, sordid, or tawny, ray floret elaminate (Chen and Brouillet 2011; Strother 2006).

**Examined specimens (new records)**

TAJIKISTAN: Dushanbe (South-Tajikistanian Region A), roadside lawn, near the bridge, Kakharov St. [trawnik przydrożny, w pobliżu mostu, ul. Kakharowa], alt. 940 m, 9 July 2009, M. Nobis, T. Kowalczyk s.n. (KRA464496).

**Gagea shmakoviana** Levichev (Liliaceae)

*Contributor* – Aleksandr L. Ebel

**Distribution and habitat**

*Gagea shmakoviana* was described from West Altai (Levichev 2001) and for years was known only from its *locus classicus*: "Rossia, Provincia Altai, districtus Tscharyschensis, in viciniiis pagi Sentelek". This species has been mentioned (Levichev 1999) as endemic to Altay with the possibility of its presence in Chinese Altay. In the most recent publications (German 2016; Sherin and Shmakov 2011), the species is treated as endemic to West Altay. It has been also specified for several parts of Altai-Sayan floristic province (Ebel 2012) but no concrete locations have been given.

It grows on dry meadows, among shrubs and the margins of dry forests, on fine-grained soils in foothills and in the lower belt of mountains. This is a rare native species to the flora of Southern Siberia.

**Taxonomic notes**

According to protologue (Levichev 2001), *shmakoviana* is close to Asiatic *Gagea fedtschenkoana* Pascher and south-Siberian *Gagea longiscapa* Grossh. ex Ser. It differs from the former in its longer peduncles and rather soft basal leaves, from the latter in its brown sheaths of main bulbs and fine warty surface of substitutive bulbs. Unlike the other species, this one forms two substitutive bulbs on the opposite sides at base of the generative shoot. Moreover, *Gagea shmakoviana* slightly differs from both abovementioned species in the green color of the stem and leaves, whereas two others are characterized by the well-defined bluish hue of their shoots.

Interestingly, in 2000, Levichev labeled as *Gagea shmakoviana* several herbarium samples stored in the Herbarium of Komarov Botanical Institute (LE) previously under names *Gagea fedtschenkoana* and *Gagea longiscapa*, but did not mention them in the protologue.

**Examined specimens (new records)**

RUSSIA: Kuznetsk Region, Shchegolovsk district, Shchegolo, The right side of the Iskitimka River, birch grove. 28 May 1928, A. Karpov (LE, det. by I. Levichev at 25 February 2000); Neighborhoods of Krasnoyarsk, the lower belt of mountains. 16 May 1948, L. Cherepnin (LE, det. by I. Levichev at 25 February 2000); Gorno-Altai Autonomous Okrug, Turochak District, village Verkh-Biysk, 400 m above sea level, with bushes. 15 May 1979, N. Zholtukhin (LE, det. by I. Levichev at 25 February 2000); Gorno-Altai Autonomous Okrug, Ust-Kanskys district, left bank of the Charysh river, 1 km below the village Ust-Kan, 1050 m above sea level, dry meadow. 12 May 1979, N. Zholtukhin (LE, det. by I. Levichev at 25 February 2000); Kemerovo Oblast, surroundings of Kemerovo city, southern slope along the edge of a pine-birch forest. 03 May 2009 (flourishing samples), 27 May 2009 (fruiting samples), A. Ebel (TK); Kemerovo Oblast, Yashkino district, neighborhood of the village Pacha, in the bushes along the southern slope. 04 May 2011, A. Ebel (TK).

**Mentha × dalmatica** Tausch (Lamiaceae)

*Contributors* – Alla V. Verkhozina, Aleksandr L. Ebel

**Distribution and habitat**

*Mentha × dalmatica* is widely grown as an aromatic plant, sometimes escaping from culture. This nothospecies is known from Fennoscandia (Hylander 1965; Marklund 1963); Central Europe (Hegi 1975), and European Russia (Gladhkova and Menitzky 1978; Tzvelev 2000; Mayorov and Kazakova 2014).
It grows in seminatural and human-made habitats, usually in or near abandoned gardens, near cottages, on roadsides in villages and in wastelands. Due to long rhizomes it easily propagates vegetatively, sometimes forming large thickets.

This is a new alien nothospecies for Asian Russia.

**Taxonomic notes**
The genus *Mentha* L. comprises 27 species and 15 interspecific hybrids (The Plant List 2013). In mint species, dioeciousness is widespread, promoting interspecific hybridization. *Mentha × dalmatica* is treated as a sterile hybrid between Eurasian species *Mentha arvensis* L. and *Mentha longifolia* (L.) (Hegi 1975). Morphologically, *Mentha × dalmatica* resembles pubescent forms of *M. arvensis*. Also, this hybrid can be confused with the pubescent form of another hybrid, *Mentha × gracilis* Sole (*Mentha arvensis × Mentha spicata* L.). The latter is also known from Siberia (Ebel 2007; Ebel, Sheremetova, and Buko 2009), but it differs from *Mentha × dalmatica* by being glabrous at the base of the calyx, and with less prominent calyx veins as well as quite a different scent of both alive and dried plants. Due to polymorphism of parental species, *Mentha × dalmatica* is a rather variable nothospecies consisting in several morphologically distinguishable clones, some of which were described as intraspecific taxa (Hegi 1975; Hylander 1965).

**Examined specimens (new records)**
RUSSIA: Tomsk Oblast, Tomsk city, wasteland near abandoned garden plots. 09 Sept 2009, A. Ebel (TK, LE); the same place and habitat, 19 Aug 2016, A. Ebel (TK); N051°29′18.00″ E104°14′03.00″ Irkutsk Oblast, Solzan, the left bank of the river Bolshaya Osinovka, on ash dumps of the Baikal Pulp and Paper Mill factory. 20 Aug 2013, A. Verkhozina (IRK, LE).

**Ophioglossum vulgatum L. (Ophioglossaceae)**

**Contributors** – Arkadiusz Nowak, Marcin Nobis

**Distribution and habitat**
The adder’s tongue is a widely distributed throughout the Northern Hemisphere (Dostál 1984). The plant grows in wet pastures and meadows, within grassy swards, mainly in Agropyro-Rumicion and Molinion alliances (Dostál 1984). Sporadically it was also spotted in humid Carpinion communities or river-side forests from the Alnion alliance. *Ophioglossum vulgatum* is known mainly from lowlands, but also from colline, montane and subalpine belts up to 1400 m a.s.l. (Dostál 1984). To date, the species has not been included in the flora of Tajikistan. During revision of herbarium materials and field research in the Darvaz region, we found specimens of that taxon.

**Taxonomic notes**
The two species differ mainly in the shape of the sterile laminas, which are narrow wedges in *Ophioglossum bucharicum* and egg-like wide wedges in *Ophioglossum vulgatum* (Vvedenskii and Puchkova 1968). The fertile spike with two rows of sporangia starts from the basal section in *Ophioglossum bucharicum* O.Fedtsch. & B.Fedtsch. or from the middle part of the vegetative leaf in *Ophioglossum vulgatum* (Fomin 1934).

**Examined specimens (new records)**
TAJIKISTAN: Hissar-Darvasian region: near Umarak village, *Platanus orientalis* forest; N 38°26′27″/ E 70°45′40″, alt. 1245 m, 1 June 2011, A. Nowak & M. Nobis (OPUN); Pyandzh riverside forest, road verge; N 38°24′59″/ E 70°41′11″, alt. 1300 m, 3 July 2009, M. Nobis, A. Nowak (KRA); near Kivron settlement, alt. 1300 m, 30 July 1947, Zampyraeva (TAD 326); southern slope of Darvaz Mts, near Patkino settlement, alt. 1250 m, 20 August 1969, Chukavina, Rybakova 2962 (TAD 96092, 96093, 139564); southern slope of Darvas Mts, near Patkino settlement, alt. 1250 m, 6 May 1969, Chukavina et al. 5 (TAD 94721).

**Orobanche bartlingii Griseb. (Orobanchaceae)**

**Contributor** – Renata Piwowarczyk

**Distribution and habitat**
Orobanche bartlingii is a Eurasian species, occurring from Spain, through Central and Eastern Europe and Russia to Siberia (Carlón et al. 2009; Kreutz 1995). From the Caucasus is listed only *Orobanche alsatica* Kirschl. *sensu lato* (Gagnidze 2005; Novopokrovskij and Tzvelev 1958; Takhtajan 1987), except in Georgia, where a locality of *Orobanche bartlingii* has been recently found (Piwowarczyk in Nobis et al. 2017). A new locality of *Orobanche bartlingii* has been found in the rocky grassland in Armenia. The species is a new, native taxon to the flora of this country. The population of the species is comprised of 15 shoots.

**Taxonomic notes**
The flora of Armenia consist of 39 species of holoparasitic *Orobanche* s.l. (Takhtajan 1987). However, distributions of this genus and their hosts in Armenia are not sufficiently known, as evidenced by new discoveries (e.g., Piwowarczyk, Sánchez Pedraja, and Moreno Moral 2017; Piwowarczyk et al. 2017a, 2017b).

*Orobanche alsatica* is a polymorphic aggregate, and comprises a parasite Apiaceae species: *Orobanche alsatica*, s. str., parasite of *Peucedanum cervaria* (L.) Lap. and *Orobanche bartlingii* Griseb., parasite of *Libanotis pyrenaica* (L.) Bourg. Taxonomic problems and differentiating features have been described in detail in previous works (e.g. Nobis et al. 2017; Piwowarczyk, Halamski, and Durska 2014).
Examined specimens (new record)

ARMENIA: South-eastern Armenia, the Lesser Caucasus, between Karabakh range and Zangezur range, in the Syunik province, between Kharahunj (S. of Goris) and Vorotan, steep western slope of the Goris river valley, near road, landslides and rocky grassland, south-eastern exposure, parasitise Libanotis pyrenaica, alt. 970 m, 2 June 2016 R. Piwowarczyk s.n. (KTC).

Oxygraphis delavayi Franch. (Ranunculaceae)

Examined specimens (new record)

Oxygraphis delavayi var. nyingchiensis W.L.Zheng

Contributors – Alexander P. Sukhorukov, Andrey Erst

Distribution and habitat

The small genus Oxygraphis has a wide distribution in the mountains of Himalaya, Tibet, Pamir and Altai (Malyshev and Peshkova 1993; Sharma, Balakrishnan, and Rao 1993; Tiwari 2016). Three Oxygraphis species were reported for Nepal (Press, Srestha, and Sutton 2000), including Oxygraphis nepalensis Tamura, a local endemic of Nepal identified from a single location (Tamura 1978). Oxygraphis delavayi was described from Yunnan province (China) and later found in north-west Sichuan and south–east Xizang (Wang and Gilbert 2001). Recently, it was reported from Arunachal Pradesh, India (Tiwari 2016) and was not found from the territory of Nepal (Press, Srestha, and Sutton 2000; Yonekura 2008). Oxygraphis delavayi grows in moist alpine meadows, grassy slopes, and gravelly places at the altitudes 3500–5000 m a.s.l.

Taxonomic notes

The systematics of Oxygraphis is still not elaborated. Its species differ in the morphology of their scapes, leaves and petals (Rai and Rawat 2015; Wang and Gilbert 2001). In Oxygraphis delavayi, the scapes are apically puberulent, the leaf blades are reniform with crenate margins, and the petals are yellow and usually deciduous.

Examined specimens (new record)

NEPAL: Bagmati zone, Langtang area, Rasuwa distr., trekking route Dhunche – Gosaikunda, near Chulangpati village, 3500 m, forest margin, 20 April 2014, A. Sukhorukov 53 (MW).

Poa mustangensis Rajb. (Poaceae)

Contributors – Marina Olonova, Chen You-Sheng

Distribution and habitat

Poa mustangensis is a Himalayan species, distributed in Nepal and Sikkim (Koba 2008), and Bhutan (Noltie 2001), where it grows at the alpine belt on screes and stony places. There are dwarfish rigid plants with narrow panicle and ascending short branches. The main characteristic that attracts attention is the presence of proliferated (viviparous) spikelets, prevailing in all panicles. This characteristic is quite rare for section Stenopoa (Tzvelev 1976), and only three species have such spikelets. Besides Poa mustangensis, there are Poa arnoldii Melederis, which is distributed in Pan–Himalaya and some provinces of China (Nobis et al. 2014; Rajbhandari 1991; Zhu et al. 2006), and arctic species Poa pekulneensis Jurtz. & Tzvel., distributed only in some points of Russian Beringia and in Alaska (Soreng 2007). Poa mustangensis was described from the Mustang district of C. Nepal (Rajbhandari 1988). In the summer of 2015, the Institute of Botany, CAS, organized the II Sichuan expedition to study the flora of the Pan–Himalayas. The fieldwork in the alpine belt of Sichuan province enabled us to observe a viviparious bluegrasses population, which was morphologically similar to Poa mustangensis. Field studies of alpine bluegrasses and observations in nature allowed for a new interpretation of available data. We found that the panicles within these populations were narrow and consistent at all stages of development. For this reason, we recognize Poa mustangensis as a distinct species and attribute the found viviparous populations to this species.

Taxonomic notes

Poa mustangensis belongs to the very difficult and problematic section of Stenopoa. In the Flora of China (Zhu et al. 2006), this species has been synonymized with another viviparous species, Poa arnoldii Melederis. According to the protolog, these two species differ from each other mainly on the basis of the shape of panicle, which vary greatly during the growing period even within the same plant, and the surface of culm and leaves, which is quite variable as well. Nevertheless, field work in summer of 2015 allowed us to observe some populations of the viviparous bluegrasses, which were morphologically similar to Poa mustangensis. We noticed that the panicle shape in these plants was narrow and consistent at all stages of development. Besides having a narrow panicle, all these plants were as robust and rigid as Poa glauca Vahl, whereas types of Poa arnoldii and all observed samples were more gentle, almost smooth, and even resembled other sections.

Examined specimens (new record)

CHINA: Sichuan: Xiaojin County, Rilong, Balangshan mountain, at the gravel slope, N30.91472, E102.8011, alt. 4348, 14 September 2015, Y.Sh. Chen, Ch.L. Xiang, M.V. Olnova (PE, KUN, TK); Kangding county, Zheduoshan mountain, the thicket of Rhododendron, N30.08082, E101.79500, alt. 4245, at 10 September 2015, Y.Sh. Chen, Ch.L. Xiang, M.V. Olnova (PE, KUN, TK).

Ranunculus eryuanensis Erst (Ranunculaceae)

Examined specimens (new record)

Ranunculus kunmingensis W.T.Wang var. hispidus W.T.Wang
Contributors – Alexander P. Sukhorukov, Andrey Erst

Distribution and habitat

*Ranunculus eryuansensis* was described from the Yunnan and Guizhou provinces of China (Wang 1995), and later found in south-west Sichuan (Wang and Gilbert 2001). This species has not been previously reported from Nepal (Press, Srestha, and Sutton 2000; Yonekura 2008). This native species prefers grassy hill slopes or forest margins at altitudes from 2300 to 3000 m a.s.l.

Taxonomic notes

Twenty-five *Ranunculus* species have been reported from the territory of Nepal (Press, Srestha, and Sutton 2000). Recently, two additional species, *Ranunculus longicalicus* C.A.Mey. and *Ranunculus pseudohircicus* Schrenk, were added to the flora of Nepal (Erst and Sukhorukov 2011). *Ranunculus eryuansensis* was previously known as *Ranunculus kunmingensis* var. *hispidus* (Wang 1995) and was later raised to the species rank (Erst 2015). It differs from *Ranunculus kunmingensis* var. *kunmingensis* in its spreading hispid stems and leaf dissection. Based on its morphological characteristics, it belongs to the type section of the genus. This group consists of ~30 species distributed in Eurasia, North America and Africa, with a basic chromosome number of x = 7 (Goepfert 1974; Hörandl and Emadzade 2012; Xu et al. 2003).

Examined specimens (new record)

NEPAL: Karnali Zone, Mugu District, trekking route Jumla–Rara Lake, between Bora and Rara villages. 2400 m, grassy hill slope, 3 October 2014, A. Sukhorukov 780 (K, MW).

*Ranunculus olgae Regel & Schmalh. (Ranunculaceae)*

*Ranunculus afghanicus* Aitch. & Hemsl., *Ranunculus chaffanjonii* Danguy ex Finet & Gagnep.

Contributors – Andrey Erst, Andrey Korolyuk, Kunli Xiang, Wei Wang

Distribution and habitat

*Ranunculus olgae* was originally described from the Samarqand and Tashkent regions of Uzbekistan (Regel and Schmalhausen 1882). Now, this species has been recorded from Turkmenistan, Afghanistan (Fedshenko 1925), Tajikistan (Byalt and Bubyreva 2014) and Kyrgyzstan (Lazkov and Sultanova 2011). No confirmed record of *Ranunculus olgae* has been reported from Kazakhstan so far (Gamajunova 1961). The species grows in steppe to alpine zones, including steppe communities, meadows, near snow in the high mountains and along rivers and streams. *Ranunculus olgae* is a new native species to the flora of Kazakhstan.

Taxonomic notes

In the flora of Kazakhstan, the genus *Ranunculus* L., including the genus *Batrachium* (DC.) Gray, is represented by 65 species (Gamajunova 1961). *Ranunculus olgae* morphologically belongs to paraphyletic Sect. *Ranunculastrum* DC. This section consists of c. 70 species from the Irano-Turanian region, Mediterranean Basin, eastern Europe, northern Africa, and Macaronesia, and is characterized by beaks mostly equalling or longer than the achene body, often long or short triangles, entirely glabrous receptacles, partly tuberous roots, and mostly elongated collective fruit (Hörandl and Emadzade 2012). The section is divided into two groups (Hörandl and Emadzade 2012). The first group is characterized by strongly bilaterally compressed, papery, winged along sutures, not strongly fused with the receptacle achenes (e.g. *Ranunculus platyspermus* Fisch. and *Ranunculus pedatus* Waldst. & Kit.). The second group is characterized by thicker, not papery, narrowly marginate along sutures, strongly fused with the receptacle achenes (e.g. *Ranunculus oxyspermus* Willd. and *Ranunculus orientalis* L.). *Ranunculus olgae* morphologically belongs to the first group.

Unlike *Ranunculus mindshelkensis* B.Fedtsch., *Ranunculus olgae* has hairy achenes. This species also exhibits a heart-shaped base of the leaf blade, pubescent stems and curved upper part of the beak of the achene, as opposed to *Ranunculus czimganicus* Ovcz. which has a wedge-shaped leaf base and beak that is curved from its base (Ovczinnikov 1937). Species with leaves rounded, entire or three-lobed are morphologically close to *Ranunculus olgae*. *Ranunculus chaffanjonii* Danguy ex Finet & Gagnep. was described from Chaffanjon, which is near Tashkent, and this location is the locus classicus for *Ranunculus olgae*. If considered conspecific, the *Ranunculus olgae* name, published in 1882, has priority over *R. chaffanjonii*, published in 1904. *Ranunculus afghanicus* Aitch. & Hemsl. was described later than *R. olgae*, and therefore this last name is of higher priority (Fedshenko 1925).

Examined specimens (new record)

KAZAKSTAN: South Kazakhstan Region, Baydibek District, Karatau Mountains, 15–20 km north-east from the Baralday Village, Baralday River, bushes, N 42°52’ E 69°53’N, 580 m, 13 May 2005, A. Korolyuk (NS).

*Thymus indulgiricensis Karav. (Labiatae)*

Contributors – Vladimir M. Vasjukov, Elena B. Pospelova, Igor N. Pospelov

Distribution and habitat

*Thymus indulgiricensis* was described from the north-eastern part of Eastern Siberia: Yakut ASSR, Omjakon district, right bank of the Nera river (tributary of the Indigirka river), near the village Balaganach, steppe plot
on south slope of the main bank (Karavaev 1971). It grows on gravelly-rocky and sandy slopes in the tundra zone of Eastern Siberia in the western part of the Magadan region and in the north-western part of the Sakha (Yakutia) Republic: the basin of the Indigirka river to N68° and near the village of Sangar (MW; Karavaev 1971, 1974; Doronkin 1997); the species is known as endemic to that area.

Recently, specimens of that taxon were found in the northern part of Middle Siberia (Taymyr), almost 1500 km away from the known Eastern Siberian populations.

**Taxonomic notes**

*Thymus indigirkensis* belongs to the series *Praeserpyllia* Klokov section *Euserpyllum* Klokov (*Serpyllum* auct. non (Mill.) Benth., p.p.), with the transitional morphological characters to section *Verticillati* (Klokov et Des.-Shost.) Klokov.

*Thymus indigirkensis*, along with *Thymus tonsilis* Klokov, differ notably from other species of series *Praeserpyllia* in their strongly pronounced heterophylla. Characteristics of *Thymus indigirkensis* distinguishing it from close species include the following: leaves on the surface of both sides are more or less pubescent with long and short hairs, 4–9 mm long and 1.5–4 mm wide; generative shoots are 2–7 cm tall, under inflorescence and on the upper internodes densely pubescent with horizontally protruding long hairs, lower – with short hairs; calyx at time of flowering is 3.5–4 mm long, the teeth of the upper lip on the edge are long ciliated.

**Examined specimens (new records)**

RUSSIA: [Middle Siberia], Krasnoyarsk region, Taimyr district, north-western part of Anabar plateau, the region of Odihincha mountain and the confluence of Kyndny and Kotuy rivers, rocks on the Kyndny steep bank at its mouth, 70°88′87″ N/102°16′89.8″ E, 13 August 2007, I. Pospelov, 07–0756 (PVB; det. V. Vasjukov).

**Viola × sukaczewii Vl. V. Nikitin (Violaceae)**

Contribution – Aleksandr L. Ebel

**Distribution and habitat**

*Viola × sukaczewii* up to now was known only by type specimens collected in the beginning of the twentieth century on the territory of former Samara Province. The type specimen islabelled: “Samarskaya gub., Buzulukskii uezd, listvennyi les severnoi chastii Mogutovskogo lesnichestva. 13 V 1903. V.N. Sukaczew” (LE!). Now this place is located in the westernmost part of Orenburg Oblast. Nevertheless, this nothospecies was not mentioned in the generalizing regional floristic publication (Ryabinina and Knyazev 2009).

As well as both parent species, the hybrid grows in both deciduous and coniferous forests and on their margins, sometimes on forest meadows.

This is a new native nothospecies for Asian Russia.

**Taxonomic notes**

This nothospecies was described as an interspecific hybrid between Eurasian species *Viola mirabilis* L. and *Viola nemoralis* Kuetz. (Nikitin 2001). Like other *Viola* hybrids, this taxon is characterized by significant elongation of stems by the end of summer.

In the protologue (Nikitin 2001) only flourishing samples were mentioned, but no thoughts on the fertility of this hybrid were expressed. On the other hand, as Nikitin had placed parent species to two different sections (*Trigonocarpaea* Godr. and *Mirabiles* (Nyman ex Borbás) Vl.V. Nikitin, accordingly), and in the introduction part of the abovementioned paper (Nikitin 2001) he stated that intersectional *Viola* hybrids are usually highly

**Distribution and habitat**

*Thymus sergievskajae* was described from the northern part of Eastern Siberia: Yakutia, Zhigansky district, the left bank of the Lena river, the right bank of the river Chorenka at the confluence of the rivers Conor-Sete, sand bars near the river-bed (Karavaev 1971). It grows on sandy and rocky slopes river in the north-eastern part of the Central Siberian upland in the Sakha (Yakutia) Republic: the mouth of the river Chorongcho – the left tributary of Lena river (MW; Karavaev 1971, 1974; Doronkin 1997); it is known to be endemic to that area.

**Examined specimens (new record)**

RUSSIA: [Middle Siberia], Krasnoyarsk region, Taimyr district, north-western part of Anabar plateau, the region of Odihincha mountain and the confluence of Kyndny and Kotuy rivers, rocks on the Kyndny steep bank at its mouth, 70°88′87″ N/102°16′89.8″ E, 13 August 2007, I. Pospelov, 07–0756 (PVB; det. V. Vasjukov).
sterile, it is logical that the discussed nothospecies should be sterile too. To check this assumption, we observed and thoroughly explored a large population (not less than 100 individuals) found in Tomsk city during whole vegetation season in 2015 – from the beginning of May until September. We found that chasmogamous flowers emerging in spring are fully sterile (like those of Viola mirabilis), but some cleistogamous flowers formed in summer produce completely ripe seeds.

Examined specimens (new record)
RUSSIA: Tomsk Oblast, surroundings of Tomsk city, margin of pine-birch forest. 15 Jun 2013; 26 May 2015 (flourishing samples), 26 Jun 2015; 15 Aug 2015 (fruiting samples), A. Ebel sn. (TK).

New records for European countries
Agave sisalana Perrine (Asparagaceae)
Contributors – Gianniantonio Domina, Marjol Meço, Alfred Mullaj

Distribution and habitat
Agave sisalana is native to Mexico. It was spread as a fiber plant and is now naturalized in North and South America, North and Central Africa, Europe, East Asia and East Australia (Hochstätter 2015; Nobel 1988). In the Mediterranean, it is reported as naturalized in Spain, peninsular Italy, Sardinia, Sicily, Morocco, Algeria and Libya (African Plant Database 2017; DAISIE 2017; Euro+Med Plantbase 2017). This species occurs on disturbed habitats such as abandoned fields, roadsides and waste areas. It produces a large number of bulbils on the flowering stem (pseudovivipary) (Elmqvist and Cox 1996), so it easily spread to the surroundings of the areas where it was introduced. In the most recent florae of Albania (Pils 2016; Vangjeli 2015; Vangjeli et al. 2000), only Agave americana L. is reported.

Agave sisalana was observed in a strip between the sea and the Butrint lagoon on carbonate rocky soil, of about 0.3 ha, with hundreds of mature and juvenile individuals among Mediterranean native and exotic plants. For Albania, this species is to be considered as a naturalized, invasive, species.

Taxonomic notes
Agave sisalana can be distinguished from Agave americana by its shorter and narrower leaves (90–130 × 9–12 cm instead than 100–200 × 15–25 cm) and by its shorter corollas (55–65 instead than 70–100 mm) (Hochstätter 2015). The colour of the leaves and the spines on their margins vary depending on the clonal lines.

Examined specimens (new record)
ALBANIA: Saranda district, Aliko, 39°49’18” N, 20°1’11” E, 10 m a.s.l., very abundant on a carbonate slope with Phlomis fruticosa, Spartium junceum and Paliurus spinoca-stri, 30 April 2015, G. Domina & M. Meço s.n. (PAL).

Allium carinatum L. (Amaryllidaceae)
Contributor – Alexey P. Seregin

Distribution and habitat
Pskov Oblast is the westernmost region of the Russian mainland influenced by the Atlantic air masses and exhibiting some influence of Middle European flora (Sennikov 2005). Allium carinatum, a new species for Russia, was collected here as an established alien in 2002 on anthropogenic meadow along the Moscow–Riga railway in the town of Sebezh (ca. 15 km to the east of the Latvian border). The section of this railway within the Sebezhsky District harbours some well-known sites of floristic interest in the Northwestern Russia, which were initially discovered by Dr Galina Konechnaya in 1999. Dozens of thermophilous alien plants of southern origin were recorded here in 1999–2004, mainly – but not exclusively – in steppe-like communities dominated by Festuca pseudovina Wiesb. (Konechnaya 1999, 2004; Konechnaya and Tzvelev 2004). Allium carinatum was collected in Sebezh during one of these research missions, but was not properly named.

Allium carinatum is a widely distributed European species known from Austria, Albania, Belgium, Bulgaria, Czech Republic, Denmark, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Netherlands, Poland, Romania, Slovakia, Spain, Sweden, Switzerland, Turkey and nearly all former Yugoslavian countries (Stearn 1980). It was also reported upon a single gathering from Northern Anatolia by Kollmann (1984).

The species was not recorded from Eastern Europe by Omelczuk-Myakushko (1979), although lately it has been dubiously reported from Estonia (Stearn 1980) and Ukraine (Mosyakin and Fedoronchuk 1999). The former record was not confirmed afterwards, whereas the latter is not supported by any specimens from the main Ukrainian and Russian herbaria (Seregin 2007). Therefore, the record from Sebezh is a novelty for Eastern Europe.

At the moment, Sebezh is the easternmost locality of A. carinatum, but the current state of the local population is unknown.

Taxonomic notes
Allium carinatum is a typical member of the section Codonoprasum Reichenb. It has showy drooping flowers with stamens twice as long as the ovoid perianth. Tepals are rose to purple, rarely white, usually tinged with whitish wax. Usually, Allium carinatum subsp. carinatum can be confused with Allium oleraceum L., which has stamens hidden in the campanulate perianth.
The species has two morphotypes, i.e. with bulbils in the inflorescence and without them. Distribution of these morphotypes has clear geographical patterns, and therefore these are usually regarded as subspecies. Allium carinatum subsp. carinatum is a widely distributed viviparous morphotype with numerous bulbils in the base of pedicells and rarely produced seeds, whereas Allium carinatum subsp. pulchellum (G.Don) Bonnier & Layens (A. cirrhosum Vand.) has umbels with flowers only, numerous seeds, and grows in Southern Europe from Greece to France (Stearn 1978, 1980). Stearn (1978) is the best reference for the complicated taxonomy of “Allium pulchellum”.

Examined specimens (new record)
RUSSIA: Pskov Oblast, Sebez, 1 km to E from railway station, meadow along railway, 24 Jul 2002, I.O. Buzunova & G.Yu. Konechnaya s.n. (LE).

Austrocylindropuntia subulata (Muehlenpf.) Backeb. (Cactaceae)
Contributors – Gianniantonio Domina, Marjol Meço, Alfred Mullaj

Distribution and habitat
Austrocylindropuntia subulata is native to south Perú (Anderson 2001; Berthet 1990). It was introduced in Australia, Madagascar, North Africa and Europe (Allorge-Bioteau 2002; Berthet 1990; Dobignard 1997; Potter and Ruthrford 2013). In the Mediterranean it is reported as naturalized in Portugal, Spain, Morocco, peninsular Italy, Sardinia and Sicily (DAISIE 2017; Dobignard 1997). This species occurs on disturbed habitats such as abandoned fields, roadsides and waste areas. In Albania it is infrequently cultivated as ornamental along the coast up to 200–300 m. For this country, Austrocylindropuntia subulata can be considered a casual alien species.

Taxonomic notes
Austrocylindropuntia subulata can be distinguished from Austrocylindropuntia cylindrica (Lam.) Backeb., and other widespread species of Austrocylindropuntia cultivated and naturalized in the Mediterranean (DAISIE 2009), by its areoles with 1–4 spines, 5–7 cm long, instead of 2–6 spines, 1–2 cm long. The fruits in Austrocylindropuntia subulata are up to 10 cm long, while in Austrocylindropuntia cylindrica they are 4–5 cm long (Potter and Ruthrford 2013).

Examined specimens (new record)
ALBANIA: Saranda district, Lukovë, 40° 3’54” N, 19°51’6” E, 50 m a.s.l., casual alien on the base of a carbonate rock, 29 April 2015, G. Domina & M. Meço s.n. (PAL).

Carex muskingumensis Schwein. (Cyperaceae)
Carex arida Schwein. & Torr., Carex scoparia Torr., Carex scoparia var. muskingumensis (Schwein.) Tuck., Thysanocarex muskingumensis (Schwein.) Fedde & J.Schust., Vignea muskingumensis (Schwein.) Sojak

Distribution and habitat
Carex muskingumensis is a species native to North America; it occurs in eastern Canada (Ontario), north-central USA (Illinois, Iowa, Kansas, Minnesota, Missouri, Oklahoma, Wisconsin), north-eastern USA (Indiana, Michigan, Ohio) and south-eastern USA (Arkansas, Kentucky, Tennessee) (Mastrogiuseppe et al. 2002). It has been introduced to Europe where it occurs in Belgium, Czech Republic, Germany, Netherlands, Sweden, (Koopman 2015a), Austria (Wallnöfer and Essl 2016) and Poland. In North America, the sedge grows on moist to wet soils on deciduous forest-overgrown flood plains, in lowland woods and in thickets. In Europe, it is encountered in both man-made and natural habitats, frequently along rivers and streams (e.g., Gregor et al. 2012; Otto, Gebauer, and Hardtke 2015; Řepka and Grulich 2014; Wallnöfer and Essl 2016).

Carex muskingumensis has been cultivated in Europe as an ornamental plant (Tomáškin, Tomáškinová, and Kizeková 2015). In 1947, it was recorded, for the first time outside cultivation, in the Czech Republic, on a dumping ground in Brno-Pisárky (Grüll 1952; Jedlička 1949; Řepka and Grulich 2014). The species was subsequently reported in 2010 and 2012, in Bohemia along the Vltava River (north of Prague) and in the flood plain forest near Vranovice in southern Moravia, respectively (Řepka and Grulich 2014). In the Czech Republic, the species belongs to the casual alien plants, i.e. “alien species that may flourish and even reproduce occasionally in an area, but which do not form self-replacing populations, and which rely on repeated introductions for their persistence” (Pyšek, Sadlo, and Mandak 2002). In Germany, Carex muskingumensis appeared outside cultivation in 1992 (Gregor et al. 2012; Kramer 1992; Otto, Gebauer, and Hardtke 2015). In Austria, the sedge was discovered in 2002 along a rivulet downstream from a market garden near the western border of Vienna (Wallnöfer and Essl 2016). In 2003, Carex muskingumensis was for the first time recorded in the Netherlands (in Bemmel, Gelderland), and has been found in numerous localities since, particularly in the provinces of Gelderland and Noord-Brabant (Koopman 2015b; van der Meijden and Holverda 2006). In Sweden, the species has been known since 2007 as a casual species (Karlsson 2003; Karlsson and Agestam 2014). It has also been reported from Belgium, for the first time in
2010 in Nieuwerkerken (Lambinon and Verloove 2012; Verloove 2016).

The newly discovered locality of Carex muskingumensis is situated in south-eastern Poland, near the village of Uście Gorlickie. Two clumps of Carex muskingumensis were found growing in the near-shore zone of a dam reservoir on the river Ropa near Lake Klimkowskie. One clump consisted of several hundreds of stems, including about 30 generative ones; the other clump consisted of several tens of stems, including six generative ones. At a low water level, the population grew on the muddy bottom of the reservoir (in our estimation, at a normal water level the sedge patches have to be immersed down to a depth of about 20–30 cm). The sedges were accompanied by a mass occurrence of Eleocharis acicularis (L.) Roem. & Schult. and scattered specimens of Veronica anagallis-aquatica L., Juncus compressus Jacq. and Epilobium adnatum Griseb. The first Polish report dates from 2015; like in other European countries, the species is considered to be an ephemerophyte. However, on account of its resistance to temperature changes, the lack of any particular requirements as to the soil type (the sedge usually prefers moist and moderately shaded sites, but can also grow in dry and sunny localities), as well as its ability to vigorously vegetative reproduce (Tomaškin, Tomaškinová, and Kizeková 2015), the occurrence of the sedge should be monitored and new stands recorded and reported.

**Taxonomic notes**

Carex muskingumensis belongs to the section Ovales Kunth, which is the largest in the subgenus Vignea (Beauv. ex Lestib) Peterm. and contains ca. 85 species (Egorova 1999; Mastrogiuseppe et al. 2002). Members of the section Ovales have dense spiciform or capitulate inflorescence with typically gynaecedrous spikes. Generally, the main morphological characteristics of the section Ovales are flattened, usually plano-convex utricles, membranous, with a narrow denticulate wing, short-bidentate beak, fruit smaller than utricle, and bracts glumaceous, with the lowest ones sometimes narrow-leaf-like (see also Chater 1980; Egorova 1999; Mastrogiuseppe et al. 2002).

**Examined specimens (new record)**

POLAND: Beskid Niski Mts., Uście Gorlickie (EG28), silted bottom of the dried-up lagoon, alt. 385, 49°31’51’’ N, 22°07’57’’ E, alt. 192 m, 27 Oct 2015, K. Oklejewicz (KRA).

**Crataegus macrocarpa Hegeschw. (Rosaceae)**

**Contributor** – Gergely Király

**Distribution and habitat**

Crataegus macrocarpa is widespread or scattered in northern Central Europe (Czech Republic, Germany), but rather rare in Northern Europe and southern and eastern Central Europe (Austria, Baltic regions, Hungary, Poland, Scandinavia, Slovakia) (Christensen 1992; Gostyńska-Jakusewska and Hrabětová-Uhrová 1981; Kerény-Nagy 2015; Kuratto, Sennikov, and Lampinen 2013; Oklejewicz et al. 2014; Schmidt 2002). It grows in similar habitats (e.g. forest fringes, woody pastures, and open forests) as per other hawthorn species, mainly on mesic, neutral soils. In the northern part of its range it reaches the lowlands, in the south-eastern part its occurrences are rather restricted to the submontane belt with Fagetalia forest communities.

**Crataegus macrocarpa** had no reliable records from Romania (Ciocârlan 2009; Kuratto, Sennikov, and Lampinen 2013). The species was found in the Meseș Mts (Central Transylvania) in 2014, wherein the locality is situated approx. 200 km SE of its previously known eastern edge of range in NE Hungary. However, it is a typical poorly known, often overlooked taxon; therefore, further observations are expected in the submontane regions of W Romania.

**Taxonomic notes**

Notwithstanding the relatively low number of accepted species in Europe, the genus *Crataegus* is often considered to be both taxonomically and nomenclaturally an especially complicated group. *Crataegus macrocarpa* itself is an entity of hybrid origin; however, its status and synonymy have been widely discussed (Byatt 1976; Christensen 1992; Franco 1968). Recently, it has generally been treated as a hybrid of *Crataegus laevigata* (Poir.) DC. and *Crataegus rhiphydophylla* Gand. (Kuratto, Sennikov, and Lampinen 2013; Lippert 1995), which has, nevertheless, a coherent distribution area. According to sometimes controversial identification keys (Holub and Závorka 2002; Schmidt 2002; Fischer, Adler, and Oswald 2008; Kerény-Nagy 2015) *Crataegus macrocarpa* has 1–3 styles and nutlets (*Crataegus laevigata*: 2, exceptionally 1 or 3; *Crataegus × media* Bechst.: 1–2); and narrow, long sepals (*Crataegus laevigata* and *Crataegus × media* have broad, short sepals). Furthermore, *Crataegus macrocarpa* is also distinguishable from *Crataegus laevigata* by the deeper lobed leaves.

**Examined specimen (new record)**

ROMANIA: Sălaj County, Meseș Mts, 1,4 km SE of Mirșid, near the road to Moigrad, abandoned hilly pasture with bushes (among oak-hornbeam forest patches), alt. 351 m, 47°13’13’’ N; 23°08’39’’ E, 24 July 2014, G. Király (BP).

**Dactylorhiza lapponica** (Laest. ex Hartm.) Soó (Orchidaceae)

*Dactylorhiza traunsteineri* subsp. *lapponica* (Laest. ex Hartm.) Soó

**Contributors** – Attila V. Molnár, Miklós Övári
**Distribution and habitat**

The known distribution area of *Dactylorhiza lapponica* covers northern Europe, the Alps and the northern Carpathians (Delforge 2006; Vlčko, Ditě, and Kolník 2003). Presence of the species in some Central European countries has been detected only during recent decades, e.g. Austria and Switzerland (Reinhard 1983), Germany (Gallerach and Wucherpfennig 1987), France (Amardeill 1997), Slovakia (Vlčko 1995) and Hungary (Ditě, Eliáš, and Király 2006). *Dactylorhiza lapponica* grows in in low-herb communities of springs and fens, and along mountain streams (Ditě, Eliáš, and Király 2006). The species occurs from lowlands to alpine altitudinal zones (Delforge 2006). Occurrence of *Dactylorhiza lapponica* in Romanian was previously unknown. Overlooked herbarium sheets collected 50 years ago, together with a newly found locality, represent the most south-eastern known population of the species. The habitat of the newly found locality near Călățele is characterized by slightly acidic soil (pH 6.0), with high (15.4%) organic matter content and very low carbonate (< 0.05%), phosphorous (60 mg/kg), potassium (174 mg/kg) and nitrogen (58.8 mg/kg) content.

**Taxonomic notes**

*Dactylorhiza lapponica* belongs to the allotetraploid complex *Dactylorhiza majalis* s.l. (Aagaard et al. 2005). The members of this complex originated as results of repeated hybridization events between the diploid taxa *Dactylorhiza incarnata* (L.) Soó and *Dactylorhiza fuchsii* (Druce) Soó (Devos et al. 2003; Hedrén 1996). Among the main characters allowing to distinguish *Dactylorhiza lapponica* from morphologically most similar *Dactylorhiza majalis* (Rchb.) P.E.Hunt & Summerh., the most important are: lower flowering stem (10–40 cm vs. 20–90 cm high), fewer (2–5 vs. 4–10) and narrower (3–25 mm vs. 15–35 mm width) leaves, fewer (3–20 vs. 10–60) flowers and shorter (20–70 mm vs. 20–170 long) inflorescence, respectively.

**Examined specimens (new records)**

ROMANIA: Jud. Cluj, Munții Gilăului, Băișoara, "In loco paludoso, montis 'Oreg Havas' montium 'Gyalui Havas'. Alt. cca. 1600 m super mare. Prope pagum Kisbánya, comitatis Kolozs", 23 August 1956, D. Pázmány & E. Jeney sn., as "Orchis morio L."; rev.: A. Molnár V. as "D. lapponica" (Laest. ex Hartm.) Soó (BP 684168); the next herbarium sheet (BP 684402) collected on the same locality, at same date, originally identified as: "Orchis sambucina L."; rev.: A. Molnár V. as "D. lapponica" (Laest. ex Hartm.) Soó; Jud. Cluj, near Călățele (46.72654° N, 23.03298° E, 948 m alt.), wet hay meadows, 11 June 2015, A Molnár V. & M. Ţelega (DE).

**Lagurus ovatus subsp. nanus (Guss.) Messeri (Poaceae)**

**Contributors** – Gianniantonio Domina, Marjol Meço, Alfred Mullaj

**Distribution and habitat**

*Lagurus ovatus* subsp. *nanus* was previously known from Morocco, Spain, peninsular Italy, Sicily, Egypt, Israel and Greece (Euro+Med Plantbase 2017). In southern Albania it was found in a waste area along the coast. On the contrary, *Lagurus subsp. ovatus* is the most common subspecies occurring in the rest of the coast of Albania.

**Taxonomic notes**

Three subspecies of *Lagurus ovatus* L. are known from the Mediterranean basin: *Lagurus ovatus* subsp. *ovatus*, *Lagurus ovatus* subsp. *nanus* (Guss.) Messeri and *Lagurus ovatus* subsp. *vestitus* (Messeri) Brullo.

*Lagurus ovatus* subsp. *nanus* is an appressed plant, very much branched with sub-rounded spikes and glumes that have short, rare, hairs up to the apex. On the contrary, *Lagurus ovatus* subsp. *ovatus* and *Lagurus ovatus* subsp. *vestitus* are erect plants, with few branches and glumes with long hairs (Messeri 1942).

**Examined specimens (new record)**

ALBANIA: Vlorë district, Orikum, 40°19’14” N 19°25’32” E, 5 m a.s.l., sandy coastal area, 28 April 2015, G. Domina & M. Meço s.n. (PAL).

**Najas guadelupensis (Spreng.) Magnus (Najadaceae)**

**Contributors** – Gergely Király, Ángela Király

**Distribution and habitat**

*Najas guadelupensis* is native to the Americas, widespread in the USA as far north as the Canadian borderland, and scattered in Mexico, the West Indies and South America (Haynes 1979, 2000). Within the native range it shows some invasive tendency, mainly in artificial aquatic habitats (channels, ponds) (DiTomaso and Healy 2006); within the native range it shows some invasive tendency, mainly in artificial aquatic habitats (channels, ponds) (DiTomaso and Healy 2006); within the native range it shows some invasive tendency, mainly in artificial aquatic habitats (channels, ponds) (DiTomaso and Healy 2006). It is known as an aquarium plant (Mühlberg 1983); due to its supposed invasive potential it is classified as a “high risk plant” in some countries (e.g. New Zealand: Champion, de Winton, and Clayton 2014). It is known as an aquarium plant (Mühlberg 1983); due to its supposed invasive potential it is classified as a “high risk plant” in some countries (e.g. New Zealand: Champion, de Winton, and Clayton 2014). It is known as an aquarium plant (Mühlberg 1983); due to its supposed invasive potential it is classified as a “high risk plant” in some countries (e.g. New Zealand: Champion, de Winton, and Clayton 2014). It is known as an aquarium plant (Mühlberg 1983); due to its supposed invasive potential it is classified as a “high risk plant” in some countries (e.g. New Zealand: Champion, de Winton, and Clayton 2014).
The species has already been reported from Hungary, but only on the checklist of aquatic aliens (Lukács et al. 2016), and it was introduced into the Hungarian identification key (Király 2009); nevertheless, accurate localities and habitats have not yet been published from the country. *Najas guadelupensis* was found in Hungary at two localities, always in connection with thermal water. In Budapest it was probably intentionally planted on thermal lakes fed by natural warm springs, though this stand has recently disappeared. On the contrary, the species has a stable occurrence in the water body of Tapolca Creek, which is an outflow of the thermal spring "Lake Cave". Here, it grows together with other exotic aliens (e.g. *Egeria densa* Planch., *Hydrocotyle ranunculoides* L. f., *Vallisneria* spp.), and its further spread is probably blocked by the neighboring stronger invaders. Despite the recently limited invasion in this locality, the species is still a potential threat to the aquatic habitats of Hungary and the Pannonian Basin, especially in the region of Lake Balaton, which is rich in channels and rivers connected to thermal springs.

**Taxonomic notes**

*Najas guadelupensis* belongs to the subgenus *Caulinia* (Willd.) Rendle, which comprises monoecious species with slender stem and leaves, generally (excluding *N. minor* All.) without spines on the stem internodes and the leaf midrib. The subgenus has three native (*N. minor*, *N. flexilis* (Willd.) Rostk. & Schmidt and *N. tenuissima* (A.Braun) Magnus), and three introduced (*Najas gracillima* (A.Braun ex Engelm.) Magnus, *Najas graminea* Del. and *Najas guadelupensis*) species in Europe. Compared to the similar representatives of the subgenus, *Najas guadelupensis* differs from *Najas tenuissima* and *Najas gracillima* by having unicellular leaf teeth (both of the latter have multicellular teeth), and from *Najas graminea* by the rounded to truncate leaf sheaths and pitted seeds (the latter has deeply auriculate teeth (both of the latter have multicellular teeth), and

**Examined specimens (new records)**

HUNGARY: Budapest, Margaret Island (Margitsziget), small artificial thermal ponds, alt. 104 m, 47°32′05″ N; 19°03′09″ E, 13 October 2006, G. Király, I. Dancza (herbarium of G. Király); Veszprém County, Tapolca, 0.5 km S of the Tapolca “Lake Cave” in the natural thermal water of the slowly flowing Tapolca Creek, alt. 116 m, 47°13′13″ N; 23°08′39″ E, 3 November 2007, A. Király, G. Király, R. Vidéki (BP)

**Opuntia stricta** (Haw.) Haw. (Cactaceae)

**Distribution and habitat**

*Opuntia stricta* is native to SW USA, Cuba and the Bahamas islands (Anderson 2001; Berthet 1990). It has been introduced in North and South America, North and Central Africa, Europe, East Asia, East Australia (Hochstätter 2015; Nobel 1988). In the Mediterranean, it is reported as naturalized in Algeria, France, peninsular Italy, Lybia, Morocco, Sicily, Spain and Tunisia (African Plant Database 2017; DAISIE 2017) and it is expanding further, becoming even more aggressive in the most fragile habitats, such as small islands (Celesti-Grapow et al. 2010, 2016).

*Opuntia stricta* was found with few individuals at Përmet in a waste area among the ruins of an abandoned Italian military building dating back to the Second World War. This species is infrequently cultivated along the coast and in the basal belt in Albania. For this country, it can be considered a casual alien species.

**Taxonomic notes**

*Opuntia stricta* is a prostrated or erect shrub up to 1 m tall; stem segments up to 20–30 cm; areoles without spines, or occasionally one; fruit to 6 cm long, purplish red (Anderson 2001). These characteristics easily distinguish this species from *Opuntia ficus-indica* (L.) Mill., cultivated and naturalized along the coast and basal belt of Albania.

**Examined specimens (new record)**

ALBANIA: Përmet district, Përmet, 40°13′42″ N, 20°21′22″ E, 250 m a.s.l., casual alien among the ruins of an abandoned military building, 27 June 2015, G. Domina & G. Bazan s.n. (PAL).

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

**Contributors** – Gianniantonio Domina, Giuseppe Bazan

**Distribution and habitat**

The species is a parasite of *Artemisia alba* Turra, described from Serbia and subsequently found in Bulgaria (Beck 1890). Recently, it was also recorded in S. France and Spain (Carlón et al. 2005, under the name *Orobanche azanonis* F.W.Schmidt ex Beck).

In Albania, it was found in dozens of mature individuals on *Artemisia alba*, in the Mount Dëmbel on the NE slope overlooking the village of Përmet, between 900 and 1300 m above the sea level.

**Taxonomic notes**

*Orobanche serbica* was initially considered close to *O. alba* Willd. (Beck 1890), but the absence of red glandular
hairs on the flowers and the small size of the corolla noted by Carlón et al. (2008), and also observed on the Albanian plants, suggests that it is taxonomically closer to the group of Orobanche minor Sm.

**Examined specimens (new record)**

ALBANIA: Përmet district, Dhëmbel Mt., 40°12’22” N. 20°20’3” E, 950 m a.s.l., parasite on Artemisia alba, 28 June 2015, G. Domina & G. Bazan s.n. (PAL).

**Oxalis articulata** Savigny (Oxalidaceae)

**Contributors** – Gianniantonio Domina, Marjol Meço, Alfred Mullaj

**Distribution and habitat**

*Oxalis articulata* is native to East temperate and South America. In Europe and in the Mediterranean, it is reported as naturalized in Algeria, Croatia, France, Germany, Greece, Iberian Peninsula, Italy, Libya, Norway, Slovenia, Turkey and the United Kingdom (African Plant Database 2017; DAISIE 2017; Euro+Med Plantbase 2017). In the most recent floras of Albania (Pils 2016; Qosja et al. 1992; Vangjeli 2015), only the native *Oxalis acetosella* L. and *Oxalis corniculata* L. and the exotic *Oxalis dillenii* Jacq., *Oxalis fontana* Bunge, *Oxalis pes-caprae* L. and *Oxalis stricta* L. have been reported.

In Albania, the species is cultivated for ornamental reasons along the coast and near villages. For this country, it can be considered a casual alien species.

**Taxonomic notes**

This species can be easily distinguished from the other species of *Oxalis* reported from Albania by the pink colour of the corollas and the rhizome, which is made up of many roundish segments.

**Examined specimens (new record)**

ALBANIA: Lushnjë district, Tërbuf, 41°3’12” N 19°38’58” E, 20 m a.s.l., base of a perimeter wall of a parking area, 27 April 2015, G. Domina & M. Meço s.n. (PAL).

**Sedum rubens** L. (Crassulaceae)

**Contributors** – Marcin Nobis, Agnieszka Nobis, Anna Wróbel

**Distribution and habitat**

*Sedum rubens* originates from Eastern Mediterranean (‘T Hart and Eggli 2003). The species is distributed mainly in the Mediterranean region, i.e. in southern Europe, northern Africa, Asia Minor and the Canary Islands; it is also noted in Central Europe, Crimea and northern Iran (Carlström 1985; Jäger and Werner 2002; ‘T Hart and Eggli 2003; Webb, Akeroyd, and ‘T Hart 2007). The species occurs within dry, stony or gravel habitats on different soil types, between ca. 0–2000 m a.s.l. (Jäger and Werner 2002; ‘T Hart and Eggli 2003).

In Central Europe, *Sedum rubens* has been observed in Germany (Rothmaler, Jäger and Werner 2002); besides, in Slovakia the species is regarded as rarely escaping from cultivation (Bertová 1985). Until now, *Sedum rubens* has not been noted in Poland (Mirek et al. 2002; Pawłowska 1955; Rutkowski 1998). In 2014, however, the occurrence of *Sedum rubens* was reported from Kraków, Poland. In Kraków it has been observed for a few years on gravel-stony habitats within anthropogenic sites, i.e. along tramway tracks, and its populations are abundant, consisting of ca. hundreds of individuals. *Sedum rubens* should be considered an alien taxon to the Polish flora, and as a local epeophyte.

**Taxonomic notes**

In Poland, *Sedum rubens* may be confused with the somewhat morphologically similar *Sedum album* L., a species currently spreading in the country (Tokarska-Guzik 2005). However, *Sedum rubens* differs from the letter in shape of flowers and petals. Besides, it is an annual plant, while *Sedum album* is a perennial (Webb, Akeroyd, and ‘T Hart 2007).

**Examined specimens (new records)**

POLAND: Kraków, Kurdwanów, Witosa St., tramway tracks, May-June 2014, 2015, 2016, 2017, obs. A. Nobis, M. Nobis; 16 May 2016 M. Nobis s.n. (KRA); Kraków, Zakrzówek, Pychowicka St., gravel square (parking), May 2016, obs. M. Nobis.

**Vitis × instabilis** Ardenghi, Galasso, Banfi & Lastrucci (Vitaceae)

*V. riparia* Michaux × *V. rupestris* Scheele

**Contributors** – Gianniantonio Domina, Giuseppe Bazan

**Distribution and habitat**

Rootstock hybrid originating in Europe. It is known as a casual or naturalized alien in Greece, Italy and Spain (Ardenghi et al. 2014). Rootstock taxa often occur naturalized in agricultural areas, spreading by vegetative or sexual reproduction. In Albania, this nothospecies was observed in the Përmet district in several localities in agricultural areas. In Pils (2016, 296), a photo of this hybrid rootstock is labelled as *Vitis vinifera* subsp. *sylvestris* (C.C.Gmel.) Hegi.

**Taxonomic notes**

Recently, all the hybrid rootstocks commonly used since the last century in Italy have been named (Ardenghi et al. 2014) which intensified the floristic survey of these alien taxa in the Italian territory and the surrounding areas (Ardenghi, Banfi, and Galasso 2015). The identification of this nothotaxon was conducted on the basis of the key and morphological description in Ardenghi et al. (2014).
Examined specimens (new records)

ALBANIA: Përmet district, Qendar, 40°16'50” N, 20°16'55” E, 250 m a.s.l., edge of a field cultivated with cereals, 27 June 2015, G. Domina & G. Bazan s.n. (PAL); Përmet district, Petran, 40°13'39” N, 20°22'25”E, 250 m a.s.l., edge of a vineyard, 27 June 2015, G. Domina & G. Bazan s.n. (PAL).

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Disclosure statement

No potential conflict of interest was reported by the authors.

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