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BIODIVERSITY STUDIES

Findings to the flora of Russia and adjacent countries: New national and regional vascular plant records, 5

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ABSTRACT

With this paper we continue an annual series, the main purpose of which is to make significant floristic findings from Russia and neighboring countries more visible in Russia and abroad. In total, this paper presents new records for 60 vascular plant species from 5 Eurasian countries, obtained during field explorations, as well as during taxonomic revisions of herbarium materials. For the first time, *Clematis tangutica*, *Cynoglossum asperrimum*, and *Potentilla hubsugulica* are recorded for Russia, *Azolla filiculoides* for Uzbekistan and Central Asia, *Hackelia popovii* for China and Kyrgyzstan, *Chamaerhodos erecta* for Kyrgyzstan, *Astragalus tatjanae*, *Centaurea tadshicorum*, *Cynosurus echinatus*, *Epipactis persica*, *Eremurus* × *decoloratus*, *Euphrasia drosophylla*, *Fritillaria rugillosa*, *Paspalum distichum*, *Plagiobasis centauroides* for Uzbekistan, *Poa turfosa* for the Yamal-Nenets Autonomous Area, as well as for the Siberian arctic-hyparctic floristic province and the entire Arctic and Hyparctic Asia, *Carduus* × *semiperegrinus*, *Reynoutria* × *bohemica* for Siberia, *Artemisia obtusiloba* subsp. *martjanovii* for Baikal Siberia, *Callitriche cophocarpa* for the Republic of Altai, Krasnoyarsk Territory, Kemerovo and Tomsk regions, *Prunella vulgaris* for the Magadan Region and Chukotka Autonomous Area, *Cynoglossum officinale* for the Republic of Buryatia, *Carex buxbaumii*, *Epipactis microphylla* for the Republic of Dagestan, *Tripleurospermum elongatum* for the Kabardino-Balkaria Republic, *Anthyllis vulneraria*, *Malva moschata*, *Menispermum dauricum*, *Persicaria orientalis*, *Petrosedum rupestre*, *Rubus occidentalis*, *R. procerus*, *Vitis amurensis* for the Republic of Mordovia, *Oxytropis caespitosa* for the Tyva Republic, *Myosotis sparsiflora*, *Pedicularis spicata* for the Magadan Region and northern part of the Russian Far East, *Astragalus arkalycensis*, *Bolboschoenus laticarpus*, *Limonium suffruticosum* for the Omsk Region, *Arabidopsis arenosa* for the Tomsk Region, *Asparagus pallasii*, *Astragalus cicer*, *Sisymbrium altissimum* for the Tyumen Region, *Thymus dimorphus* for the Volgograd Region, *Botrychium boreale* for the Vologda Region, *Thymus kondratjukii* for the Voronezh Region, *Rudbeckia triloba*, *Stachys byzantina* for the Rostov Region, *Geranium turczaninovii* for the Almaty Region of Kazakhstan, *Potentilla thuringiaca* for the Karaganda Region of Kazakhstan and the Kazakh uplands (Kazakhskiy Melkosopochnik), *Egeria densa* for the Hunan Province and *Elodea nuttallii* for the Jiang su Province of China.

Keywords: floristic findings, taxonomy, Russia, China, Kazakhstan, Kyrgyzstan, Uzbekistan

РЕЗЮМЕ

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Местерхази А., Мочалова О.А., Муртазалиев Р.А., Овчинникова С.В., Филиппов Д.А., Пликина Н.В., Пулатов С.О., Пяк А.И., Пяк Е.А., Самойлова Г.В., Сенчугова М.А., Шмаков А.И., Силаева Т.Б., Свирин С.А., Татанов И.В., Тожибаев К.Ш., Трошкина В.И., Тургинов О.Т., Васюков В.М., Жукова Н.Н., Золотов Д.В., Зыкова Е.Ю., Сюэ Дзяньхуа, Кривенко Д.А. Находки во флоре России и сопредельных стран: новые национальные и региональные локалитеты сосудистых растений, 5. Впервые для России приводятся *Clematis tangutica*, *Cynoglossum asperrimum*, *Potentilla hubsugulica*, для Узбекистана и Центральной Азии – *Azolla filiculoides*, для Китая и Кыргызстана – *Hackelia popovii*, для Кыргызстана – *Chamaerhodos erecta*, для Узбекистана – *Astragalus tatjanae*, *Centaurea tadshicorum*, *Cynosurus echinatus*, *Epipactis persica*, *Eremurus* × *decoloratus*, *Euphrasia drosophylla*, *Fritillaria rugillosa*, *Paspalum distichum*, *Plagiobasis centauroides*, для Ямало-Ненецкого автономного округа, Сибирской арктической-субарктической флористической провинции и Актической и Субарктической Азии – *Poa turfosa*, для Сибири – *Carduus* × *semiperegrinus*, *Reynoutria* × *bohemica*, для Байкальской Сибири – *Artemisia obtusiloba* subsp. *martjanovii*, для Республики Алтай, Красноярского края, Кемеровской и Томской областей – *Callitriche cophocarpa*, для Магаданской области и Чукотского автономного округа – *Prunella vulgaris*, для Республики Бурятии – *Cynoglossum officinale*, для Республики Дагестан – *Carex buxbaumii*, *Epipactis microphylla*, для Республики Кабардино-Балкария – *Tripleurospermum elongatum*, для Республики Мордовия – *Anthyllis vulneraria*, *Malva moschata*, *Menispermum dauricum*, *Persicaria orientalis*, *Rubus occidentalis*, *R. procerus*, *Vitis amurensis*, для Республики Тыва – *Oxytropis caespitosa*, для Магаданской области и северной части Дальнего Востока России – *Myosotis sparsiflora*, *Pedicularis spicata*, для Омской области – *Astragalus arkalycensis*, *Bolboschoenus laticarpus*, *Limonium suffruticosum*, для Томской области – *Arabidopsis arenosa*, для Тюменской области – *Asparagus pallasii*, *Astragalus cicer*, *Sisymbrium altissimum*, для Волгоградской области – *Thymus dimorphus*, для Вологодской области – *Botrychium boreale*, для Воронежской области – *Thymus kondratjukii*, для Ростовской области – *Rudbeckia triloba*, *Stachys byzantina*, для Алматинской области Казахстана – *Geranium turczaninovii*, для Карагандинской области Казахстана и Казахского мелкосопочника – *Potentilla thuringiaca*, для провинции Хайнань Китая – *Egeria densa* и для провинции Дзянсу Китая – *Elodea nuttallii*. Еще несколько находок, не являясь новыми для региона, при этом существенно расширяют представление о распространении видов.

Для каждого вида представлены сведения об общем распространении, занимаемых местообитаниях, таксономии с указанием отличий от близких видов и местонахождения.

Мы приглашаем авторов участвовать в дальнейшем развитии этого раздела. Пожалуйста, присылайте материалы ответственному редактору раздела Алле Васильевне Верхозиной (allaverh@list.ru).

Ключевые слова: флористические находки, таксономия, Россия, Китай, Казахстан, Кыргызстан, Узбекистан

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Anthyllis vulneraria L. (Fabaceae)

Contributors: Elena V. Ershkova & Anatoliy A. Khapugin

Distribution and habitat. The native range of this species covers Europe to Iran, Northern and Northeastern Africa (POWO 2024). According to Maevskii (2014), *A. vulneraria* is known almost in all regions of Central European Russia, including all regions surrounding the Republic of Mordovia where this species was not known. In August 2022, *A. vulneraria* was found along the roadside formed by the limestone gravel in the Mordovia State Nature Reserve. Despite its generally European range, this species is considered alien in the Republic of Mordovia. We suppose that seeds of *A. vulneraria* were introduced to the mentioned site with the limestone gravel used for highway construction. It is supposed that this limestone gravel originated from limestone quarries in eastern parts of the Ryazan Region. In the found location, *A. vulneraria* is represented by numerous generative and vegetative individuals, indicating that this population has occured here for several years. Thus, this is a new alien species in the flora of the Republic of Mordovia.

Taxonomic notes. *Anthyllis vulneraria* is a highly variable polymorphic species, consisting of 30 intraspecific taxa, between which intermediates occur (Cullen 1968). Some authors consider only one polytypic species, *A. vulneraria* s. l. (Maevskii 2014).

Examined specimen (new record). RUSSIA: Republic of Mordovia, Temnikov District, highway roadside in the quarter 109 of the Mordovia State Nature Reserve, 54°53'03.3"N 43°31'06.8"E, 03.08.2022, coll. E.V. Ershkova & A.A. Khapugin (HMNR, iNaturalist... 2024a).

Arabidopsis arenosa (L.) Lawalrée (Brassicaceae)

Contributors: Aleksandr L. Ebel, Andrei I. Pyak, Elizaveta A. Pyak & Tatiana V. Ebel

Distribution and habitat. The native range of this species comprises West and Central Europe, some regions in South and East Europe and probably Scandinavia and West Greenland (POWO 2024), with the easternmost locations at the western slope of the Ural Mountains (Knyazev 2018, GBIF … 2023). As an alien species it reported for Spain, northern and eastern regions of Europe (POWO 2024, GBIF … 2023). *Arabidopsis arenosa* s. str. grows mainly in sandy and other subfertile soils and on siliceous bedrock. It has also been observed in dry grasslands, roadsides and along railways (Schmickl et al. 2012, Maevskii 2014). In the Urals, it was observed on limestone rocks and talus (Knyazev 2018). This plant species is also able to grow on soils highly contaminated with heavy metals (Gieron et al. 2021).

A single reliably known location of *A. arenosa* in Asia revealed in the south of the Krasnoyarsk Territory (Russia) was mentioned as *Arabis arenosa* (L.) Scop. (Polozhij 1975) and later as *Cardaminopsis arenosa* (L.) Hayek (Doronkin 1994). Two confirming herbarium specimens gathered by V. Golubintzeva in 1934 are stored in TK. Within Asia, this

species was recently also reported for Hokkaido in Japan (GBIF... 2023). This record is doubtful since it is derived from the verbatim name "*Thlaspi arense* L." in the original dataset, which was interpreted as "*Thlaspi arenosum* (L.) Lapeyr." and believed to be a synonym of *Arabidopsis arenosa*. The name *Thlaspi arenosum* is not listed in IPNI, POWO, or other actual nomenclatural databases. Probably, there was wrong spelling of *Th. arvense* L. in the original dataset (letter "v" in the species epithet was missed).

Arabidopsis arenosa is new alien species for the Tomsk Region. The species was discovered in 2016 by A. and E. Pyak in the city of Tomsk on the lawns on Krasnoarmeysky Avenue. The population included at least a hundred individuals. Subsequent observations every year to the present showed that the population is stable, annually flowers and bears fruit en masse, but the number individuals vary greatly (from the first tens to the first hundreds) depending on the climatic conditions of the year (iNaturalist... 2024b, c, d, e). Another population of about 30 individuals was discovered by them on the lawns on Lenin Avenue in 2021; in 2022, the number decreased by more than half (iNaturalist... 2024f, g), and observations there in 2023 showed that the species had completely disappeared. Additionally, two flowering and started to fruiting individuals growing at distance ca 700 m from each other were found by A. Ebel in railway line near Tomsk in June 2022 (iNaturalist... 2024h, i). Next year ca. 10 flowering and fruiting individuals were observed approximately in the same place (iNaturalist... 2024j).

Taxonomic notes. *Arabidopsis arenosa* complex (formerly treated as genus *Cardaminopsis* Hayek) is one of the major species complexes within the genus. Species and subspecies from this complex are biennial, rarely annual or short-lived perennial herbs, predominantly outcrossing plants. In some modern sources, *A. arenosa* is divided into two subspecies with partly overlapping distribution ranges in Central Europe. *Arabidopsis arenosa* subsp. *arenosa* is widely distributed in Europe and tends to spread as a synanthropic plant, whereas mainly Central-European *A. arenosa* subsp. *borbasii* (Zapał.) O'Kane et Al-Shehbaz (≡ *A. borbasii* (O'Kane et Al-Shehbaz) A.P. Iljinsk. = *A. multijuga* (Borbás) German) is a calciphilous plant almost never found outside of its natural range (Schmickl et al. 2012, German 2019).

Examined specimens (new records). RUSSIA: Tomsk Region, Tomsk, Sovetsky urban district, lawns. 56°28'48.0"N 84°57'58.2"E, 95 m a.s.l. 04.06.2016, coll. A.I. Pyak, E.A. Pyak (TK); Tomsk region, Tomsk, Kirovsky urban district, lawns. H – 98 m. 56°28'11.4"N 84°57'03.1"E, 15.06.2021, coll. A.I. Pyak, E.A. Pyak (TK); Tomsk Region, Tomsk District, railway line Tomsk-2 – Kopylovo, between rails [two flowering and started to fruiting individuals], 56°33'41"N 85°05'33"E, 14.06.2022, coll. A.L. Ebel (TK, iNaturalist... 2024h, i).

Artemisia obtusiloba subsp. *martjanovii* (Krasch. ex Poljakov) Krasnob. (≡ *A. martjanovii* Krasch. ex Poljakov) (Asteraceae)

Contributor: Daba G. Chimitov

Distribution and habitat. This taxon was described from the Minusinsk District in the southern part of the Krasnoyarsk Territory. According to current knowledge, the taxon is distributed mostly in the south of Krasnoyarsk Territory and in the Republic of Khakassia where it is confined to stony and sandy steppes; the only locality in the Arctic of the Republic of Sakha (Yakutia) was known outside of those regions (Krasnoborov 1997). The first record for the region of Baikal Siberia is presented in this note.

Taxonomic notes. *Artemisia obtusiloba* subsp. *martjanovii* belongs to the section *Obtusilobae* Poljak. In the Republic of Buryatia, the endemic taxon of *A. obtusiloba* subsp. *subviscosa* from this section is found in the Barguzin River Basin. *A. obtusiloba* subsp. *martjanovii* is well distinguished by its hairless receptacle from *A. obtusiloba* subsp. *subviscosa* and other representatives of the subsection.

Examined specimen (new record). RUSSIA: Republic of Buryatia, Okinsky District, Sayany Village, rocky slopes 52°40'45.1" N 99°39'53.6" E, 1350 m a.s.l., 09.08.2022, coll. D.G. Chimitov (UUH).

Asparagus pallasii Miscz. (Asparagaceae)

Contributors: Olga A. Kapitonova & Igor V. Kuzmin

Distribution and habitat. *Asparagus pallasii* is a species of the southern Black Sea Coast – Kazakhstan distribution. It inhabits southern desertified steppes from the Circum-Pontic area in the west to the southeast of Siberia in the east (east of Romania, south of Ukraine, south of the European part of Russia and south of Siberia, the northern parts of Kazakhstan and Mongolia) (GBIF … 2023). Throughout its range, the species is rare. It occurs in single locations; in many regions, it is under state protection.

Asparagus pallasii is a halophilic meadow-steppe species. It inhabits the shores of salt lakes, wet salt marshes, saline meadows, sea coasts (Sagalaev 2006).

In the Tyumen Region, *A. pallasii* was discovered for the first time by Valery I. Maltsev in 1976. The three collected herbarium specimens were stored in the Herbarium of the Siberian Forest Experimental Station (Tyumen) under the name "*Corispermum declinatum*" for 40 years. When processing this Herbarium (Ivanova & Kuzmin 2016), I.V. Kuzmin re-identified these specimens (on 17.04.2015) and proposed this species for inclusion in the second edition of the Red Data Book of the Tyumen Oblast (on 17.10.2016). When preparing the second edition of the Red Data Book, it was decided to include *A. pallasii* only in the Appendix to the Red Data Book due to the insufficient information about its distribution in the region (Petrova 2020). We transferred two specimens in other Herbaria.

Later, the information on *A. pallasii* presence in the Tyumen Region was published by Glazunov et al. (2017), without indicating its locations and checked herbarium specimens.

In 2022, a new location of *A. pallasii* was discovered in the Tyumen Region on the shore of the bitter-salty Lake Siverga. It should be noted that we have studied in detail the vegetation of the entire Russian part of the Lake Siverga water area and adjacent coasts (Kapitonova & Lysenko 2022). However, the presence of *A. pallasii* was established only during the last field survey in 2022. Probably, this can be considered a consequence of the extreme rarity of this species in the Trans-Urals. Several last-year's dry shoots of *A. pallasii* have been found in an saline meadow dominated by halophilic species and interspersed with *Stipa pennata* L. At the base of one of the shoots, the shoot of the current year began to grow. On the day of its collection, it had a length of about 4 cm. Noteworthy, by this time the shoots of another *Asparagus* species, *A. officinalis* L., growing in high abundance along the shores of Lake Siverga, already had a height, typical for this species, and they were in the budding phase or in the beginning of flowering. Two collected specimens of *A. pallasii* have been stored in the TOB Herbarium.

Thus, here we indicate for the first time accurate locations and herbarium specimens of *A. pallasii* for the Tyumen Region. These locations are the northernmost ones within its current range. The species deserves to be included in the next edition of the Red Data Book of the Tyumen Region with a rarity category of 1 – an endangered species.

Taxonomic notes. *Asparagus pallasii* belongs to the taxonomically complex group of species, namely *A. brachyphyllus* Turcz. s. l. Its populations, located west of the Zabaykalsky Territory, are considered *A. pallasii* (described by P.I. Mishchenko from the Caspian Lowland in 1916). *Asparagus pallasii* clearly differs from the widespread species *A. officinalis* by having curly or creeping (growing sideways, not straight up) articulated stems bent at the nodes and crescent-curved cladodes of unequal length. In addition, the stems and cladodes of *A. pallasii* are covered with cartilaginous-toothed outgrowths and tubercles in the form of longitudinal furrows, and not smooth, as in *A. officinalis* (Sagalaev 2006).

Examined specimens (new records). RUSSIA: [Tyumen Region, slightly north of the Prokutkino Village, Ishim municipal district, near the border with the Sorokino district], 29 km along the road from Ishim to Sorokino (Vikulovo), 56°19'N 69°45'E, 115 m a.s.l., dry roadside, 24.07.1976, N 775, coll. V.I. Maltsev (plant specimen is stored at the Siberian Forest Experimental Station); id., 25.07.1976, N 775, coll. V.I. Maltsev (Herbarium of the Institute of Envi-

ronmental and Agricultural Biology (X-BIO) of Tyumen State University, LE); Tyumen Region, Kazansky municipal district, 2.9 km south-west of the Novoaleksandrovka Village, southeastern shore of the bitter-salty Lake Siverga, 55°22'27.4"N 68°48'31.8"E, 126 m a.s.l., saline meadow, 13.06.2022, coll. O.A. Kapitonova (TOB).

Astragalus arkalycensis Bunge (Fabaceae)

Contributors: Andrey N. Efremov & Natalya V. Plikina

Distribution and habitat. *Astragalus arkalycensis* is a South Siberian-Central Asian mountain-steppe species, more typical for Kazakhstan (Ryabinina & Knyazev 2009). It is found in the Southern Urals, Mountain Altai, Central Siberia (Krasnoyarsk Territory (Western Sayan), Khakassia and Tuva), Kazakhstan, Mongolia and China (Vydrina 1994, Ryabinina & Knyazev 2009, Xu & Podlech 2010).

In the Omsk Region, *A. arkalycensis* is indicated for the first time. A known finding limits the northern boundary of the range. The relict population found includes about 30 individuals (cover 1–5 %) and covers an area of about 50 m^2. The nearest finds are known in the following floristic regions of Kazakhstan: Semipalatinsk pine forest, Karkaralinsky, Western and Eastern Kazakh Uplands (Vasileva 1961, Vydrina 1994, Kupriyanov 2020). It is grown in steppes, on rocky slopes of mountains and gravelly slopes of hillocky areas; mesoxerophyte, facultative petrophyte (Vasileva 1961, Vydrina 1994, Kupriyanov 2020).

Taxonomic notes. It refers to the section Laguropsis Bunge subgenus *Cercidothrix* Bunge, a unifying species whose calyx blooms bubbly shortly after flowering begins. *Astragalus arkalycensis* differs from closely related species by leaflets in the number (5)7–11(14) pairs; stipules grow together with the leafstalk to the middle and above; shoots are densely pubescent with spaced, rather long, tangled two-pointed hairs; densely multiflowered inflorescences; peduncles longer than leaves; calyx is quite densely pubescent with white hairs, in teeth it has an admixture of black; corolla yellowish with a purple spot at the top of the keel (Ryabinina & Knyazev 2009, Xu & Podlech 2010).

Examined specimen (new record). RUSSIA: Omsk Region, Russko-Polyansky District, the vicinity of the Khlebodarovka Village, 10.6 km southwest, bank of the Tleusai River, the deserted sagebrush (*Artemisia nitrosa* Weber ex Stechm.) – fescue (*Festuca pseudovina* Hack. ex Wiesb.) petrophytic steppe, 53°42'53.4"N 73°21'32.9"E, 14.05.2022, coll. A.N. Efremov & N.V. Plikina (OMSK, MW, iNaturalist... 2024k).

Astragalus cicer L. (Fabaceae)

Contributors: Valerii A. Glazunov

Distribution and habitat. *Astagalus cicer* is an european forest-steppe species, distributed in Central, Eastern and Southern Europe, the Caucasus, and Asia Minor. The plant is cultivated as fodder. In the northern regions, the species occurs as an alien near roads and in settlements (Vasilieva 1987, Maevskii 2014). As a rare adventive species, it was found in the Urals, in the Sverdlovsk (Knyazev et al. 2020) and Chelyabinsk (Kulikov 2010) regions. In Siberia, as an alien species leaving cultivation, it was found recently in the Altai Territory (Silantieva 2005), Irkutsk (Stepantsova et al. 2013), Kurgan (Naumenko 2008), Novosibirsk (Shaulo et al. 2010) and Omsk (GBIF... 2023) Regions.

Taxonomic notes. The species belongs to the section *Hypoglottioidei* DC. type subgenus. A closely related species, *Astragalus danicus* Retz. is distinguished by a blue-violet color of the corolla and smaller, somewhat elongated beans, pubescent with protruding white hairs. While *A. cicer* has light yellow flowers and swollen spherical pods covered with black hairs.

Examined specimens (new record). RUSSIA: Tyumen Region, Tyumen, ~1 km north of Roschino airport, north of the road to the of the Kulakovo Village and the roundcrossing, near the agricultural enterprise "Plodovoye" [57°11'21.8322"N 65°21'29.5194"E], along the edge of poplar plantations, 12.07.2022, coll. V.A. Glazunov (HTSU, MHA, TMN).

Astragalus tatjanae Lincz. (Fabaceae)

Contributors: Komiljon Sh. Tojibaev, Sardor O. Pulatov & Orzimat T. Turginov

Distribution and habitat. This species was described by Linczevski (1937) from Southern Tajikistan. Its natural range is the loessial and gypsaceous foothills of Southern Tajikistan and Nothern Afghanistan (Podlech & Zarre 2013, POWO 2024). In Uzbekistan, the species was found on the gypsaceous slopes of the Babatag Range, between the villages Chagam and Okmachit. Whereas it is the only population of the species recorded on the Babatag Range, it requires protection.

Taxonomic notes. *Astragalus tatjanae* belongs to the section *Eremophysa* Bunge with 13 species distributed from Eastern Mediterranean to Central Asia and Pakistan, mainly in deserts (Podlech & Zarre 2013). Within the section *Eremophysa* the species belongs to the group with the yellow petals, long standard up to 23–40 mm and nearly straight keels. The most closely related species is *A. kahiricus* DC., from which *A. tatjanae* differs by morphometry (larger habit, significantly larger leaves, longer peduncles, larger flower parts and longer legumens and leaflets pubescence (scattered hairs vs densely shaggy hairs). Another species of this section, growing of the Babatag Range, is *A. kelifi* Lipsky. From this species *A. tatjanae* well differs by the standards shape (oblong vs rounded and ovoid) and size (35–40 mm vs 20–21 mm).

Examined specimens (new record). UZBEKISTAN: I-8 Panj district. I-8-a Babatag region: Uzun District, Babatag Range, between the villages Chagam and Okmachit, 38°02'40.1"N 68°15'34.7"E, 22.03.2020, coll. S.O. Pulatov 2203202001, 2203202002 (TASH). Herbarium specimens and field observations cited here and below for Uzbekistan are arranged according to the scheme of phytochoria used in the second edition of the national "Flora" (Sennikov et al. 2016, Tojibaev et al. 2017).

Azolla filiculoides Lam. (Salviniaceae)

Contributor: Natalya Yu. Beshko

Distribution and habitat. *Azolla filiculoides* is native to the New World (North and South America, except for Canada, Montana and eastern states of the USA) (Hussner 2010, POWO 2024). In 1800, this species was first recorded in Europe, near Bordeaux, France (Hussner 2010). At the present, *A. filiculoides* is nearly cosmopolitan. Its secondary range includes Europe, South Africa, Madagascar, many subtropical and tropical regions of Asia, Japan, Australia, New Zealand and Pacific Islands (GBIF … 2023, POWO 2024). *Azolla filiculoides* occurs on the surface of standing or slow-flowing water in ponds, ditches, water reservoirs, wetlands, rice fields, lakes, channels and rivers. In suitable conditions, especially in eutrophic water bodies, this species can grow very rapidly, forming a dense mat over the water surface and easily outcompeting native water plants. *Azolla filiculoides* causes a negative impact on water quality and aquatic ecosystems, and therefore, it is considered one of the most dangerous invasive aquatic plants and the second most widely spread in Europe (Hussner 2010, Hill 2014).

For the first time in Uzbekistan and Central Asia, *Azolla filiculoides* was found in 2012 in the Fergana Valley and in 2019 in the basin of the Akhangaran River by T.S. Tillaev, who uploaded photographs of these observations to the Plantarium website (Tillaev 2012). This newly recorded alien species can be classified as xenophyte and epecophyte according to the classification of alien plants used in territory of the former USSR (Vinogradova et al. 2009). The pathway of introduction of *A. filiculoides* in Uzbekistan (by migratory waterfowl, intentional or unintentional release by humans) is not yet known. In accordance with the IUCN Environmental Impact Classification for Alien Taxa (EICAT) Categories and Criteria (IUCN 2020), *A. filiculoides* can be assessed as Data Deficient (DD). At present, this species is not yet invasive in Uzbekistan, further observations are needed.

Taxonomic notes. *Azolla filiculoides* is a small floating perennial heterosporous aquatic fern, green to yellowish green or dark red, up to 25–30 mm long. It is a representative of the taxonomically complicated genus *Azolla* Lam., or so-called mosquito fern, which includes six extant accepted species widespread in warm temperate, subtropical and tropical regions of Africa, Asia, North and South America and Australia (POWO 2024). *Azolla filiculoides* belongs to section *Azolla*, which differs from Old-World section *Megasporangia*

by the shape of plants, character of branching, and 3 (not 9) floats on the exospore. The main characters distinguishing *A. filiculoides* from other species of the section *Azolla* are unicellular (not bicellular) trichomes on the adaxial surface of upper leaves, obtuse and widely membranous margined lobes of upper leaves, warty megaspores with angular bumps, as well as distinct hexagonal markings on the surface of megaspore perine (Lumpkin 1993, Evrard & van Hove 2004, Pereira et al. 2011).

Examined specimens (new records). UZBEKISTAN: II-1 Central Fergana district. II-1-a Kayrakum-Yazyavan region: Namangan Region, vicinity of the Kalgan-Darya Village, lake Kalgan-Darya [40°52'11"N 71°21'11.9"E], 08.11.2012, coll. T.S. Tillaev (TASH, Tillaev 2012). I-1 Western Tien Shan district. I-1-d Kurama region: Tashkent Region, Pskent District, vicinity of the Aybulak Village, surface of slowly flowing part of river [40°54'51.9"N 69°33'53.3"E], 03.08.2019, coll. T.S. Tillaev (TASH, Tillaev 2019); Tashkent Region, Pskent District, vicinity of the Bayaul Village, springs Qirqqiz, 40°49'24.2"N 69°31'40.3"E, 03.09.2022, coll. N.Yu. Beshko (TASH, photo was uploaded to Plantarium (2007–2024)).

Bolboschoenus laticarpus Marhold, Hroudová, Duchácek & Zákr. (Cyperaceae)

Contributors: Andrey N. Efremov & Ivan V. Tatanov

Distribution and habitat. *Bolboschoenus laticarpus* was recently described from Europe as a stabilized hybridogenic taxon (Marhold et al. 2004). It is common in Europe south of 60°N, Middle (north part), Central, East, and Southeast Asia (Tatanov 2007, Hroudová et al. 2007). In Russia, it is common in the European part, sporadically found in the south of Western and Eastern Siberia, and the south of the Far East (Tatanov 2007, Glazunov et al. 2020, Plantarium 2024).

Bolboschoenus laticarpus is rarely found in Siberia and the Far East, this is due to the fact that in these regions plants like *B. laticarpus* arose at a historically later time or are modern hybrids (unlike European plants). Another possible reason is that the parent species *B. yagara* (Ohwi) Y.C. Yang et M. Zhan extremely rare in Siberia, which limits the possibility of its hybridization with *B. planiculmis* (F. Schmidt) T.V. Egorova; the reasons for the extremely rare hybridization of *B. yagara* with *B. planiculmis* in the Far East remain unclear, although both species can grow nearby (Tatanov 2007).

In the Omsk Region, *B. laticarpus* was found for the first time. The following nearest locations are known: Russia, Chelyabinsk Region, near the city of Troitsk (Tatanov 2007); Tyumen Region, Tyumen District, near the Butorlyga Lake (Glazunov et al. 2020); Novosibirsk Region, Krasnozersky District, near the N. Chumanka Village , along the Karasuk River; Krasnoyarsk Territory, Karatuzsky District, vicinity of the Taskino Village of Kazakhstan, Kostanay Region, Mendykara District, near the Aleshinka village, left bank of the Tobol River; Pavlodar Region, near the city of Pavlodar, floodplain of the Irtysh River; Abai (formerly Semipalatinsk) Region, Beskaragay District, the Irtysh River, near the Staraya Krepost Village (formerly Staro-Semipalatinskoye) (Tatanov 2007).

Bolboschoenus laticarpus has a wide ecological range in terms of water depth and soil chemistry. It is a glycophyte, a typical species of river floodplains, growing along the banks and shoals of rivers, oxbows, canals, ditches, small streems, wet and temporarily flooded depressions of the relief, sometimes as a weed in the fields (Tatanov 2007, Hroudová et al. 2007).

Taxonomic notes. *Bolboschoenus laticarpus* is placed in a hybridogenic section *Mediani* Tatanov (2007). It arose from the hybridization of *B. planiculmis* and *B. yagara*, which is confirmed both by its intermediate morphological features and ecological preference (Marhold et al. 2004, Tatanov 2007), and by molecular phylogenetics data (Píšová et al. 2017). It differs from the species growing in Siberia by the following features: antelodium with 3–7(8) rays (in *B. maritimus* (L.) Palla inflorescence antelodium with 1–3(4) rays, rarely capitate, in *B. planiculmis* – capitate, rarely antelodium with 1–2(3) rays, in *B. yagara* – always antelodium with (2)6–9 rays); perianth bristles caducous, less often persistent (in *B. maritimus* and *B. planiculmis* perianth bristles caducous, in *B. yagara* – persistent); fruits are compressed-trihedral, often with a depression on the facets and/or flat-convex, the outlines of exocarp cells are visible only in some areas of the fruit, the thickness of the exocarp is 2–3(4) times less than the rest of the pericarp (in *B. maritimus* fruits planoconvex to subtrigonous, without depression on the facets; exocarp cells are visible on the entire fruit surface; exocarp twice as thick than the rest of the pericarp; in *B. planiculmis* fruits biconcave (rarely flattened); exocarp cells are visible on the entire fruit surface; thickness of the exocarp in the rounded angles slightly less, equality or slightly more than the rest of the pericarp, in the depression is 1.5–2 times less; in *B. yagara* fruits equilaterally trigonous, without depression on the facets; exocarp cells not visible on the fruit surface; thickness of the exocarp is 7–12 times more than the rest of the pericarp). *B. laticarpus*, *B. planiculmis*, and *B. yagara* are glycophytes, *B. maritimus* is a halophyte (Tatanov 2007, Hroudová et al. 2007).

Examined specimen (new record). RUSSIA: Omsk Region, Omsk District, suburbs of the Novaya Stanitsa [microdistrict Novaya Stanitsa, Omsk], 1.0 km southwest, valley of the Irtysh River, channel arm, [54°49'45.6"N 73°21'26.4"E], depth 0.2–0.5 m, silty, silty-sandy bottom soil, phytocenosis *Potamogeton alpinus* + *Hydrilla verticillata*, 22.08.2021, coll. A.N. Efremov (LE 0119012; OMSK).

Botrychium boreale Milde (Ophioglossaceae)

Contributors: Dmitriy A. Philippov, Andrey N. Levashov & Nadezhda N. Zhukova

Distribution and habitat. *Botrychium boreale* is a hypoarctic perennial fern, that grows primarily in the temperate biome. The species is found in Greenland, Iceland, Norway, Sweden, Finland, and also in Russia – recorded in the north of the European Russia and Western Siberia (Fomin 1934, Bobrov et al. 1974, Kashina et al. 1988, Tzvelev 2004). There is reason to believe that the findings in Siberia, the Far East, Chukotka and Kamchatka, as well as in Mongolia, China, Alaska, belong to a closely related species – *B. alaskense* W.H. Wagner et J.R. Grant (Tzvelev 2004). Previously, for the territory of the Vologda Region, *B. boreale* was known only based on the paleobotanical data (found in the form of pollen in the Mikulin interglacial deposits) (Garkusha et al. 1967). The modern record in the Vologda Region was made at the same locality, first in July 2016 (the specimen was lost), and then again in 2020. This record is one of the southernmost ones in the European part of Russia. This species is relatively rare in the taiga zone of the European North of Russia, and therefore it is included in the Red Data Books of the Arkhangelsk Region (Anufriev et al. 2020), the Republic of Karelia (Kuznetsov 2020), and the Komi Republic (Degteva 2019). With this finding from the Vologda Region, we propose to include this species into the next edition of the Red Data Book of the Vologda Region. The fern grows outside of specially protected natural areas, but this issue can be solved by creating an additional cluster site within the natural reserves ('zakaznik') "Listvennichnyy les" or "Verkhovazhskiy les". *Botrychium boreale* in the middle subzone of the taiga was found in dry forest glades, thickets of shrubs, dry forb meadows, grassy drained sandy slopes (Degteva 2019, Anufriev et al. 2020). The discovered population consisted of several individuals and grew in a clearing in a mesophilic pine forest, on sandy soil. In the communities, *Pilosella officinarum* Vaill. and *Pleurozium schreberi* (Willd. ex Brid.) Mitt. dominated.

Taxonomic notes. *Botrychium boreale* belongs to the type subgenus and section. The species originates from the ancient hybridization of *B. lunaria* (L.) Sw. and *B. lanceolatum* (S.G. Gmel.) Angstr. (Tzvelev 2004). Despite the general habitual similarity of the species of this group, *B. boreale* has a 1–2 pinnate lanceolate-ovate trophophore with sessile or almost sessile pedicle and 2–6 pairs of pinnae, ascending, pinnatipartite and pinnate-lobed, pointed at the apex. The first (basal) pinnae pair is usually much larger than the adjacent pair; segments of the first order are larger in length than in width; ribs in segments and lobes are fan-shaped diverging. In *B. lunaria*, the segments of the first order are usually unbroken, evenly rounded along the entire margin, clearly greater in width than in length; the general shape of the trophophore is oblong-lanceolate or lanceolate. In *B. lanceolatum*, the seg-

ments of the first order are lanceolate, from obtusely dentate to pinnately lobed with a clearly expressed central rib, and the trophophore is ovate-triangular.

Examined specimen (new record). RUSSIA: Vologda Region, Verkhovazhsky District, environs of the Nikulinskaya Village ("kust Lipki"), right bank of the Vaga River, 60°26'15"N 41°43'31"E, glade in the pine forest, 29.07.2020, coll. D.A. Philippov, A.N. Levashov & N.N. Zhukova (MIRE).

Callitriche cophocarpa Sendtn. (Plantaginaceae)

Contributors: Attila Mesterházy & Andrey N. Efremov

Distribution and habitat. *Callitriche cophocarpa* is a boreal predominantly European species. According to the recent monograph (Lansdown 2006), this species doesn't occur in Asia. However, there are the herbarium specimen *C. cophocarpa* from Kazakstan, Semipalatinsk Region (LE01032108) and several herbarium specimens and references from Asian Russia: Kurgan Region, Kataisky District (Naumenko 2008); Yamalo-Nenets Autonomous Area, Kondinsky, Nadym, Priuralsky, Purovsky and Shuryshkarsky Districts (Glazunov et al. 2016, Pismarkina et al. 2020); Tomsk Region, Kargasoksky District (MW0154443) and neighborhood of Tomsk (see: examined specimens, LE); Krasnoyarsk Territory, Igarka (MW0154444), Turukhansk District and the Oja River (see: examined specimens, LE); Tyva Republic, Mongun-Taiginsky Kozhuun (Artemov 2014); Amur Region, Zeya District (MW0154448); Primorye Territory, Kavalerovsky District (MW0154445, MW0154446, MW0154447). The part of the cited records is doubtful, as *C. cophocarpa* often confused with *C. palustris* L. because this species often has wingless fruits. Most of the herbarium samples we checked in the LE from the regions mentioned above are *C. palustris* and only a few can be classified as *C. cophocarpa* (see: examined specimens). Taking into account the results of the revision of the herbarium collection, *C. cophocarpa* is presented for the first time for the Republic of Altai, Krasnoyarsk Territory, Kemerovo and Tomsk Regions, therefore we confirmed the occurrence of this species in Asia (see: examined specimens). All these samples were originally identified as *C. palustris*.

During a fieldtrip in the Republic of Altai we found one locality in the Choisky District. The species is confined to the shallow-bottomed area of the oxbow lake (depth 0.2–0.7 m) with a sandy-pebble bottom deposit. It occurs in phytocenosis with the dominance of *C. cophocarpa*, but sometimes with *Potamogeton compressus* L. and *Myriophyllum spicatum* L. In Europe, it grows in acidic waters, at altitudes ranging from sea level to 1900 m.

Taxonomic notes. For the Asian part of Russia, four species of the section *Callitriche* L. (incl. *C. cophocarpa*) and one species of the section *Pseudocalltriche* Hagelm are given (Doronkin 2012). There is no mention of *C. cophocarpa* in most of key guides for the Asian part of Russia, and as a result researcher often missed it. It differs from *C. palustris* by long 4–6 mm stylodies remaining with the fruit and the fruit shape. Fruits are 0.8–1.2 mm in diameter, almost round, mericarpes are wingless, slightly keeled, on short stalks (Lisitsyna & Papchenkov 2000).

Examined specimens (new records). RUSSIA: Republic of Altai, Choisky District, 1 km north of the Tunzha Village, oxbow of the Malaya Isha River, depth 0.2–0.7 m, sandy-pebble bottom deposit, phytocenosis with the dominance of *C. cophocarpa*, 20.07.2016, coll. A. Mesterházy, A.N. Efremov & Z. Barina (OMSK); Altai [Kemerovo Region], ad rivulos terassa ad Kondoma fluvium Tom influentes, 1886–88, coll. Helmhacker (LE); Altai [Republic of Altai], between the Kibizen Village and the Pyzhey River, 19.08.1901, coll. P. Krylov (LE); Neighborhood of Tomsk, coll. P. Krylov (LE); [Krasnoyarsk Territory], valley of the [Oi] Oja River, little lake, 15.07.1901, coll. N. Martyanova (LE); Sibiria, Jenisei [Krasnoyarsk Territory, Turukhansk District], ostium flum. Patkamnia Tunguska [Podkamennaya Tunguska], 28.09.1876, coll. H. Wilh. Arnell (LE).

Carduus × *semiperegrinus* Aellen (Asteraceae)

Contributors: Aleksandr L. Ebel & Tatiana V. Ebel

Distribution and habitat. *Carduus* × *semiperegrinus* is a spontaneous hybrid between the widely distributed in Eurasia species *C. crispus* L. and *C. thoermeri* Weinm. Although ranges of both parent species are considerably overlapped, there are few records of this hybrid. Close related *C.* × *stangii* H. Buek (= *C. crispus* × *C. nutans* L. s. l.) is reported to France, Germany, Switzerland, and former Yugoslavia (POWO 2024), whereas *C.* × *semiperegrinus* (as *C.* × *stangii* subsp. *semiperegrinus*) is pointed to the same resource (POWO 2024) surprisingly only for France despite the origin of authentic specimens from Germany. We weren't able to find any mentions of *C.* × *semiperegrinus* nor *C.* × *stangii* for Russia or Asia, but Kulikov (2010) noted his finding of the hybrid *C. crispus* × *C. thoermeri* in South Ural (Chelyabinsk Region). Thus, *C.* × *semiperegrinus* is a new interspecies hybrid (nothospecies) for Siberia, where it was recently found in several locations in the Republic of Khakassia and the Kemerovo Region.

Taxonomic notes. *Carduus* × *semiperegrinus* was described from the south of Germany as an interspecific hybrid that originated from hybridization between *C. crispus* and *C. leiophyllus* Petrovič [1885] (Aellen 1940). Digital copies of two authentical specimens gathered by P. Aellen in 1938 in Baden stored in NY (both indicated as "Typus") are accessible via GBIF (2023). The taxonomical status of the latter parent species of this hybrid is debatable. In the rank of species, it has a priority heterotypic synonym, *C. thoermeri* [1837]. On the other hand, in some modern floras and nomenclatural databases this taxon is treated as a subspecies, *C. nutans* L. subsp. *leiophyllus* (Petrovič) Arènes [1949]. In this case, the name of the hybrid is turned out to *C.* × *stangii* subsp. *semiperegrinus* (Aellen) Arènes [1949]. *Carduus* × *semiperegrinus* at first sight looks like *C. crispus* but can be easily distinguished from the latter by much less dense indument on the abaxial surface of leaves, longer and harder spines on the leaf margins, as well as less numerous and larger corymbs (1.5–2 cm wide) with wider phyllaries (ca 2 mm wide), and besides middle phyllaries with appressed bases and deflected upper parts (but not so remarkable deflected as at *C. thoermeri*).

Examined specimens (new records). RUSSIA: Republic of Khakassia, Bograd District, vicinity of the Saragash Village, wasteland near gas station, 54°47'57"N 90°47'39"E, 27.07.2016, coll. A.L. Ebel, S.I. Sheremetova & I.A. Khrustaleva (TK, KUZ); Republic of Khakassia, Bograd District, vicinity of the Saragash Village, along roadside, 54°47'18"N 90°42'51"E, 12.07.2020, coll. A.L. Ebel & T.V. Ebel (TK); Republic of Khakassia, Shira District, vicinity of the Dzhirim Village, along roadside, 54°47'41"N 90°20'58"E, 12.07.2020, coll. A.L. Ebel & T.V. Ebel (TK); Kemerovo Region, Chebula District, vicinity of the Dmitrievka Village, bank of the Kiya river, 56°02'47"N 87°55'03"E, 06.08.2021, coll. A.L. Ebel, S.I. Sheremetova & I.A. Khrustaleva (TK); Republic of Khakassia, Shira District, vicinity of the Belyj Balakhchin Village, along roadside. 54°34'03"N 89°27'21"E, 18.08.2022, coll. A.L. Ebel & T.V. Ebel (TK).

Carex buxbaumii Wahlenb. (Cyperaceae)

Contributor: Ramazan A. Murtazaliev

Distribution and habitat. This species is widely distributed throughout almost the entire Holarctic. In the Northern Caucasus, the species is known from several points: in the Western Caucasus, the species is recorded for the Urup-Teb. region (upper Marukhi) (Egorova 1999); for the Central Caucasus, the species is recorded from env. Alagir: Auf feuchten Wiesen bei Alagir im Kaukasus, Gouverment Terek, Russland, 20 IV 1901, B. Marcowicz (MW). The new locality identified by us is the easternmost point of distribution of the species in the Caucasus. In the Caucasus, the species grows in mountain swampy meadows, along rivers, at an altitude of 1500–2500 m above sea level.

Taxonomic notes. This species, together with five other species, belongs to the subsection *Papilliferae* T.V. Egorova section *Microrhynchae* Drej. ex L.H. Bailey, which includes a total of about 60 species. *Carex buxbaumii* is close to *C. hartmanii* Cajand., from which it differs in asymmetric scales, a broad semilunar-notched spout with divergent teeth, as well as shorter (1–1.5 (2) cm long) and wide (6–10 mm) scales pistillate spikelets.

Examined specimen (new record). RUSSIA: Dagestan, Dokuzparinsky district, vicinity of the Miskindzha Village, slope of Shalbuzdag Mt., in the swamps on the way to the top, eas-

tern slope, 2200 m, 41°21'50.57"N 47°51'19.37"E, 20.08.2020, coll. R.A. Murtazaliev (DAG, LE, iNaturalist... 2024l).

Centaurea tadshicorum Tzvel. (Asteraceae)

Contributors: Alim D. Gaziev & Ivan I. Maltzev

Distribution and habitat. *Centaurea tadshicorum* was described from southern Tajikistan, from the surroundings of the Shaartuz Village in the valley of the Kafirnigan River, and was considered endemic to Tajikistan (Karimova 1991, Makhmedov 1993). This plant grows on stony slopes and pebbles in the foothills and lower mountain zone, in communities of *Carex pachystylis* J. Gray and *Prosopis farcta* (Banks et Sol.) J.F. Macbr., at 400–700 m.s.l. (Karimova 1991). During the field surveys carried out in the Tashkent Region in 2022, this species was recorded on the right bank of the middle reaches of the Syrdarya River, in a clearing in gallery poplar forest (so-called tugay, relict riparian ecosystems of the arid regions of West and Central Asia) (Gaziev 2022a, b). One specimen of *C. tadshicorum* collected in 1928 from the Fergana Valley (cited below) also found during the revision of historical herbarium material stored in TASH. Previously, this specimen was identified as *C. pulchella* Ledeb., and due to misidentification was not included in the synopsis of the genus *Centaurea* L. (14 species) published in the first edition of the "Flora of Uzbekistan" (Tscherneva 1962).

Taxonomic notes. *Centaurea tadshicorum* is an annual herb up to 70–80 cm tall. The closest species is *C. pulchella*, widely spread in Transcaucasus, the Caspian region, Asia Minor, Central Asia, Iran, Afghanistan, Pakistan, Xinjiang and Western Mongolia, but *C. tadshicorum* well differs by notably larger and wider involucre. *Centaurea tadshicorum* has an involucre 9–12 mm in diam. and 12–15 mm long, while the involucre of *C. pulchella* is 4–6 mm in diam. and 10–12 mm long (Karimova 1991, Makhmedov 1993). During field surveys in 2022 in the Syrdarya valley, it was noted that *C. tadshicorum* blooms earlier than *C. pulchella*. In basic taxonomic summaries (Karimova 1991, Makhmedov 1993), *C. tadshicorum* and *C. pulchella* were treated as *Hyalea tadshicorum* (Tzvel.) Sojak and *H. pulchella* (Ledeb.) C. Koch. Currently, the genus *Hyalea* Jaub. & Spach is treated as a section *Hyalaea* DC. of the genus *Centaurea* (POWO 2024).

Examined specimens (new records). UZBEKISTAN: II-1 Central Fergana district. II-1-b East Fergana region: Fergana valley, Yangiaryk irrigation district, 2 km to the northwest of the Uchkurgan Village, 08.06.1928, coll. Ioffe 194 (TASH). II-2 Middle-Syrdarya district. II-2-a Chinaz region: Tashkent Region, Bekabad District, valley of the Syrdarya River, Dalverzin hunting farm, forb tugay vegetation with sparse *Populus pruinosa*, 273 m.s.l., 40°31'19"N 69°05'58.9"E, 21.04.2022, coll. I.I. Maltzev & A.D. Gaziev (TASH, photo was uploaded to Plantarium (2007–2024)); Tashkent Region, Bekabad District, valley of the Syrdarya River, Dalverzin hunting farm, forb tugay vegetation with sparse *Populus pruinosa*, 40°31'16.9"N 69°06'01.6"E, 25.05.2022, coll. I.I. Maltzev, A.D. Gaziev & B.I. Nazarov (TASH, photo was uploaded to Plantarium (2007–2024)).

Chamaerhodos erecta (L.) Bunge (Rosaceae)

Contributors: Alexey A. Kechaykin & Georgy A. Lazkov

Distribution and habitat. *Chamaerhodos erecta* is distributed from Eastern Europe (Southern Ural) east to North America (POWO 2024) and occupies only the temperate and subarctic zones. In the flora of Middle Asia, it was known only from collections from Kazakhstan (Tulyaganova 1976). It grows along the banks of rivers and lakes on sandy-pebble deposits, on dry steppe stony slopes, sometimes on sandy soil in light coniferous forests, and along roads.

Taxonomic notes. It is the only species in the genus *Chamaerhodos* Bunge that is a biennial, the remaining taxa are perennials. *Chamaerhodos songarica* Juz., described from Dzungarian Alatau, in our opinion, does not deserve species independence. It is very difficult to distinguish from *C. erecta* and is related to it by a number of transitional forms.

Examined specimens (new records). KYRGYZSTAN: Issyk-Kul Region, Tonsky District, Kyzyl-Choku pass, a desert steppe hillock, [42°08'20"N 76°46'07"E], 19.08.1951, coll. L. Sobolev (LE); [Issyk-Kul Region, Tonsky District], Terskey-Alatau ridge, upper reaches of the Konur-Olen River, western stony slope, [42°03'16"N 76°35'18"E], 22.06.1968, coll. N. Gorbunova (LE); Southern shore of Issyk-Kul lake, 25.07.1965, coll. I.A. Grudzinskaya (LE). It is not possible to indicate even the approximate coordinates of the collection place of Grudzinskaya.

Clematis tangutica (Maxim.) Korsh. (Ranunculaceae)

Contributor: Daba G. Chimitov

Distribution and habitat. The native area of distribution of the species covers Kazakhstan China (Wang & Bartholomew 2001) and Mongolia (Urgamal et al. 2014). This taxon has not been registered in Russia before. The species is confined to rocky and gravelly slopes of hills and mountains, as well as to waterless valleys ("sayry"). The nearest natural locality has been reported from the adjacent territory of Mongolia (Grubov 1982, Urgamal et al. 2014).

Taxonomic notes. In the Republic of Buryatia, the locality of a closely related taxon *C. orientalis* L. (Frizen 1993) is given, from which *C. tangutica* differs by apical inflorescences, and not only axillary (single, apical flowers, sometimes also in axillary, 1–3-flowered racemes) (Wang & Bartholomew 2001).

Examined specimen (new record). RUSSIA: Republic of Buryatia, Okinsky District, Orlik Village, embankment of the Oka River, stony habitats, 52°30'35"N 99°48'57.3"E, 1359 m a.s.l., 10.08.2022, coll. D.G. Chimitov (UUH, IRK, iNaturalist... 2024m, n, o, p).

Cynoglossum asperrimum Nakai (Boraginaceae)

Contributor: Svetlana V. Ovchinnikova

Distribution and habitat. *Cynoglossum asperrimum* was described by Nakai (1923) from Japan and Korea (presumably syntypes in TI). Later, it was transferred to the genus *Paracynoglossum* Popov, which was separated by Popov (1953) from the genus *Cynoglossum* L. It was found in the Japan and Korea (Nakai 1923, Ohwi 1965). The species was recorded for the Kuril Islands (Popov 1953, Barkalov 2009), but no specimens confirming these data were found. Therefore, the species was excluded from the flora of the Russian Far East (Starchenko 1978, 1991a). It was first collected in the Primorye Territory during field research. *Cynoglossum asperrimum* grows on riverbanks and valleys, sometimes in clearing in mountains.

Taxonomic notes. For the territory of the Russian Far East two species of the genus are listed (Starchenko 1991a, Ovchinnikova 2012). *Cynoglossum asperrimum* belongs to the subgenus *Paracynoglossum* (Popov) Riedl, which included plants with small eremocarps and short pedicels and is widely distributed in the subtropical zone from Africa to Japan and Australia (Popov 1953, Ohwi 1965, Riedl 1967). From related species *C. furcatum* Wall. ex Roxbugh and *C. zeylanicum* (Vahl) Thunb. it is distinguished by abundant dense, erect, hairy pubescence of the stem, leaves and calyx and longer pedicels.

Examined specimens (new records). RUSSIA: Primorye Territory, Khasan District, Priozernaya hill, vicinity of the Kraskino settlement, rocky slope, [42°42'30"N 130°46'55"E], 09.09.2006, Yu.V. Ovchinnikov (NSK0147679, NSK0147680).

Cynoglossum officinale L. (Boraginaceae)

Contributors: Daba G. Chimitov

Distribution and habitat. The native range of this species is from Europe to W. & S. Siberia and Iran. The species was introduced in North America (USA), Europe (Finland, Germany, Norway), and the Russian Far East (Primorye). It is a biennial and grows primarily in the temperate biome (POWO 2024). The nearest localities are known in the Irkutsk Region (Chepinoga et al. 2008).

Taxonomic notes. From *C. divaricatum* Stephan ex Lehm., which is widespread in the southern part of Buryatia, the species is well distinguished by shorter pedicels that droop in an arc, but are not bent sharply downwards (Ovchinnikova 1997).

Examined specimens (new record). RUSSIA: Republic of Buryatia, Barguzin District, near the Barguzin Village, near the bridge over the Barguzin River, 53°35'55.4"N 109°36'13.3"E, 473 m a.s.l., 26.08.2022, coll. D.G. Chimitov (IRK00040659, IRK00040660, UUH, iNaturalist... 2024q,r).

***Cynosurus echinatus* L. (Poaceae)**

Contributors: Alim D. Gaziev & Ivan I. Maltzev

Distribution and habitat. *Cynosurus echinatus* is native to southern and southeastern Europe, Mediterranean, Caucasus and Transcaucasia, the Middle East and North Africa; its secondary range includes Central and Northern Europe, South Africa, the Russian Far East, Japan, North and South America, Australia and New Zealand (GBIF... 2023, POWO 2024). It grows in dry, open natural and transformed habitats, including stony and grassy slopes, agricultural lands, roadsides, weedy places, industrial lands, etc. (Rozhevitz 1934a, Tzvelev & Probatova 2019). In Central Asia, this species was previously collected only once in 1900 from the surroundings of Krasnovodsk city (currently Turkmenbashi) on the eastern coast of the Caspian Sea in Turkmenistan (GBIF... 2023).

During the field surveys carried out in the Tashkent Region in 2020–2021, a population of *C. echinatus* was found in the foothills of the western spurs of the Chatkal Range, on gentle clayey slopes and at the edges of rainfed crops in the surroundings of the Yuzuruk Village, among grasslands dominated by *Hordeum bulbosum* L., at 840–970 m a.s.l. This population occupies about 64–65 hectares.

In Uzbekistan, this newly recorded alien species is xenophyte and epecophyte, unintentionally introduced and naturalized species that grows in secondary and some natural habitats. In accordance with the IUCN Environmental Impact Classification for Alien Taxa (EICAT) Categories and Criteria (IUCN 2020), *C. echinatus* can be assessed as alien species of minor impact (MN category).

Taxonomic notes. *Cynosurus echinatus* is caespitose annual grass 10–100 cm tall. Another representative of the genus *Cynosurus* L. in Central Asian flora is *C. turcomanicus* Proskur., widespread in Kopetdag, Iran and Irak (Proskuryakova 1976) and cited as *C. elegans* Desf. by Rozhevitz (1934a) and Bondarenko (1968). *Cynosurus turcomanicus* well differs from *C. echinatus* by lax oblong or ovate inflorescence (not dense globose or ovate), narrower leaf blades densely hairy on the upper surface (not scabrous), smaller fertile spikelets, and shorter subulate (not lanceolate) glumes (Proskuryakova 1976).

Examined specimens (new records). UZBEKISTAN: I-1 Western Tien Shan district. I-1-b Western Chatkal region: Tashkent Alatau, mountains Syuren-ata, [41°24'59.40"N 69°43'28.2"°E], 04.07.2020, coll. I.I. Maltzev (TASH); Tashkent Region, western spurs of the Chatkal Range, 4–5 km to the east of the Yuzuruk Village, 870 m.s.l., 41°24'59.6"N 69°43'28.3"E, 26.05.2021, coll. T.Kh. Makhkamov, I.I. Maltzev & A.D. Gaziev (TASH); Tashkent Region, western spurs of the Chatkal Range, about 970 m.s.l., fine-earth grassy slope, 41°24'24.1"N 69°45'02.3"E, 26.05.2021, coll. T.Kh. Makhkamov, I.I. Maltzev & A.D. Gaziev (TASH, photo was uploaded to Plantarium (2007–2024)).

***Egeria densa* Planch. (Hydrocharitaceae)**

Contributors: Andrey N. Efremov, Laura M. Kipriyanova & Jianhua Xue

Distribution and habitat. *Egeria densa* is a South American tropical species, currently distributed in tropical and subtropical regions of the world, occasionally in temperate regions. It is considered to be native in Southeastern Brazil (from Minas Gerais and Espirito Santo following the coast southwards through Uruguay to Buenos Aires) and Argentina (the plain between the Parana and Uruguay Rivers) (Cook & Urmi-König 1984).

It probably appeared in China in the 1990s, in Japan in the 1910s, and in Taiwan in 1992 (CABI 2019). In Southeast China the proportion of introduced, naturalised or invasive aquatic species is 10.1–20.0 %, while in the rest part it is less than 10 % (Lobato de Magalhães et al. 2022). *Egeria densa* has been introduced from fish ponds in Hubei, Taiwan (Lin et al. 2022), Guangdong (Wang & Sun 1992) and some other southern territories (GBIF... 2023).

In the locality the species is confined to the river channel with a stream velocity of ~0.2 m/s and a depth of 0.1–0.4 m and a sandy-pebble bottom deposit. *Egeria densa* forms a community with *Hydrilla verticillata* (L.f.) Royle.

Taxonomic notes. The genus *Egeria* Planch. along with *E. densa* includes two more South American species (*E. heterostemon* S. Koehler et C.P. Bove and *E. najas* Planch.), sometimes this genus is included in the genus *Elodea* Michx.

Egeria densa has leaves mostly in whorls of 4, slightly serrate leaf edge, average 22.6×3.1 mm, the length of leaves significantly exceeds the length of the internode; filaments are strongly papillose; nectaries of male flowers with lateral lobes as long as or longer than the central lobe (Cook & Urmi-König 1984).

Examined specimen (new record). CHINA: Hunan Province, Fenghuang County, Yiangxi, Hijang River, sandy-pebble bottom deposit, depth 0.1−0.4, *Hydrilla verticillata* and *Egeria densa* phytocoenosis, 02.01.2017, coll. A.N. Efremov (OMSK).

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

Contributors: Andrey N. Efremov, Laura M. Kipriyanova & Jianhua Xue

Distribution and habitat. *Elodea nuttallii* is native to temperate North America. It has been naturalised in Europe (Belgium) since 1939 and in Asia (Japan) since the 1960s. Findings of the species are known in the Philippines, Guatemala, Australia and New Zealand (GBIF … 2023). *Elodea nuttallii* introduced in China from Japan in 1986 by the Nanjing Institute of Geography and Limnology (Xu et al. 2007). Currently, this species is distributed in South-Central China (Lin et al. 2022, GBIF … 2023, POWO 2024), findings are known in the Zhejiang Province (POWO 2024).

The species grows in calcareous waters in lakes, ponds, slowly flowing streams and canals, and on tidal flats; it tolerates salinities up to 14.4 ppt (Cook & Urmi-König 1985). *Elodea nuttallii* is widely used in Chinese mitten crab practice (Shi et al. 2019). In experiment, *E. nuttallii* in comparison with *Hydrilla verticillata* (L. f.) Royle had superior cold resistance and competitive advantages for space-time (Xu et al. 2007).

Taxonomic notes. The genus *Elodea* Michx. includes six species, there are naturally occurring hybrids between *E. canadensis* Michx. and *E. nuttallii*. Main diagnostic features of *E. nuttallii*: leaves rarely more than 1.75 mm wide, usually folded along the midrib, 'recurred' and often with a somewhat undulate margin; male spathes not more than 4.0 mm long, subglobose to subovoid, opening almost to base; styles very rarely exceeding 2.0 mm long; sepals rarely exceeding 2.0 mm long (Cook & Urmi-König 1985).

Examined specimen (new record). CHINA: Jiangsu Province, Huai An City, Xuyi County, Hou Gang Village, Huai He River, the aquaculture crab's pond, 06.10.2018, 33°05'27.0"N 118°32'07.1"E, coll. L.M. Kipriyanova & J. Xue (OMSK, NSK0144090).

***Epipactis microphylla* (Ehrh.) Sw. (Orchidaceae)**

Contributors: Alexander V. Fateryga, Maxim M. Mallaliev, Sergey A. Svirin & Valentina V. Fateryga

Distribution and habitat. This species has been recorded to date from Western (except Great Britain), Southern, and Eastern Europe, Cyprus, Syria, Asia Minor, the Caucasus, and a neighboring area of Northern Iran (Renz 1978, Delforge 2006, Fateryga & Fateryga 2018, GBIF … 2023, POWO 2024); in Russia, *E. microphylla* has been documented from the Crimea and the Krasnodar Territory (Fateryga & Fateryga 2018). It is a rare species, mainly presented by solitary plants or small groups confined to diverse forest communities (beech and hornbeam, oak, hornbeam and oak, as well as pine forests) (Popovich et al. 2020). The species was previously reported from Dagestan by Vakhrameeva et al. (2008) but those authors probably misidentified their material since they illustrated *E. microphylla* with photographs of another species, *E. persica* (Soó) Hausskn. ex Nannf. (p.624, figs 16a and 16b). Therefore, their report of *E. microphylla* should be considered doubtful. This species was not reported from Dagestan by Murtazaliev (2009). We hereby report *E. microphylla* from Dagestan for the first time on the basis of correctly identified specimens.

Taxonomic notes. *Epipactis microphylla* is a "bona fide" species whose taxonomic independence was confirmed with mo-

dern molecular-phylogenetic studies (Sramkó et al. 2019). It is the fifth species of the genus *Epipactis* Zinn known from Dagestan (Fateryga et al. 2021). *Epipactis microphylla* is easily distinguishable from other closely related species by the following combination of characters: leaves about as long as corresponding internodes, the rachis of the inflorescence and the ovaries equally well pubescent, the epichile with crenate conjuncted bosses at base, flowers with a distinct clove scent (Fateryga & Fateryga 2018). Due to a small size of the plant, *E. microphylla* is somewhat similar to *E. persica* but the latter species has subglabrous rachis of the inflorescence and ovaries, two separated and rather smoothened bosses at the base of the epichile, and flowers without a distinct scent.

Examined specimens (new records). RUSSIA: Republic of Dagestan, Tabasaranskiy District, Dyubek, 42°00'17.6"N 47°58'43.6"E, 09.06.2021, coll. M.M. Mallaliev (iNaturalist... 2024s); Republic of Dagestan, Magaramkent District, vicinity of Khtun-Kazmalyar, Samur Forest, 41°48'56"N 48°31'43"E, 07.05.2022, coll. A.V. Fateryga & S.A. Svirin (photo was uploaded to Plantarium (2007–2024)).

Epipactis persica (Soó) Hausskn. ex Nannf. (Orchidaceae)

Contributors: Natalya Yu. Beshko & Alexander V. Fateryga

Distribution and habitat. *Epipactis persica* was described from Iran. This plant has a rather wide but fragmented geographical range, which includes the Balkans (Bulgaria, Greece), Crimea, the Caucasus, Asia Minor, Western, Southern, Central Asia (Afghanistan, Iran, Iraq, Pakistan, Syria, Turkmenistan) and West Himalaya. It grows in humid shady wet habitats in deciduous, conifer, and mixed forests at 200–2700 m.s.l., rarely in meadow steppes (Renz 1978, Delforge 2006, Fateryga & Fateryga 2018, Fateryga et al. 2019, 2020, GBIF … 2023, POWO 2024). The distribution of this species in Central Asia may be largely underrated.

For the first time in Uzbekistan, *E. persica* was found in the Ugam-Chatkal National Park, on the north slope of the Pskem Range and in the valley of the Oygaing River during the field surveys carried out in the Tashkent Region in 2022–2023.

Taxonomic notes. To date, three species of the genus *Epipactis* Zinn have been listed for the flora of both Uzbekistan and Tian Shan: *E. helleborine* (L.) Crantz, *E. palustris* (L.) Crantz, and *E. royleana* Lindl. (Czerniakowska 1941, Sennikov & Tojibaev 2021, POWO 2024). The most similar with *E. persica* is *E. helleborine*, which is allogamous and differs by rather robust habit, 4–9 leaves arranged throughout the stem, rather dense and many-flowered inflorescence with a pubescent rachis, rather large flowers, and usually functional viscidium, while *E. persica* is autogamous plant with a slender stem, 3–4 leaves arranged mainly in the middle part of the stem, rather lax inflorescence with glabrous or subglabrous rachis, rather small flowers, and a distinctly present but inefficient viscidium (Delforge 2006, Fateryga & Fateryga 2018). Other two species of *Epipactis* distributed in Uzbekistan are members of the section *Arthrochilium* Irmisch with a different structure of the hypochile (not cup-shaped); they cannot be confused with either *E. persica* or *E. helleborine*. *Epipactis persica* is closely related to *E. phyllanthes* G.E. Sm. and may be considered its synonym (Sramkó et al. 2019) but such a taxonomic treatment is not largely accepted (Efimov 2020, Fateryga et al. 2020).

Examined specimens (new records). UZBEKISTAN: I-1 Western Tien Shan district. I-1-a Ugam-Pskem region: Tashkent Region, Pskem Range, the gorge Badaksay, above the lake Badak, about 1730 m.s.l., valley of a mountain river, under the canopy of a birch grove, 41°0'57.7"N 70°16'53.2"E, 20.07.2022, coll. N.Yu. Beshko (ALTB, TASH, photo was uploaded to Plantarium (2007–2024)); Tashkent Region, Ugam-Chatkal National Park, valley of the Oygaing River, the mouth of the stream Tekeshsay, under the canopy of a birch-poplar grove, 42°08'29.7"N 70°48'41.1"E, 04.08.2023, coll. N.Yu. Beshko (TASH).

Eremurus × *decoloratus* Lazkov et Naumenko (Asphodelaceae)

Contributors: Komiljon Sh. Tojibaev & Natalya Yu. Beshko

Distribution and habitat. *Eremurus* × *decoloratus* (= *E. lactiflorus* O. Fedtsch. × *E. regelii* Vved.) was described from Kyrgyzstan, Ak-Tash Mts. (Lazkov & Sennikov 2017). It was also found in the Aksu River basin, the Talas Alatau Range in Kazakhstan (Belousov 2021). For the first time in Uzbekistan, *E.* × *decoloratus* was recorded in 2021, on the north slope of the Chatkal Range, near the place where the Chatkal River flows into the Charvak water reservoir, on steep rocky slopes with forb shrub vegetation, this habitat is similar to those in Kyrgyzstan and Kazakhstan. The same as in locus classicus in Kyrgyzstan, specimens of *E.* × *decoloratus* in Tashkent Region of Uzbekistan grew together with both parent species, *E. lactiflorus* and *E. regelii*.

Taxonomic notes. *Eremurus* × *decoloratus* is an intersectional hybrid (Lazkov & Sennikov 2017). From the first parent, *E. regelii* (sect. *Eremurus*), it is distinguished by light brown pedicels (vs dark brown), brownish or brownish-yellowish perianth segments (vs brown-purple), and brownish-yellowish or orange anthers (vs brown or bright brown). Also, the hybrid is distinguished by the color of the central vein, which is lighter, and greenish, especially in the upper part of the perianth segment. From the second parent, *E. lactiflorus* (sect. *Henningia* (Kar. & Kir.) Baker) it easily differs by the color of pedicels (light brown vs white), perianth segments (brownish or brownish-yellowish vs white or whitish), and the shape and color of anthers.

Examined specimen (new record). UZBEKISTAN: I-1 Western Tian-Shan district. I-1-b Western Chatkal region: Tashkent Region, Bostanlyk District, Chatkal Range, near the Charvak water reservoir, near the Obirakhmat Village, among the population of *E. lactiflorus*; 41°33'31.2"N 70°06'20.5"E, 938 m a.s.l., 27.04.2021, coll. N.Yu. Beshko, 2021141 (TASH, photo was uploaded to Plantarium (2007–2024)).

Euphrasia drosophylla Juz. (Orobanchaceae)

Contributors: Ivan I. Maltzev & Komiljon Sh. Tojibaev

Distribution and habitat. *Euphrasia drosophylla* was described from the western part of the Dzhungar Alatau Range, Kazakhstan (Juzepczuk 1955), later this species was reported for the Saur Range, Northern and Western Tien Shan (ranges Trans-Ili Alatau, Kungey Alatau, Kyrgyz Alatau, Talas Alatau), Northern Pamir-Alay (Turkestan Range) and Altay Mountains (Kazakhstan, Kyrgyzstan, Russia) (Li 1987, GBIF … 2023, POWO 2024). *Euphrasia drosophylla* grows on alpine lawns, in mountain steppes and on herbaceous slopes among juniper stands and elfin woodlands, at 2000–3300 m.s.l. During the field surveys carried out in the Tashkent Region in 2011, *E. drosophylla* was collected for the first time in Uzbekistan from the basin of the Oygaing River, the upper reaches of the Tunduksay River (Pskem Range). In 2021, it was identified by the collector, I.I. Maltzev, but this new record has not been published. The nearest known locations are the upper reaches of the Topchak-su River and the pass Kshi-Kaindy (Talas Alatau Range, Kazakhstan) (Kolbintsev 2017, GBIF … 2023).

Taxonomic notes. *Euphrasia drosophylla* belongs to the section *Euphrasia* L. Among Central Asian representatives of the genus, the most similar to *E. drosophylla* is *E. regelii* Wettst. *Euphrasia drosophylla* differs from *E. regelii* by dwarf habit, simple stem, 2–8 cm tall (not usually branched stem, up to 30 cm tall), awnless bracts and small blue corolla, up to 4–5 mm long (not whitish or pale purple, 5–6 mm long) (Juzepczuk 1955, Li 1987).

Examined specimen (new record). UZBEKISTAN: I-1 Western Tien Shan district. I-1-a Ugam-Pskem region: Tashkent Region, Pskem Range, Tunduksay, 3300 m.s.l. [41°0'57.7"N 70°16'53.2"E], 23.07.2011, coll. I.I. Maltzev (TASH).

Fritillaria rugillosa Naumenko et Zubov (Liliaceae)

Contributors: Komiljon Sh.Tojibaev & Natalya Yu. Beshko

Distribution and habitat. *Fritillaria rugillosa* was described in 2021 from red clay outcrops of the southern foothills of the Chatkal Range in the Jalal-Abad Region of Kyrgyzstan (Naumenko & Zubov 2021). The authors reported this species as an endemic to the eastern part of the Fergana Valley confined to the variegated foothills of Chatkal and Alay Ranges in the Jalal-Abad and Osh Regions of Kyrgyzstan, which probably can be found in adjacent areas in Uzbekistan. Indeed, this species was recorded in Uzbekistan in 2022, in the Namangan Region near the boundary with Kyrgyzstan in the Fergana

Valley and in the Tashkent Region, about 200–220 km to the west of the locus classicus. Moreover, the revision of the herbarium specimens in TASH and photographs uploaded to the Plantarium and iNaturalist websites showed that a number of specimens and observations from basin of the Akhangaran River and Uzbek part of the Fergana Valley previously identified as *F. stenanthera* (Regel) Regel (Tojibaev et al. 2022) belong to a new species *F. rugillosa*, all these records are cited below. Thus, data on the geographical distribution and habitat of recently described *F. rugillosa* were significantly expanded. The species is widespread in the Jalal-Abad and Osh Regions of Kyrgyzstan and the Tashkent, Namangan and Andizhan Regions of Uzbekistan, at altitudes of 700–2000 m.s.l., on the variegated foothills and clayey, gravelly and stony slopes of Chatkal, Kurama and Alay Ranges in the Fergana Valley and basin of the Akhangaran River (iNaturalist... 2024). The north-western border of its range is situated in western foothills of the Chatkal Range, in lower part of the valley Chavlisay in the interfluve of Chirchik and Akhangaran rivers.

Taxonomic notes. Recently described *F. rugillosa* is one of the few autochthonous Central Asian representatives of the genus, initially considered to be narrow endemic to the eastern part of the Fergana Valley (Naumenko & Zubov 2021). This species was unknown until 2021, as it is morphologically similar to *F. stenanthera* (Regel) Regel (=*Rhinopetalum stenantherum* Regel), distributed in the Western Tien Shan and on the Alay Range in Northern Pamir-Alay (Pazij 1971). *Fritillaria rugillosa* differs from *F. stenanthera* by widely open, nearly flat, wheel-shaped perianth; tepals sideways directed at flowering, without a prominent pinch; filaments violet or purple and hairy in lower 2/3 of their length, white and glabrous in the upper part, or sometimes pubescent along the entire length. *F. stenanthera* has a campanulate perianth notably constricted below the nectary horns and greenish or pinkish filaments, always pubescent along the entire length (Naumenko & Zubov 2021).

Examined specimens (new records). UZBEKISTAN: I-1 Western Tien Shan district. I-1-d Kurama region: Tashkent Region, Chatkal Range, basin of the Akhangaran River, Kattasay, upstream of the resort "Yangiabad" [41°09'12.1"N 70°08'15.9"E], 23.04.2017, iNaturalist... 2024t, photos were also uploaded to Plantarium (2007–2024)); Tashkent Region, Parkent District, foothills of the Chatkal Range, between the town Krasnogorsk and the Kursay Village, 700 m a.s.l., 41°07'45.2"N 69°38'44.9"E, 12.03.2021, coll. N.Yu. Beshko, A.D. Gaziev, U.H. Kodyrov & Z.Z. Kosimov (TASH); Tashkent Region, Parkent District, foothills of the Chatkal Range, surroundings of the town Krasnogorsk, valley Chavlisay, 1200 m a.s.l., 41°05'51"N 69°42'39.8"E, 24.03.2021, coll. N.Yu. Beshko, A.D. Gaziev, U.H. Kodyrov & Z.Z. Kosimov (TASH, iNaturalist... 2024u); Tashkent Region, Pskent District, Kurama Range, watershed between the valleys Karakiya and Almaliksay, 1150 m a.s.l, 40°45'14.7"N 69°39'19.8"E, 07.04.2021, coll. N.Yu. Beshko, A.D. Gaziev, U.H. Kodyrov & Z.Z. Kosimov (TASH, iNaturalist... 2024v); Chatkal Range, basin of the Akhangaran River, Shavazsay, 850 m a.s.l., 40°58'44.5"N 69°46'17.6"E, 31.03.2022, coll. N.Yu. Beshko, A.D. Gaziev, I.I. Maltsev, G.K. Aminjonova, Z.Z. Kosimov & B.I. Nazarov (TASH, iNaturalist... 2024w); Tashkent Region, Parkent District, foothills of the Chatkal Range, surroundings of the Kursay Village, 725 m a.s.l., 41°07'50"N 69°38'39.1"E, 31.03.2022, coll. N.Yu. Beshko, A.D. Gaziev, I.I. Maltsev, G.K. Aminjonova, Z.Z. Kosimov & B.I. Nazarov (TASH, iNaturalist... 2024x); Kurama Range, watershed between the valleys Karakiya and Almaliksay, among shrubs, 1386 m a.s.l., 40°43'08.6"N 69°39'59.8"E, 06.04.2022, coll. N.Yu. Beshko, A.D. Gaziev & I.I. Maltsev (TASH, ALTB); Tashkent Region, Kurama Range, valley Almaliksay, on a stony-fine-earth slope among spiny almonds, ca. 1150 m a.s.l., 40°43'33.3"N 69°40'50.4"E, 14.04.2022, coll. N.Yu. Beshko, A.D. Gaziev & I.I. Maltsev (TASH, photo was uploaded to Plantarium (2007–2024)); Tashkent Region, Akhangaran District, Kurama Range, valley Lashkeraksay, on a stony-fine-earth slope among juniper stands, ca. 2000 m a.s.l., 40°56'22.5"N 70°14'38.5"E, 13.04.2023, coll. N.Yu. Beshko, B.I. Nazarov & N.E. Daminova (TASH, iNaturalist... 2024y); I-1-e Chorkesar region: Namangan Region, Pap District, surroundings of the Chodak Village, stony slope, 41°03'38.9"N 70°41'59.1"E, 29.03.2023, coll. B.A. Karimov (TASH, Karimov 2023). I-2 Fergana district. I-2-a South Chatkal region: Namangan Region, Chortoq District, south slope of the Chatkal Range, Arbagish foothills, 1040 m.s.l., 41°16'03.4"N 71°54'08.6"E, 05.06.2020, coll. K.Sh. Tojibaev, F.I. Karimov & H.R. Hoshimov (TASH); Fergana Valley, Namangan Region, Yangikurgan District, Mt. Ungortepa, 1195 m.s.l., 41°23'53"N 71°44'30"E, 28.03.2021, coll. K.Sh. Tojibaev & H.R. Hoshimov (TASH); Namangan Region, Chortoq District, south slope of the Chatkal Range, Arbagish foothills, 1094 m.s.l., 41°15'38"N 71°53'47.6"E, 14.05.2021, coll. K.Sh. Tojibaev, F.I. Karimov & H.R. Hoshimov (TASH); Namangan Region, foothills 9–10 km to the north-east of Chortoq town, 669 m.s.l., 41°08'10.6"N 71°53'12.8"E, 21.03.2022, coll. K.Sh. Tojibaev & H.R. Hoshimov (TASH); Fergana Valley, Namangan Region, Yangikurgan District, Mt. Ungortepa, 1108 m.s.l., 41°25'24.9"N 71°45'48"E, 13.04.2022, coll. H.R. Hoshimov & R.K. Gulomov (TASH); Fergana Valley, Namangan Region, Yangikurgan District, Mt. Ungortepa, 1151 m.s.l., 41°24'44.7"N 71°54'10.3"E, 13.04.2022, coll. H.R. Hoshimov & R.K. Gulomov (TASH).

Geranium turczaninovii (Serg.) Troshkina (Geraniaceae)

Contributor: Viktoriya I. Troshkina

Distribution and habitat. *Geranium turczaninovii* was described by L.P. Sergiyevskaya as *G. transbaicalicum* var. *turczaninovii* from the Trans-Baikal Territory. Later it was found in West Siberia (Peshkova 1996, Peshkova & Ovczinnikova 2012), North and East Mongolia and from one location in Northeast Kazakhstan (LE!) in the Kokpektinskiy Region (Troshkina 2019). The species was second found in the Republic of Kazakhstan. *G. turczaninovii* grows in the steppe meadows and in the river valleys.

Taxonomic notes. *Geranium turczaninovii* belongs to section *Recurvata* (Knuth) Novosselova subsection *Recurvata* Knuth. From the related species *G. transbaicalicum* Serg. s. str., it is distinguished by being along the entire length of the stem or above the first internode covered with soft glandular hairs and short standing (velvety pubescence) or directed down, appressed non-glandular hairs (Peshkova 1996, Troshkina 2019).

Examined specimen (new record). KAZAKHSTAN: Almaty Region, Medeuskiy District, Ile-Alatau National Park [43°09'N 77°03'E], 19.08.2017, coll. Anonymus (NSK0144663).

Hackelia popovii Czukav. (Boraginaceae)

Contributor: Svetlana V. Ovchinnikova

Distribution and habitat. *Hackelia popovii* was described by A.P. Chukavina from Eastern Pamir, from the vicinity of Rang-Kul Lake from the territory of Tadjikistan by her own collection (holotype – LE, isotype – TAD) as a narrow local endemic (Chukavina 1984). Revision of herbarium collections LE and TK showed that *H. popovii* is a new species from the territory of Kyrgyzstan and China. *H. popovii* grows in shaded crevices and foothill rocks in zone of high-montain deserts and cryophil steppes at altitudes of 3700–4000 m a.s.l.

Taxonomic notes. Chukavina (1984) refered *H. popovii* to section *Hackelia* with type: *H. deflexa* (Wahlenb.) Opiz. From related species it is distinguished by: fruiting inflorescences are rare-fruited, almost without bracts, corolla is small and white, almost without appendages, the gynobase is low-pyramidal, the column does not exceed the height of the eremocarps. Eremocarps are placed along the edge of the disc with 12–18 glochids of different lengths, or merging at the bases into a narrow or wide flat wing (Chukavina 1984, Ovczinnikova 2007).

Examined specimens (new records). KYRGYZSTAN: Tien Shan, [Ak-Shyirak ridge], Iirtash River valley, coastal lowland with shrubs [41°50' N 78°30' E, altitudes near 4000 m a.s.l.], 27.06.1902, coll. V. Sapozhnikov (TK). CHINA: Xinjiang province, Kashgaria, Uch-Turfan, Ush-Ayri, along rocky placer [41°10'N 79°10'E], 02.06.1908, coll. D. Divnogorskaya 2 (LE); Kashgaria, [Chichiklyk Plateau, Shindy Village], Kok-Muynak pass, when climbing between stones [38°09'47"N 75°20'13"E, altitudes near 4400 m a.s.l.], 27.07.1909, coll. D. Divnogorskaya 429 (LE).

***Limonium suffruticosum* (L.) Kuntze (Plumbaginaceae)**

Contributors: Natalya V. Plikina & Galina V. Samoylova

Distribution and habitat. Eurasian, Iranian-Turan species are located in Siberia on the northeastern border of the range (Grebenyuk et al. 2013). It is found in the south of Western Siberia, in Crimea, Ukraine, the Lower Volga region, the Northern Caspian, the Northern Caucasus, Central Asia, SW Mongolia, China (N-Xinjiang) (GBIF … 2023).

In Siberia, the number of established locations of the species increases, following an increasing degree of floristic knowledge (Grebenyuk et al. 2013). However, a significant part of habitats has already been lost or suffers from excessive economic exploitation. For the Omsk Region *L. suffruticosum* is given for the first time, the previous special searches were unsuccessful. The nearest locations are known in the Novosibirsk Region (surrounding Lake Bolshoye Topolnoye, Karasuksky District; Lake Krasnovishnevoe, the Kupinsky District) (Grebenyuk et al. 2013), Altai Territory (Kovtoniuk 1997) and the Pavlodar Region of the Republic of Kazakhstan (Grebenjuk 2016).

Limonium suffruticosum is xerophyte, an obligate halophyte, confined to salt marshes, salt lake shores and sea coasts. It lives on different types of saline soils with alkaline reactions, is resistant to fluctuations in hydrological regime (Demina 2014).

Taxonomic notes. *Limonium suffruticosum* is the only representative of the sect. *Sarcophyllum* (Boiss.) Lincz in Asian Russia. This section includes subshrubs with fleshy leaves, tubular, obconical or infundibular calyx (Kovtoniuk 1997).

Limonium suffruticosum forms a hybrid with *L. gmelinii* (Willd.) Kuntze – *L.* × *erectiflorum* (B. Fedtsch. et Gontsch.) A.V. Grebeniuk, which is unstable and occurs among several morphotypes (Grebenyuk et al. 2013). The presence of this hybrid is possible in the region.

Examined specimens (new records). RUSSIA: Omsk Region, Moskalensky District, 3.9 km S of the Tumba Village, deserted *Halimione pedunculata* (L.) Aellen and *Artemisia nitrosa* Weber ex Stechm. phytocenosis, 54°42'12.1"N 71°45'08.8"E, 04.09.2022, coll. N.V. Plikina; ib., 4.2 km to the south, *Artemisia nitrosa* and *Halimione verrucifera* phytocenosis, 54°42'04.8"N 71°45'19.5"E, 04.09.2022, coll. N.V. Plikina; ib., 3.9 km to the south, *Halimione pedunculata* phytocenosis, 54°42'10.2"N 71°45'07.1"E, 10.09.2022, coll. N.V. Plikina & G.V. Samoylova; ib., 3.9 km to the south, *Artemisia nitrosa* and *Halimione verrucifera* phytocenosis, 54°42'55.5"N 71°45'06.1" E, 04.09.2022, N.V. Plikina & G.V. Samoylova (LE, MW, OMSK). Some observations are published on Inaturalist (iNaturalist... 2024z, a1).

***Malva moschata* L. (Malvaceae)**

Contributors: Anatoliy A. Khapugin & Svetlana V. Khapugina

Distribution and habitat. This European species is unevenly distributed in Russia. Maevskii (2014) shows that in the center of European Russia, *M. moschata* was known in the Vladimir, Moscow, Nizhnii Novgorod, Smolensk and Tver Regions. Later, additions for this species were published from the Kaluga Region (Efimova & Leostrin 2021) and Kostroma Region (Reshetnikova 2015). In Siberia, records of *M. moschata* are published from the Kemerovo (Ebel 2013) and Tomsk regions (Ebel et al. 2009), and some others are known on iNatiralist portal. Alexeyev (2013) stated that both the distribution and status of this species in Central European Russia are unclear. *Malva moschata* is a new naturalized alien species to the Republic of Mordovia, being found in two municipal districts. Noteworthy, these records of *M. moschata* represent both white-flower (Atyashevo district) and pink-flower (Romodanovo district) forms of this species. In both sites, *M. moschata* has been found in roadside habitats in populated localities. Therefore, we suppose that new records of this species in the Republic of Mordovia are possible along road sides..

Taxonomic notes. *Malva moschata* is the only species of section *Bismalva* (Medik.) Dumort. in the Republic of Mordovia (Silaeva et al. 2010). It is similar to *M. alcea* L., which also occur in the culture as an ornamental plant, being escaped to the wild in the same habitats. Compared to the latter species, *M. moschata* has usually simple, sometimes stellate, hairs on stems; involucellar bractlets (epicalyx leaves) are linear to narrowly oblanceolate or elliptic; it has 11–15 densely hirsute mericarps (Olyanitskaya & Tzvelev 1996).

Examined specimen (new record). RUSSIA: Republic of Mordovia, Romodanovo District, lower part of the highway road shoulder in the Krasnyi Uzel settlement, 54°26'13.9"N 45°14'23.4"E, 06.08.2022, coll. A.A. Khapugin (HMNR).

iNaturalist website observation. RUSSIA: Republic of Mordovia, Atyashevo District, overgrown side of the road in the Atyashevo Village, 54°45'43.4"N 45°07'45.0"E, 24.06.2020, A.N. Kochetkova (iNaturalist... 2024b1); Republic of Mordovia, Romodanovo District, lower part of the highway road shoulder in the Krasnyi Uzel settlement, 54°26'13.9"N 45°14'23.4"E, 19.07.2022, S.V. Khapugina, (iNaturalist... 2024c1).

***Menispermum dauricum* DC. (Menispermaceae)**

Contributors: Irina G. Esina & Anatoliy A. Khapugin

Distribution and habitat. The native range of this species covers Eastern Siberia, the Russian Far East, China, Japan, Mongolia (Krupkina 2004, POWO 2024), while it is cultivated in many countries worldwide. According to Maevskii (2014), *M. dauricum* was known only in two regions as a relic of the former introduction. In the Mordovia State Nature Reserve, this species was noted only in the culture at the site of its former introduction in the 1940s (Borodina et al. 1987). Recently, *M. dauricum* was found for the first time in the pine forest outside of the former woody plant nursery where it was originally introduced in 1940s. Its individuals climb on shrub (e.g., *Sorbus aucuparia* L., *Frangula alnus* Mill.) trunks occurring in the understorey of the pine forest. This is a new alien species in the flora of the Republic of Mordovia.

Taxonomic notes. There are two species in the genus *Menispermum*, the second species, *M. canadense* L. is occasionally cultivated in the European part of Russia. *M. dauricum* differs from the above-mentioned species by its herbaceous, practically non-lignified shoots, bare dark green leaves with petioles attached 1–2(3) cm from the edge of the leaf, more or less dense almost corymbose panicles, narrow-lanceolate or almost linear sepals, and the absence of a bluish bloom on the fruit.

Examined specimen (new record). RUSSIA: Republic of Mordovia, Temnikov District, pine forest at 150 m southward of the former woody plant nursery in the quarter 445 of the Mordovia State Nature Reserve, 54°43'15.8"N 43°12'21.0"E, 02.08.2022, coll. I.G. Esina & A.A. Khapugin (HMNR, iNaturalist... 2024d1).

***Myosotis sparsiflora* J.C. Mikan ex Pohl (Boraginaceae)**

Contributors: Maria G. Khoreva

Distribution and habitat. This species was described from Europe (Czech Republic), its native range is from Central and Eastern Europe to Iran, Southwestern Siberia and China (Xinjiang). It is known as an alien for Northern Europe, Eastern Siberia, the south of the Russian Far East and even South America (Chile) (Zhu et al. 1995, Nikiforova 1997, Ovchinnikova 2022, GBIF … 2023, POWO 2024). It occurs along the banks of rivers and streams, shady damp places in bushes and forests, on fallow fields, along roads, and near dwellings. *Myosotis sparsiflora* has not been previously reported for the Russian Far East in published papers (Starchenko 1991b, Nikiforova 1997), but in GBIF and Moscow Digital Herbarium (MW0956312, MW0956313) we found recent (2019–2021) records ot this species in the vicinity of Vladivostok (iNaturalist... 2024 e1, f1, g1, h1, i1, j1, Seregin 2023). These locations are app. 2150 km southwest of Magadan. The species is absent in the neighboring region – the Republic of Sakha (Yakutia) (Nikolin 2020). In the Magadan Region *M. sparsiflora* is definitely an alien plant, which was met only once in forage crops.

Taxonomic notes. The presence of an appendage is a diagnostic feature that distinguishes *M. sparsiflora* from other forget-me-not species and allows it to be considered as *Strophiostoma sparsiflorum* (Mikan ex Pohl) Turcz. (Nikiforova 1997).

Examined specimens (new record). RUSSIA: Magadan Region, Ol'skiy district, farmland on the right side of the Klepkinskaya road, between rows of mowed fodder crop, 59°41'28.68"N 151°17'25.14"E, 1.10.2020, coll. O.N. Vokhmina (MAG0011653, MAG0011753).

Oxytropis caespitosa (Pall.) Pers. (Fabaceae)

Contributors: Andrei I. Pyak & Elizaveta A. Pyak

Distribution and habitat. *Oxytropis caespitosa* is a subendemic. It grows in forb and forb-cereal grass petrophytic steppes on slopes and hill tops, as well as in upland meadows on sandy terraces within the forest-steppe regions of the southern part of Eastern Siberia (Polozhij 2006) and adjacent territories of Mongolia (Ulziykhutag 2003). For the first time in the Republic of Tuva it was found in the south of the region, in the northern part of the mountain frame of the Ubsunur depression, where it is confined to petrophytic meadow steppes on carbonate rocky slopes.

Taxonomic notes. *Oxytropis caespitosa* was described from the Russian part of Dauria. It belongs to the subsection *Ampulla* Vass. of sections *Xerobia* Bunge. From morphologically similar species of the subsection growing in the Republic of Tuva, it is well distinguished by milky-white flowers with a purple keel tip.

Examined specimen (new record). RUSSIA: Republic of Tuva, Erzinsky District, Sangilen highland, Naryn Valley, mouth of the Ak-Inek stream, eastern rocky slope, meadow steppe with single trees, [50°10'16.17"N 95°53'07.23"E], 1571 m a.s.l., 09.06.2019, coll. A.I. Pyak, E.A. Pyak & S.V. Karachurina (TK).

Paspalum distichum L. (Poaceae)

Contributors: Natalya Yu. Beshko, Akram J. Ibragimov & Hushbaht R. Hoshimov

Distribution and habitat. *Paspalum distichum* is native to the warm moderate, subtropical and tropical regions of North and South America. Currently, this species is widely spread in Europe, Africa, Middle East, India, China, Korea, Japan, southeastern Asia, Australia and New Zealand, mostly as a result of introduction as a pasture grass (Allen & Hall 2003, Parker 2009, GBIF … 2023, POWO 2024). It grows in wet places at the edges of lakes, ponds, vernal pools, rivers, streams, channels, irrigated fields, roadside ditches, on wastelands and humid ruderal places. *Paspalum distichum* can quickly propagate vegetatively by stolons and their fragments, and it is a major weed of rice and many other crops (Parker 2009).

In Central Asia, *P. distichum* has been recorded in Turkmenistan and Southern Tajikistan (Koroleva 1957, Nabiev 1968, Nowak & Nobis 2020, Ebel 2021, GBIF … 2023).

During the field surveys of 2021–2023, *P. distichum* was found in different regions of Uzbekistan, in irrigated agricultural lands, wetlands, and populated areas). Therefore, it can be concluded that this plant was introduced and widely naturalized in Uzbekistan for quite some time, at least 10–20 years ago. *Paspalum distichum* can be classified as xenophyte and epecophyte. In accordance with the IUCN Environmental Impact Classification for Alien Taxa (EICAT) Categories and Criteria (IUCN 2020), *P. distichum* currently can be assessed as an alien species of minor impact (MN category). Further control of this alien species is strongly needed. Recent findings of *P. distichum* and other new alien plants reported before show that a revision and updating of the checklist of introduced and invasive species naturalized in Uzbekistan (Sennikov et al. 2018) is required.

Taxonomic notes. Only two species of the genus *Paspalum* L. have been recorded in Central Asia, *P. distichum* and *P. dilatatum* Poir. (Nabiev 1968, POWO 2024). *Paspalum dilatatum* was reported for Uzbekistan (Drobow 1941). *Paspalum distichum* was cited as *P. digitaria* Poir. by Koroleva (1957) and Nabiev (1968). On the Internet portal Plantarium (2024), this species is presented under the name *P. paspalodes* (Michx.) Scribn. Currently, both names are considered synonyms of *P. distichum* (GBIF … 2023, POWO 2024).

Paspalum distichum is a perennial rhizomatous grass with creeping stolons, rooting at the nodes, erect or decumbent culms 5–50(60) cm tall, and terminal digitate inflorescence of two unilateral racemes 2–8 cm long, rarely with a third branch below. It well differs from *P. dilatatum*, which has larger habit, robust culms from 40–50 up to 175–180 cm tall, inflorescence usually composed of more than 2 branches (to 10–11), spread along an axis, 5–9-veined upper glume, fringed with long white hairs at margins (upper glume of *P. distichum* is 3–5-veined and sparsely shortly appressed pubescent on the back, not ciliate at margins). Among representatives of the genus *Paspalum*, the closest species is *P. vaginatum* Sw., naturalized in Africa and Southern Asia, which differs with glabrous upper glume and flattened, lanceolate-oblong spikelets (Allen & Hall 2003).

Examined specimens (new records). UZBEKISTAN: I-1 Western Tien Shan district. I-1-e Chorkesar region: Namangan Region, Chust District, Varzik Village, 41°06'29.1"N 71°14'03.8"E, 12.10.2021, coll. H.R. Hoshimov (TASH); ib., 41°06'46.2"N 71°13'52.1"E, 12.10.2021, coll. H.R. Hoshimov (TASH); ib., 41°07'08"N 71°13'54.2"E, 12.10.2021, coll. H.R. Hoshimov (TASH); ib., 41°07'14.3"N 71°13'55.3"E, 12.10.2021, coll. H.R. Hoshimov (TASH); ib., 41°07'23"N 71°14'0"E, 12.10.2021, coll. H.R. Hoshimov (TASH); ib., 41°06'51.7"N 71°14'07.4"E, 12.10.2021, coll. H.R. Hoshimov (TASH); ib., 41°06'41.2"N 71°14'06.3"E, 12.10.2021, coll. H.R. Hoshimov (TASH); ib., 41°06'22.8"N 71°14'10.8"E, 12.10.2021, coll. H.R. Hoshimov (TASH); ib., 41°06'20.2"N 71°14'11.8"E, 12.10.2021, coll. H.R. Hoshimov (TASH). I-4 Nuratau district. I-4-b Aktau region: Dzhizak Province, Gallaaral District, vicinity of the Marzhanbulak Village, bank of small stream, 39°55'12.3"N 67°30'50.3"E, 02.07.2021, coll. N.Yu. Beshko (TASH, photo was uploaded to Plantarium (2007–2024)). I-6 Western Hissar district. I-6-d Kuhitang region: Surkhandarya Region, Sherabad District, Maydan Village, 37°44'27.6"N 66°53'10.5"E, 10.10.2021, coll. A.J. Ibragimov, B.Q. Karimov & K.U. Atoev (TASH); I-6-e Surkhan-Sherabad region: Surkhandarya Region, Angor District, makhalla Madaniyat, 37°26'31.9"N 67°13'07.3"E, 10.10.2021, A.J. Ibragimov, B.Q. Karimov & K.U. Atoev (TASH); Shurcha District, makhalla Zarbdor, Pakhtakor Village, 37°57'28.3"N 67°48'58.8"E, 10.10.2021, coll. A.J. Ibragimov, B.Q. Karimov & K.U. Atoev (TASH); Termez city, makhalla Baynalminal, 37°14'14.3"N 67°15'09.9"E, 10.10.2021, coll. A.J. Ibragimov, B.Q. Karimov & K.U. Atoev (TASH); Surkhandarya Region, Angor District, on the steep sandy bank of the canal Zang, near the confluence with the Uchkyzyl water reservoir, about 325 m.s.l., 37°22'34.68"N 67°14'29.76"E, 18.09.2022, coll. N.Yu. Beshko (TASH, photo was uploaded to Plantarium (2007–2024)). II-1 Central Fergana district. II-1-a Kayrakum-Yazyavan region: Namangan Region, Turakurgon District, Kumidon Village, 40°58'40.4"N 71°27'33.6"E, 20.10.2021, coll. H.R. Hoshimov (TASH). II-2 Middle-Syrdarya district. II-2-a Chinaz region: Tashkent Region, shore of Tuyabuguz water reservoir ("Tashkent Sea"), 40°57'14.4"N 69°22'19.2"E, 07.10.2021, coll. N.Yu. Beshko & A.D. Gaziev (TASH, photo was uploaded to Plantarium (2007–2024)); Tashkent Region, Bekabad District, valley of the Syrdarya River, surroundings of the Sholikor Village, bank of canal, among rice fields, 40°28'44.4"N 69°09'18"E, 07.10.2021, coll. N.Yu. Beshko & A.D. Gaziev (TASH, photo was uploaded to Plantarium (2007–2024)); Tashkent Region, right bank of the Syrdarya River near the Qiz-Ona Village, 40°49'08.7"N 68°49'33.5"E, 16.07.2023, coll. N.Yu. Beshko (TASH).

Pedicularis spicata Pall. (Orobanchaceae)

Contributor: Olga A. Mochalova

Distribution and habitat. *Pedicularis spicata* occurs mainly in Eastern Asia. The range of this species is East Siberia (south of Irkutsk Region, Trans-Baikal Territory, Republic of Buryatiya (Vydrina 1996); Republic of Altai, Kosh-Agach District (GBIF … 2023)); Russian Far East (Amur Region, Jewish Autonomous Region, south of Khabarovsk Territory and Primorye Territory) (Ivanina 1991); Inner Mongolia, Manchuria, north and central China, Korea, north and central Japan (Hanbi et al. 1998). *Pedicularis spicata* is included in the alien species list of Japan (Goka 2023). This species grows on meadows, in bushes and light deciduous forests, it also occurs on wasteland. At the southern part of the range it grows on

wet or swampy meadows and thickets above 1500 – 2500 m a.s.l. (Ivanina 1991, Hanbi et al. 1998).

The new localities are situated in the Magadan Region ~ 1500 km to north-east from nearby locations at the Amur basin, the Russian Far East. *Pedicularis spicata* grows here as an alien species. *Pedicularis spicata* found in seven locations. Four finds were made in the Magadan and its nearest neighborhood at wastelands and squares and three finds were made at abandoned farmland to east, north-east from Magadan: 1) between Obezdnay St. and the Magadanka River, wastelands (iNaturalist... 2024 k1), 2) Kozhzavodskaya St., wastelands near sheds, (information by E. Andiyanova), 3) Ola Road (13 km – Ola) near turn to Klepka, 1.5 km to north of road, abandoned farmland, 59°36'11"N 151°07'55"E, 12.08.2015, 8 photos by M. Voroshilova on the Plantarium website, identified by P. Kosachev (Voroshilova 2017); 4) 3 km west of the Klepka Village, abandoned bushy field, 59°45'18"N 151°26'15"E (observation by O. Mochalova). Three other locations are listed in Examined specimens. *P. spicata* had not yet grown in the vicinity of the Klepka Village in 2010.

Taxonomic notes. *Pedicularis spicata* is the only annual species of the section *Verticillatae* growing in the Far East. In addition, it is well distinguished by triangular-ovate bracts that exceed the calyxes and small obliquely oblong-lanceolate capsules. It differs from the biennial *P. verticillata* L. with pinnately lobed bracts and closely spaced anthers.

Examined specimens (new records): RUSSIA: Magadan Region, Ola District, 5 km west of the Klepka Village, abandoned swampy field overgrown with willow, 59°45'50"N 151°24'41"E, 04.08.2022, coll. O.A. Mochalova (MAG0015625, MAG0015626, MAG 0015627). Magadan Region, Magadan city, Nagaevo urban area, wasteland at the square Majak, 59°33'43"N 150°46'30"E, 04.08.2022, coll. M.V. Voroschilova (MAG0015556). Magadan Region, vicinity of Magadan, Solnechniy – 13 km Obezdnaya Road, 59°37'28"N 150°47'41"E, 27.07.2022, coll. M.V. Voroschilova (MAG0015554, MAG0015555).

Persicaria orientalis (L.) Spach (Polygonaceae)

Contributors: Olga V. Lapshina & Anatoliy A. Khapugin

Distribution and habitat. The range of this species covers South, South East and East Asia, extending to the North and East of Australia. It is widely cultivated and naturalized throughout the world (POWO 2024). According to Maevskii (2014), *P. orientalis* is absent in the center of European Russia. According to the GBIF database (GBIF … 2023), this alien species occurs in some other regions of European Russia (e.g. Ulyanovsk, Kursk, Penza Regions, and others), but it is not always clear whether *P. orientalis* is cultivated or not from the data of its GBIF-occurrences. Thus, the actual distribution of *P. orientalis* outside the introduction sites still needs investigation, although the presence of this species in the wild was confirmed by publications in the Republic of Bashkortostan (Golovanov & Muldashev 2017), Kursk Region (Poluyanov & Sklyar 2015). In all the regions, *P. orientalis* occurs in anthropogenically disturbed habitats in and around populated localities and, has obviously escaped to the wild. In the Republic of Mordovia, *P. orientalis* is a new alien species. Four flowering individuals of this species were found on the roadside in the Ruzaevka city, together with other weeds (e.g., *Calendula officinalis* L., *Tripleurospermum inodorum* (L.) Sch.Bip., *Lactuca serriola* L., *Polygonum aviculare* L. s.l.). By September 2022, we had recorded ripened seeds of *P. orientalis* in the reported location. New locations of *P. orientalis* are expected to be found in human settlements in the Republic of Mordovia and other regions.

Taxonomic notes. *Persicaria orientalis* is well-recognized by the green leaflike wing on the tubular long-ciliate ocrea apex, bright-crimson-pink perianth, and more wide and pubescent stem leaves compared to other *Persicaria* species in the Republic of Mordovia and Central European Russia, as well (Tzvelev 1996, Li et al. 2003).

Examined specimen (new record). RUSSIA: Republic of Mordovia, Ruzaevka District, side of the dirt road in the Ruzaevka city, 54°03'52.0"N 44°57'04.2"E, 03.08.2022, coll. O.V. Lapshina (HMNR, iNaturalist... 2024 l1).

Petrosedum rupestre (L.) P.V. Heath (Crassulaceae)

Contributors: Tatyana B. Silaeva & Anna M. Ageeva

Distribution and habitat. *Petrosedum rupestre* is described from Sweden («in Gothlandia»). The species is distributed in the Caucasus (Mount Kazbek), Scandinavia, Central and Eastern Europe, North America (Byalt 2001). Within the territory of Central Russia, it was recorded in Kursk, Saratov, Belgorod, and Voronezh Regions (Maevskii 2014). It grows on rocks, scree, sand, in pine forests, on railway embankments. It is widely cultivated as an ornamental plant. We have noted this species for the first time in the Republic of Mordovia outside the places of introduction. According to the degree of naturalization, this alien to Mordovia species can be designated as a colonophyte. Thickets stretch along the distance of about 300 m, probably settled here quite a long time ago. Both vegetative and generative shoots with bright yellow flowers were noted.

Taxonomic notes. *Petrosedum rupestre* belongs to the *Sedum* section of the *Rupestris* A. Berger series. It differs from similar species in leaves with a noticeable tip at the top, bright yellow flowers and sepals that fuse into a tube at the base (Byalt 2001, Maevskii 2014).

Examined specimens (new records). RUSSIA: Republic of Mordovia, Kochkurovsky District, 2 km east of the Mordovskoye Davydovo Village, in a pine forest along a forest road, 53°98'45.7"N 45°76'54.1"E, 16.07.2022, coll. T.B. Silaeva & A.M. Ageeva (GMU, iNaturalist... 2024 m1); Republic of Mordovia, Kochkurovsky District, 2,2 km northeast of the Mordovskoye Davydovo Village, on the broken sand by the road in an old pine, 53°98'48.7"N 45°76'59.6"E, 07.23.2023, coll. T.B. Silaeva, A.M. Ageeva (GMU)., 53°98'48.7"N 45°76'59.6"E, 23.07.2023, coll. T.B. Silaeva, A.M. Ageeva (GMU iNaturalist... 2024 n1).

Plagiobasis centauroides Schrenk (Asteraceae)

Contributors: Komiljon Sh. Tojibaev & Hushbaht R. Hoshimov

Distribution and habitat. *Plagiobasis centauroides* was described from the Dzungarian Alatau Range (Chingeldi) by Schrenk (1845). This species is known from Kazakhstan (Dzungarian Alatau, Ketmen, Transili, Talas Alatau ranges), Kyrgyzstan (Talas Alatau Range, Issyk-Kul Depression and Naryn River Valley) and NW China (Xinjiang) (Czerepanov 1963, Makhmedov 1993, Zhengxi 2014). It grows on outcrops of variegated beds in foothills and lower mountains (Makhmedov 1993). Within the framework of the Fergana Valley Flora project specimens of *P. centauroides* were collected for the first time in Uzbekistan from the northern foothills of the Fergana Valley (Varzik Village). The species was found on the outcrops of variegated beds, among *Artemisia*-ephemeral vegetation. In 2022, T.S. Tillaev recorded this species in the same area and uploaded photographs to the Plantarium website (Tillaev 2022). Revision of herbarium collections showed that 20 specimens of *P. centauroides* are stored in TASH and three of them were collected in the Naryn River Basin (Kyrgyzstan).

Taxonomic notes. *Plagiobasis centauroides* is a perennial herb, which belongs to a monotypic genus of tribe *Cardueae* Cass. and subtribe *Centaureinae* Dumort. The main characters easily distinguishing *P. centauroides* from other Central Asian representatives of this subtribe are thick, dark green, glabrous, obovate to oblong, obtuse to subacute, irregularly toothed or entire leaves, homogamous capitula with glabrous, ovate to globose involucre 1–2.5 cm in diam., 4–5 rows of coriaceous, suborbicular, ovate, or oblong phyllaries, rounded at apex, pinkish to purple tubular florets, and serrate, easily falling pappus bristles.

Examined specimens (new record). UZBEKISTAN: I-1 Western Tian-Shan district. I-1-e Chorkesar region: Fergana Valley, Namangan Region, Chust District, Varzik Village, foothills of Surkhi, 41°07'25.5"N 71°16'15.7"E, 01.06.2021, coll. H.R. Hoshimov (TASH); ib., 41°07'26.6"N 71°16'14.5"E, 15.06.2021, coll. H.R. Hoshimov (TASH).

Poa turfosa Litv. (Poaceae)

Contributors: Dmitry V. Zolotov, Dmitry V. Chernykh, Roman Yu. Biryukov, Nikolay I. Bykov, Roman A. Kolesnikov, Alyona Yu. Levykh & Maria A. Kulagina

Distribution and habitat. *Poa turfosa* Litv. has the Eurosiberian range. It distributed mainly in the forest zone of Eastern Europe and Siberia, as well as in the mountains of Southern Siberia (Rozhevits 1934b, Olonova 2016). According to the GBIF database (GBIF … 2023), 23 findings of the species are located in Northern Europe and the European part of Russia. Everywhere the species is confined to moss peat bogs and marshy meadows. We found the species on the northern border of its range in the northern taiga and forest-tundra of the Yamal-Nenets Autonomous Area in waterlogged floodplain and floodplain forests, and light forests. These communities are characterized not only by overwetting, but also by moisture stagnation, which is expressed in the significant role of mosses in the ground cover, peaty, gley and gleyed soil horizons.

Taxonomic notes. Global databases (GBIF 2023, POWO 2024) consider this species to be a subspecies (*P. pratensis* subsp. *turfosa* (Litv.) Vorosch.). Tzvelev & Probatova (2019) synonymized it with *P. pratensis* L. indicating that perhaps this is a bog ecotype of the latter species, which on top to the above-listed distinctive features also has "panicle branches deflected downwards after flowering". Nevertheless, we support the opinion that *P. turfosa* fully corresponds to the rank of the species, since it has pronounced morphological characteristics, a clear environmental and coenotic association, as well as its own range (Rozhevits 1934b, Olonova 2016). It differs from other species of *P. pratensis* aggr. by single extravaginal renewal shoots with narrow (up to 1 mm) leaves and a "multistory" rhizome, which is adaptation to the constantly growing moss cover. In addition, *P. turfosa* is characterized by scabrous sheaths of the lower leaves and poor pubescence of lemmas as compared with *P. pratensis* s. str. (Rozhevits 1934b, Olonova 2016).

Examined specimens (new records). RUSSIA: Yamal-Nenets Autonomous Area, Nadym District, vicinity of the Nadym Town, right-bank floodplain of the Ngarka-Veloyakha River 5 m from the riverbed, 2 m above the low water level, birch-spruce forb-horsetail-shrub-graminoid floodplain forest on alluvial layered soil on gleyed fine-grained sands underlain by loams, point Nd-03-21-GO-02, 65°34'5.37"N 72°22'49.38"E, 19.8 m a.s.l., 14.07.2021, coll. D.V. Zolotov, D.V. Chernykh, R.Yu. Biryukov & N.I. Bykov (KUZ); Yamal-Nenets Autonomous Area, Nadym District, vicinity of the Nadym Town, lower near-floodplain part of the NW slope (5°) along the right bank of the Ngarka-Veloyakha River, larch-spruce-birch undershrub-horsetail forest on gley podbur on loamy deposits, point Nd-04-21-GO-03, 65°34'4.27"N 72°22'51.75"E, 39.3 m a.s.l., 14.07.2021, coll. D.V. Zolotov, D.V. Chernykh, R.Yu. Biryukov & N.I. Bykov (KUZ); Yamal-Nenets Autonomous Area, Tazovsky District, vicinity of Tazovsky township, remnant surface in the right-bank part of the of the Luky-Yakha River valley, birch-alder-larch yernik true-moss-horsetail light forest on permafrost-peaty-gley loamy soil, point Tz-04-21-GO-08, 67°10'26,68"N 78°51'36,00"E, 67.7 m a.s.l., 20.07.2021, coll. D.V. Zolotov, D.V. Chernykh, R.Yu. Biryukov & N.I. Bykov.

Potentilla hubsugulica Soják (Rosaceae)

Contributors: Alexey A. Kechaykin, Alla V. Verkhozina & Sergey G. Kazanovsky

Distribution and habitat. *Potentilla hubsugulica* is described from collections in the area of Lake Khubsugul 20 km north of the Khatgal Village (Soják 2003) and is considered endemic to Mongolia (Baasanmunkh et al. 2021). The species was recently discovered in the Ubsunur Aimag on the Kharhira-Ula ridge (Kechaykin et al. 2022). The distance between the locus classicus and the new locality in Russia is about 150 km. *Potentilla hubsugulica* lives in forb meadows and stony places in the alpine and subalpine zones.

Taxonomic notes. According to Soják (2003), *P. hubsugulica* originated from hybridization between *P. crebridens* Juz. and *P. gelida* C. A. Mey., but in appearance it is closest to *P. evestita* Th. Wolf, from which it differs in eglandulose petioles, leaflets, and sepals, as well as styles not thickened at the base. Most likely, the second parental species in this putative hybrid combination should be replaced by *P. boreoasiatica* (Jurtzev & Kamelin) Kechaykin, which replaces *P. gelida* s. str. in the narrow sense in the Arctic zone and east of Altai (Chepinoga et al. 2023). Indeed, in all known loci, *P. hubsugulica* grew near the populations of putative parent species, which confirms its hybridogenic nature. In *P. hubsugulica*, the underside leaflets are greyish and pubescent with numerous curly and curved hairs; often young leaflets are greyish-whitish below due to dense tomentose. This character clearly distinguishes this taxon from *P. boreoasiatica*, in which the leaflets are glabrous or pubescent only with a small number of straight hairs. *Potentilla hubsugulica* is also very similar in habitus to *P. khanmincznii* Keczaykin et Shmakov (Kechaykin & Shmakov 2011) described from Altai, but differs from it in a number of characters. Terminal leaflets of basal leaves in the first species with 5–8 teeth, in the second with 3–5. The leaf arrangement of *P. hubsugulica* is two-row, while that of *P. khanmincznii* is multi-row. It is possible that the second species could result from hybridization between *P. turczaninoviana* Stschegl. and *P. nivea* L.

Examined specimens (new records). RUSSIA: Republic of Buryatia, Okinsky district, Irkut River, vicinity of the Ilchir Lake, goltsovy belt, stony placer, point 13, № 899, 52°00'53"N 100°59'00"E, 2398 m a.s.l., 10.07.2008, coll. S.G. Kazanovsky 16270 (ALTB), 16269 with № 1038 (IRK00031904); Republic of Buryatia, Okinsky district, East Sayan, Kitoy Range, near the Samarta Village, on the lawn, № 198, 52°03'00"N 101°05'00"E, 12.06.2001, coll. M.G. Azovsky 562 (IRK00031906).

Potentilla thuringiaca Bernh. ex Link (Rosaceae)

Contributors: Alexey A. Kechaykin & Alexander I. Shmakov

Distribution and habitat. *Potentilla thuringiaca* is distributed in the temperate zone from France to South Siberia and was introduced in North America. It was recently discovered on the Tarbagatai and Altyn-Emel ridges and was first reported for the flora of Kazakhstan and Middle Asia. (Kechaykin et al. 2020). It is likely that the distribution area of *P. thuringiaca* in Kazakhstan is much wider. It inhabits deciduous and pine forests, mixed herb meadows from plains to subalpine.

Taxonomic notes. *Potentilla thuringiaca* is a complex, polymorphic species belonging to the section *Chrysanthae* Juz. Closest to it, growing in Kazakhstan, are *P. chrysantha* Trevir. and *P. longipes* Ledeb. It differs from the first species by 7-leafed blades (not 5-leafed). It differs from the second *P. thuringiaca* by densely pubescent petioles with hairs up to 2.5 mm long, clearly visible to the naked eye (not naked or pubescent with short bristly hairs 0.1–0.2 mm long, visible only when magnified).

Examined specimen (new record). KAZAKHSTAN: Karaganda Region, Central Kazakhstan melkosopochnik, 90 km southeast of Karaganda city, mountain Karashoky (Nurshikon), forb meadow, № 2117 [49°19'33"N 74°01'55"E], 05.06.1965, coll. V.I. Vasilevich, Z.V. Karamysheva & E.I. Rachkovskaya (LE). The specimen was identified by J. Soják in 2002.

Prunella vulgaris L. (Lamiaceae)

Contributors: Maria G. Khoreva & Olga A. Mochalova

Distribution and habitat. *Prunella vulgaris* s. l. is native to Eurasia, North Africa and North America, introduced to South America, South Africa, Australia and New Zealand (GBIF … 2023, POWO 2024). The type subspecies *P. vulgaris* subsp. *vulgaris* is also introduced to North America and East Asia, where it is replaced by vicarious subspecies. In Russia, *P. vulgaris* subsp. *vulgaris* occurs as a native in the European part and Siberia, where it grows in meadows, thickets, wet streamsides, forest margins, and along forest roads (Frizen 1997, Maevskii 2006). In the Republic of Sakha (Yakutia) *P. vulgaris* subsp. *vulgaris* is located on the northeastern border of the range (Nikolin 2020). It is an adventive species in the Russian Far East, China and Japan (Probatova & Krestovskaya 1995, Goka 2023), where other subspecies, *P. vulgaris* subsp. *asiatica* (Nakai) H. Hara (≡ *P. asiatica* Nakai) is distributed. The range of this subspecies is China, Japan, Korea, Aleutian Islands, in Russia – Primorye, Priamurye, Kamchatka, Sakhalin, Kuril islands (GBIF … 2023, POWO 2024). We collected and observed *P. vulgaris* subsp. *vulgaris* in Magadan in 2019

(Khoreva 2019, Voroshilova 2019). The location, nearest to Magadan, is in Mayskoe vicinity, Kamchatka (iNaturalist... 2024 o1), app. 700 km to the east.

We especially stress that *P. vulgaris* was not given for Chukotka in published sources (Probatova & Krestovskaya 1995, Yurtsev et al. 2010, Sekretareva 2018), but we found the occurrence (1995) in GBIF: Chukotka Peninsula, Cape Chaplino, vicinity of Chaplino Hot Springs and Lake Naivak, wet meadow along hot springs creek 30.07.1995, coll. C.L. Parker (Ickert-Bond 2023). Our new record for Chaplino Hot Springs is dated 2021 (MAG). It can be assumed that this population was overlooked by other researchers and has existed for about 30 years. The plant was not observed on the road near Lake Naivak in 2021 outside the influence of hot springs. A possible way of invasion was with transport in 1980–1990, from Provideniya seaport to the vicinity of Chaplino Hot Springs, where a recreation camp was located.

Taxonomic notes. *Prunella vulgaris* is a wide spread polymorphic taxon, it has five accepted subspecies. Two of them: alien subsp. *vulgaris* and native subsp. *asiatica*, sometimes mentioned as species (*P. vulgaris* and *P. asiatica*), occur in Russian Far East. The type species *P. vulgaris* is slender, corolla slightly exserted, ca. 1.3 cm; subsp. *asiatica* is robust; corolla much exserted, 1.8–2.1 cm, also more pubescent (stems pilose especially toward the apex) and has a large calyx (Xi-wen & Hedge 1994, Probatova 1995).

Examined specimens (new records). RUSSIA: Magadan Region, Magadan, Sovetskaya street, on the lawn, 59° 34' 3.07" N 150° 47' 49.32" E, 3.09.2019, coll. M.G. Khoreva (MAG0011288); Chukotka Autonomous Area, Providenie District, near the Chaplino thermal springs, right bank near the hot thermal sites, forb-dwarfshrubs near the thermal stream, 64°25'41.33"N 172°30'03.04"E, 3.09.2021, coll. O.A. Mochalova (MAG0011379, MAG0011380).

***Reynoutria* × *bohemica* Chrtek et Chrtková** (≡ *Fallopia* × *bohemica* (Chrtek et Chrtková) J.P. Bailey) **(Polygonaceae)**

Contributor: Elena Yu. Zykova

Distribution and habitat. *Reynoutria* × *bohemica* is a cultigen hybrid of Central European origin (Bailey et al. 1996). The secondary range of *R.* × *bohemica* presumably coincides with the range of the parent species *R. japonica* Houtt. and covers Europe, the USA, Canada, Australia, and New Zealand. In regions where the species is the object of special study, *R.* × *bohemica* is more common than *R. japonica* (Mayorov et al. 2020, Bailey 2022). In Russia, the *R.* × *bohemica* – *R. japonica* complex is distributed in the European part, singly in Siberia (Morozova 2018). *Reynoutria* × *bohemica* – mesophyte, heliophyte, reproduces vegetatively by transferring part of the rhizomes together with soil and garden debris, washed out into the wild by water flows; seed regeneration is possible in regions with a long growing season (Bailey 2022). It forms low-species communities; the growth of other species is inhibited by rhizome growth, shading, and the release of allelopathic substances (Mandak et al. 2004). It occurs in coastal and ruderal habitats, preserved as a cultural relic; there is evidence that *R.* × *bohemica* is more difficult to eradicate and has a wider range of habitats than its parent forms (Bimova et al. 2003, Bailey & Wisskirchen 2006, Richards et al. 2008). *Reynoutria* × *bohemica* is included in the top 100 most aggressive invasive species in Russia (Morozova 2018). It is active in many regions of European Russia (Vinogradova et al. 2009, 2011, Mayorov et al. 2020); the distribution of the species in Siberia is still poorly understood. There are no data for the Republic of Altai; there are observations from the Novosibirsk district of the Novosibirsk Region (iNaturalist... 2024 p1, q1).

Taxonomic notes. Hybrid of *R. japonica* Houtt. and *R. sachalinensis* (Fr. Schmidt ex Maxim.) Nakai, *R.* × *bohemica* is differentiated from parental forms by leaf shape and hairiness, with trichomes on the epidermis of the lower leaf being the best feature to distinguish *R.* × *bohemica* from its parents (Bailey et al. 1996, Bailey & Wisskirchen 2006). Species diagnosis is difficult, and for both traits, it is important that only large, fully expanded stem leaves are examined (Bailey et al. 1996, Bailey 2022). *Reynoutria sachalinensis* is characterized by leaves with a heart-shaped base, on the underside with long (often more than 2 mm) multicellular hairs; *R. japonica* leaves are bare, with a truncated or wedge-shaped base; *R.* × *bohemica* is characterized by leaves with a truncated, more rarely heart-shaped or broadly wedge-shaped base and the presence of short sharp conical hairs at least along the veins.

Examined specimens (new records). RUSSIA: Novosibirsk Region, Novosibirsk District, at the fences in the Garden Association "Niva", 54°50'28"N 83°09'15"E, 23.09.2020, coll. E.Yu. Zykova (NS0046842); Novosibirsk Region, Koltsovo City, Garden Association "Kristall", near the roads, 54°54'42"N 83°9'54"E, 17.08.2021, coll. E.Yu. Zykova (NS0046840); Novosibirsk Region, Iskitim District, vicinity of the Lebedevka Village, thickets of bushes, 54°41'9"N 83°13'0"E, 24.05.2022, coll. E.Yu. Zykova (NS0046845); Republic of Altai, Gorno-Altaisk City, Sportivny lane, wasteland, 51°57'10"N 85°57'31"E, 18.08.2017, coll. E.Yu. Zykova (NS0046841); Republic of Altai, Turochak District, Altai State Reserve, Yailyu Village, near the roads, 51°46'10"N 87°36'13"E, 20.06.2018, coll. E.Yu. Zykova (NS0046844); Republic of Altai, Turochak District, Altai State Reserve, cordon Karatash, weed on the estate, 51°46'29"N 87°22'20"E, 20.06.2018, coll. E.Yu. Zykova (NS0046843); Republic of Altai, Maima District, Alferovo Village, wasteland, 51°58'08"N 86°00'16"E, 10.08.2021, coll. E.Yu. Zykova (NS0046839).

***Rubus occidentalis* L. (Rosaceae)**

Contributor: Elena V. Ershkova

Distribution and habitat. The native range of *R. occidentalis* is in the east of North America (POWO 2024). Outside of the native range, it is widely cultivated as an ornamental and fruit plant. In Krassovskaya (2001), this species has not been mentioned for the flora of Eastern Europe. At present, *R. occidentalis* in Europe is reported outside the introduction in the Czech Republic, Germany, Slovakia, Russia, and Poland (Weber 1995, Kurtto et al. 2010, Kosiński et al. 2014, Mirek et al. 2020). In European Russia, it has been found in Belgorod, Kursk, Leningrad, Moscow, Penza, Saratov, Smolensk, Voronezh, Ulyanovsk, Yaroslavl Regions and, Chuvash Republic (Rakov et al. 2014, Firsov & Byalt 2016, Reshetnikova 2016, iNaturalist... 2024); but in Maevskii (2014), this species is mentioned only as a cultivated plant. In September 2022, *R. occidentalis* was found for the first time in the Republic of Mordovia. About an interesting ornamental shrub, we were informed by K. Tomkovich during his entomological surveys near the southern border of the National Park "Smolny" in August 2022. We have found one generative and four vegetative shrubs in the scarce pine forests near the sanatorium "Alatyr", Ichalki district of the Republic of Mordovia. The generative individual was well fruiting with well-developed, arcuately drooping first-year shoots rooting at the tops. Four vegetative individuals were arranged in 1.5 m radius around the fruiting shrub.

Taxonomic notes. *Rubus occidentalis* is highly similar to *R. leucodermis* (Douglas ex Hook.) Douglas ex Torr. et A. Gray, which has black fruits, too. Both these species together with *R. idaeus* L. belong to the subgenus *Idaeobatus* (Jennings 1988). *Rubus occidentalis* can be distinguished by trifoliate or palmately-compound leaves with white-tomentose pubescence on the abaxial part of the leaf blade; almost black glossy fruits; and the presence of arcuately drooping vegetative 1-year shoots, which extend radially from the shrub and root at tops at reaching the substrate (Kosiński et al. 2014).

Examined specimens (new record). RUSSIA: Republic of Mordovia, Ichalki District, surroundings of the sanatorium "Alatyr", 5.7 km S of the Smolny settlement, in the disturbed scarce pine forest on the slope of the Alatyr River valley, 54°44'16.8"N 45°23'02.4"E, 06.09.2022, coll. E.V. Ershkova (HMNR, GMU).

***Rubus procerus* P.J. Müll. ex Boulay (Rosaceae)**

Contributors: Elena V. Ershkova, Irina G. Esina & Anatoliy A. Khapugin

Distribution and habitat. The native range of this species is situated in Western and Central Europe (Müller et al. 2016, POWO 2024). In the European part of Russia, this species is considered an alien plant, which is not mentioned in the middle belt of European Russia (Maevskii 2014). In Eastern

Europe, Krassovskaja (2001) indicated this species in the Caucasus and Crimea (as *R. praecox* Bertol.). Bochkov (2022) has recently indicated more than 20 locations of *R. procerus* in the Moscow Region. These findings were made along the Greater Ring of the Moscow Railway. Similarly, two fruiting individuals of *R. procerus* were found on the railway bed. These plants demonstrated well-pronounced fruiting. Taking into account observation of this species along railway roads in European Russia, new records can be expected at the same habitats in the same (Moscow Region, Republic of Mordovia) and other regions. Thus, *R. procerus* is a new naturalized alien species to the Republic of Mordovia.

Taxonomic notes. There is a need for a special study to fix differences between species of the section *Discolores* P.J. Müll. (sensu Müller et al. 2016). Among similar species, there are *R. ulmifolius* Schott, *R. macrophyllus* Weihe et Nees, *R. armeniacus* Focke.

Examined specimen (new record). RUSSIA: Republic of Mordovia, Ichalki District, railway bed at 2.2 km northward of the Gulyaevo Village, 54°45'43.4"N 45°07'45.0"E, 26.07.2022, coll. E.V. Ershkova, I.G. Esina & A.A. Khapugin (HMNR, iNaturalist... 2024 r1).

Rudbeckia triloba L. (Asteraceae)

Contributors: Anatoliy A. Khapugin & Maria A. Senchugova

Distribution and habitat. The native range of this species covers the eastern part of North America (POWO 2024). *Rudbeckia triloba* has not been found outside the introduction places neither in European Russia (Protopopova 1994), nor in the Northwestern Caucasus later (Zernov 2006). In addition, this species has not been noted in the flora of the center of European Russia (Maevskii 2014). In 2022, *R. triloba* was found on the old abandoned lands among weed vegetation, 0.5 km from the nearest settlement (Zverevo, Rostov Region). About ten flowering individuals have been found in this location. A special searching survey in the settlement of Zverevo did not show that *R. triloba* is cultivated somewhere in gardens or backyards. We suppose that this is a long-living population remaining there for several years after occasional introduction. We have checked sources of Plantarium and iNaturalist regarding other possible locations of *R. triloba* in the Rostov Region. Our efforts have resulted in finding one more ResearchGrade observation of this species on the iNaturalist platform, which looks to be outside the introduction places. But it is located within an active cemetery in town of Bataysk; therefore, we cannot be sure that this is reliable evidence of its running to the wild there (iNaturalist... 2024 s1). This proposes *R. triloba* as a colonophyte species, capable to form long-living self-reproductive populations. Thus, this is a new alien species in the flora of the Rostov Region.

Taxonomic notes. In contrast to the widely cultivated species of this genus (*R. laciniata*, and *R. hirta* L.), *R. triloba* is very rarely introduced. It is easily distinguishable in contrast to the other two mentioned *Rudbeckia* species by multiple branched stem bearing a comparatively larger number of distinctly smaller heads and by deeply trilobed lower stem leaves.

Examined specimen (new record). RUSSIA: Rostov Region, Krasnyi Sulin District, 0.5 km to the east of the Zverevo Town, old abandoned land, 48°01'32.7"N 40°08'13.3"E, 05.09.2022, coll. A.A. Khapugin & M.A. Senchugova (HMNR, iNaturalist... 2024 t1,j1).

Sisymbrium altissimum L. (Brassicaceae)

Contributors: Igor V. Kuzmin & Anatoliy A. Khapugin

Distribution and habitat. *Sisymbrium altissimum* is a native species to the Mediterranean Region. It is widely naturalized throughout the world, including Europe (Western, Northern and Eastern), Asia (Afghanistan, India, Japan, Kashmir, Kazakhstan, Kyrgyzstan, Pakistan, Russia, Turkmenistan, and Uzbekistan), North America (Canada, the United States, Mexico), Australia, New Zealand, northwestern Africa, and South America (Argentina, Chile). In Russia, it is distributed in steppes, and in ruderal plant communities in the most regions of the European part, Ciscaucasia, and the south parts of Western and Eastern Siberia (GBIF... 2023). The northern border of its range in Trans-Urals passes along 54°20'N. The northernmost records in urban conditions there were made in cities of Kurgan, Shadrinsk and Petukhovo (Naumenko 2008).

We have found *S. altissimum* at four sites in the city of Tyumen. These sites are located at 170–270 km north, northeast and northwest of the cities of Kurgan, Shadrinsk and Petukhovo, respectively, and 300 km east of Yekaterinburg, where this species has been found, too (Knyazev et al. 2019). All locations have been found in the northern part of the city of Tyumen (in the so-called historical district of Zareka), along the left bank of the Tura River floodplain. Despite a considerable time between records of this species, *S. altissimum* has not disappeared from the city of Tyumen and new locations are being found. Ways of *S. altissimum* introduction to the urban flora are still unclear. There is no railroad in this part of the city of Tyumen. Probably, its introduction is associated with the construction of large residential areas, leading to movements of equipment and soils. In all locations, *S. altissimum* individuals grew on the moist open clay, recently dug up and slightly overgrown with ruderal forbs. *Sisymbrium altissimum* is a new alien species to the flora of the Tyumen Region.

Taxonomic notes. *Sisymbrium altissimum* can be well distinguished from other *Sisymbrium* species known in the Tyumen Region (*S. loeselii* L., *S. polymorphum* (Murray) Roth, *S. wolgense* M. Bieb. ex Fourn). In comparison with them, *S. altissimum* plants are glabrous in upper and middle parts; leaves are pinnately dissected; upper leaf segments are linear-lanceolate and linear. By late summer, its individuals have a large size (up to 1.5 m), and form a tumbleweed life form.

Examined specimens (new records). RUSSIA: Tyumen Region, Tyumen, 370 m east from Lake Lipovoye and 130 m east from Velizhansky tract (7th km), 57°13'24.0"N 65°38'20.6"E, 57 m a.s.l., old closed large city dump, on sand and clay on the outskirts of the landfill, 5 plants, in fruits, 07.10.2011, coll. I.V. Kuzmin & N.G. Ilminskikh; Tyumen Region, Tyumen, Malinovskogo Str., near the house with number 6, at the parking lot fence, 57°10'41.3"N 65°38'50.2"E, 58 m a.s.l., on wet clay under metal mesh fence and about adjacent garages, 28 plants, fruitful, 20.06.2012, coll. I.V. Kuzmin (on 08.06.2022, the species was not found at this point); Tyumen Region, Tyumen, microdistrict Zareka, crossroads of Poperechnaya and Beregovaya Streets, 57°09'49.1"N 65°31'37.6"E, 56 m a.s.l., ruderal habitat, on wet clay among forbs, 2 blooming plants, 12.08.2021, coll. A.A. Khapugin; northeastern shore of Lake Alebashevo, 260 m southwest of house 132 on Druzhby Street, 57°10'29.5"N 65°35'18.8"E, 54 m a.s.l., ruderal habitat, on wet clay among forbs, 4 blooming and fruiting plants, 01.06.2022, coll. I.V. Kuzmin and 4 withered plants, tumbleweed, 27.08.2022, coll. I.V. Kuzmin & A.A. Khapugin. All plant specimens are stored at the herbarium of the X-BIO Institute of Tyumen State University, doublets – in LE.

Stachys byzantina K. Koch (Lamiaceae)

Contributors: Anatoliy A. Khapugin & Maria A. Senchugova

Distribution and habitat. The native range of *S. byzantina* lies in Iran, Crimea, the North Caucasus, Transcaucasus, and Turkey (POWO 2024). As an ornamental plant, *S. byzantina* has been introduced to many countries of Northern Hemisphere. Zernov (2006) noted it in the culture only (south of the Krasnodarsky Krai). This species has not been noted outside the introduction places in the center of European Russia (Maevskii 2014), although it has been found recently in the Republic of Mordovia (Khapugin et al. 2020). In September 2022, *S. byzantina* was found on the old abandoned field and along a dirt road 0.5 km from the nearest settlement (Zverevo, Rostov Region). Five blooming and about 130–150 vegetative individuals have been found in this location. We noticed the active vegetative reproduction of this species and its spread from this location. Old flowering stems have been found at the site. We suppose that this is a long-living population remaining there for several years after occasional introduction. We have checked Plantarium and iNaturalist for other possible findings of S. byzantina in the Rostov Region outside the cultivation sites, but no data were found. Thus, *S. byzantina* is a colonophyte species, that can form long-living and self-reproductive populations. It is a new alien species in the flora of the Rostov Region.

Taxonomic notes. It differs from the similar species *Stachys germanica* L. in having a wedge-shaped base of all leaves, while the lower leaves of *S. germanica* has lower leaves have a heart-shaped base (Maevskii 2014).

Examined specimen (new record). RUSSIA: Rostov Region, Krasnyi Sulin District, 0.5 km east of the Zverevo town, side of dirt road at the old abandoned land, 48°01'29.2"N 40°08'10.0"E, 05.09.2022, coll. A.A. Khapugin & M.A. Senchugova (HMNR, iNaturalist... 2024 u1,v1,k1,l1.

Thymus dimorphus Klokov et Des.-Shost. (Lamiaceae)

Contributors: Vladimir M. Vasjukov & Victoria V. Bondareva

Distribution and habitat. *Thymus dimorphus* is a species of the steppe zone of the Central Russian Upland and the Black Sea region from the Dnestr River to the foothills of the Caucasus (European Russia and Ukraine) (LE, MW, Klokov 1973). The species is reported for the first time for the Volgograd Region. It grows in stony steppes, on the outcrops of various rocks, especially crystalline ones.

Taxonomic notes. *Thymus dimorphus* belongs to the section *Verticillati* (Klokov & Des.-Shost.) Klokov and differs from the widely distributed *T. marschallianus* Willd. (forest-steppe and steppe zones of Eastern Europe and Western Asia from the Southern Bug to the Irtysh) with creeping, decumbent or slope ascending stems, the leaves with a well-developed, short petiole and larger cups during flowering (3–5 mm long).

Examined specimens (new records). RUSSIA: Volgograd Region, the plants of the Volga-Ilovlinsky interfluve, calcareous outcrops in km northeast of the Shchepkin farm of the Gorno-Baltaysky district [Olkhovsky District] [49°44'52"N 44°57'42"E], 12.06.1949, coll. P.P. Zhudova (MW0495779); [Volgograd Region, Kalachevsky District], upper reaches of the Golubaya River, clay semidesert on the eastern slope [49°03'52"N 43°2841"E], 14.06.1939, coll. P. Smirnow (MW0495780); [Volgograd Region, Kalachevsky District], upper reaches of the Golubaya River, white-sagebrush semidesert on the eastern slope [49°03'42"N 43°30'32"E], 20.06.1939, coll. P. Smirnow (MW0495781).

Thymus kondratjukii Ostapko (Lamiaceae)

Contributors: Vladimir A. Agafonov & Vladimir M. Vasjukov

Distribution and habitat. *Thymus kondratjukii* was described by V.M. Ostapko (1987) from the Melovoi Yar near the Nature Reserve «Streletskaya steppe» in the Lugansk People's Republic. It is an endemic to the south of the Central Russian Upland and is found in the south of European Russia in the Don River basin: Volgograd Region (along the Khoper River), Donetsk and Lugansk People's Republics (Severskiy Donets River basin), Rostov Region and, in addition, is known near the city of Izyum, Kharkov Region (LE, MW, Ostapko 1987, 2005). The species is reported for the first time for the Voronezh Region. It grows on chalk outcrops.

Taxonomic notes. *Thymus kondratjukii* belongs to the section *Subbracteati* (Klokov & Des.-Shost.) Klokov. From a close species *Th. cretaceus* Klokov et Des.-Shost. differs mainly by the presence of hairs along the edges of the teeth of the calyx's upper lip, as well as by more or less grayish, more elongated leaf blades on longer petioles, with larger glands.

Examined specimen (new record). RUSSIA: Voronezh Region, Podgorensky district, chalk slope between the Upper Karabut and Kolodezhnoye Villages 50°36'1"N 39°52'35"E, 19.09.2021, coll. V.A. Agafonov, V.V. Negrobov & B.I. Kuznetsov (VOR).

Tripleurospermum elongatum (Fisch. et C.A. Mey.) Bornm. (Asteraceae)

Contributors: Aleksandr A. Korobkov & Denis A. Krivenko

Distribution and habitat. *Tripleurospermum elongatum* is a West and Central Caucasian, as well as Southwest Asian (Turkey) rocky and scree high-mountain species (Chandjan 2008). Previously, this species was not known in the Kabardino-Balkarian Republic (Shkhagapsoev 2015), however, it occurs in the neighboring Karachay-Cherkess Republic (Zernov et al. 2015).

Taxonomic notes. *T. elongatum* is the type species of the section *Chionogheton* (Pobed.) Chandjian. This section combines plants with simple or branched stems, with small ligulate pseudanthiums with white petals, with green involucral bracts along the back, and with a narrow brown membranous margin. *T. elongatum* differs from the closely related and more widespread South European, Caucasian, and Southwest Asian species *T. caucasicum* (Willd.) Hayek (Chandjan 2008) by its light membranous border of the interior involucral bracts of the involucre up to 0.3 mm wide vs. the dark, often almost black, membranous border of the interior involucral bracts of the involucre, at least 1 mm in *T. caucasicum* (Zernov et al. 2015).

Examined specimens (new record). RUSSIA: Kabardino-Balkaria Republic, Elbrussky District, Greater Caucasus, Bokovoi Ridge, foot of El'brus Mt., Polyana Azau settlement, 2380 m, sandy-pebbly deposits, 43°16'10"N 42°28'47"E, 7.08.2019, coll. D.A. Krivenko 62874 (IRK), 54478 (LE).

Vitis amurensis Rupr. (Vitaceae)

Contributors: Anatoliy A. Khapugin & Irina G. Esina

Distribution and habitat. The native area of this species is in the Russian Far East to Eastern China, Korea, and Japan (Vasilchenko 1996, POWO 2024), but it is distributed worldwide as an alien species cultivated as an ornamental plant. In European Russia, this species is naturalized in two administrative regions (Morozova 2014), including the Voronezh Region (Starodubtseva et al. 2017), although it is still not being noted in Maevskii (2014) as a plant naturalized in any regions. In the Mordovia State Nature Reserve, *V. amurensis* was introduced in the woody plant nursery in the 1940s (Dmitriev et al. 2023), but it was not found there in recent years (Vargot et al. 2016). Nevertheless, a special investigation of pine forests at 100–150 m far of the former woody plant nursery has resulted in finding the long-lived population of *V. amurensis* escaped in the wild by forming dense thickets in the pine forest. *Vitis amurensis* is a new alien species for the Republic of Mordovia (Silaeva et al. 2010), naturalized more than 80 years after its introduction (1940–2022).

Taxonomic notes. *Vitis amurensis* can be distinguished from the other vine species widely cultivated in Russia by broadly oval leaves, which are unlobed or 3(5)-lobed, abaxially glabrous or sparsely pilose; their basal sinuses are rounded; leaf margin is shallowly toothed.

Examined specimens (new record). RUSSIA: Republic of Mordovia, Temnikov District, pine forest at 150 m southward of the former woody plant nursery in the quarter 445 of the Mordovia State Nature Reserve, 54°43'15.8"N 43°12'21.0"E, 02.08.2022, coll. I.G. Esina & A.A. Khapugin (HMNR, Inaturalist... 2024 w1).

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