

Additions to the vascular flora of the Tyumen region, Western Siberia

Olga A. Kapitonova¹

¹ *Tobolsk complex scientific station of the Ural branch of the Russian Academy of Sciences, 626152, Russia, Tyumen Region, Tobolsk, 15 Academic Yu. Osipov St*

Corresponding author: Olga A. Kapitonova (e-mail: kapoa.tkns@gmail.com)

Academic editor: R. Yakovlev | Received 1 July 2020 | Accepted 15 July 2020 | Published 5 October 2020

<http://zoobank.org/9FF763A6-E92E-47F5-A081-FB6648E1AE7A>

Citation: Kapitonova OA (2020) Additions to the vascular flora of the Tyumen region, Western Siberia. *Acta Biologica Sibirica* 6: 339–355. <https://doi.org/10.3897/abs.6.e52696>

Abstract

The article contains information on five species and three hybrids (*Potamogeton* × *acutus*, *Potamogeton* × *pseudolacunatus*, *Stuckenia chakassiensis* × *S. macrocarpa*) of vascular plants new to the Tyumen Region; seven of them are hydrophyte and one is a semi-aquatic species. We provided the occurrence data on 37 plant species not previously known in examined administrative districts of the Tyumen region, including four protected (*Cypripedium macranthos*, *Pedicularis dasystachys*, *Ranunculus silvestripaceus*, *Zannichellia repens*) and four alien species (*Elodea canadensis*, *Galega orientalis*, *Impatiens glandulifera*, *Phragmites altissimus*).

Keywords

Alien plants, aquatic plants, floristic records, protected species

Introduction

Botanical studies conducted annually in the Tyumen region provided new information on the floristic richness of this territory. This article is a serial continuation of author floristic publications, based on botanical research from Tyumen region, Russia. We provided data on species and hybrids of vascular plants new to the region

and not listed in the "Determinant of the Vascular Plants of the Tyumen Region" (Glazunov et al. 2017). In addition, we provide information on rare plant species locations in studied administrative districts, where they were not previously known (Glazunov et al. 2017), including protected (Yakushev VV 2017) and alien species in the Tyumen region.

Material and methods

This research is based on author data obtained during the field work in vegetation periods of 2015–2019 and study of herbarium specimens stored in the Tobolsk complex scientific station of the Ural branch of the Russian Academy of Sciences (TCSS UB RAS, Tobolsk). In addition, we examined more than 140 herbarium sheets on Potamogetonaceae family from the private herbarium of I.V. Kuzmin (Tyumen State University, Tyumen). The author collected and identified the herbarium specimens cited in the article; otherwise, the name of the collector was indicated. We follow S.K. Cherepanov (1995) for the taxonomy and plant names. For some taxa (Potamogeton and Stuckenia) the modern processing was taken into account (Papchenkov 2001; Kaplan 2008), the brief comments were also provided for some species. We presented the locations of cited species and hybrids new to the Tyumen region, as well as protected and alien species (Fig. 1).

The herbarium specimens cited in this article are stored in the herbarium of the TCSS UB RAS. Some of the doublet samples were transferred to the herbarium of the Papanin Institute for Biology of Inland Waters RAS (IBIW), as was indicated in the label citation.

Results and discussion

The annotated records of new species and hybrids for the Tyumen region are given below:

Potamogetonaceae

Potamogeton × *acutus* (Fisch.) Papch.

Material examined. RUSSIA, Tyumen Reg. – **Tobolsk distr.** • 9.5 km E of Tobolsk, E of the "Tobolsk-Polymer" site; 58.2372°N, 68.4692°E; water channel, depth approx. 0.8 m; 17 Jul. 2019 (Fig. 1).

Note. This is a hybrid between *Potamogeton berchtoldii* Fieb. and *P. pusillus* L. (Papchenkov 2001, 2007).

Potamogeton lacunatus Hagstr.

Material examined. RUSSIA, Tyumen Reg. – **Tobolsk distr.** • 2.75 km NE of the microdistrict Mendeleevo (city of Tobolsk), site “Chistoe boloto”, sandy quarry in 1.8 km E of Uvat tract; 58.3129°N, 68.3699°E; watered excavation; 1 Jul. 2019; IBIW. • southern outskirts of the village Baigara; 58.0266°N, 68.8422°E; lake on the right bank of the Irtysh River, shallow water near the shore, tightly; 3 Jul. 2019; IBIW (Fig. 1).

Note. The species differs from *Potamogeton berchtoldii* Fieb. by its spatulate upper leaves and a wide strip of lacunae, occupying the entire space between the central and lateral veins (Papchenkov 2001, 2007). For the Asian part of Russia, the species was not previously recorded (Durnikin 2012).

Potamogeton × *pseudolacunatus* Papch.

Material examined. RUSSIA, Tyumen Reg. – **Tyumen.** • next to the intersection of street of “50 years of the VLKSM” and passage “Geologorazvedchikov”; 57.1305°N, 65.5715°E; Pond ‘Utinyi’ (the pond between school No 6 and railway); 12 Jul. 1994; I.V. Kuzmin leg. (Fig. 1).



Figure 1. The locations of the species cited in the article. The numbers in circles denote the locations of the following species: **1** – *Potamogeton* × *acutus*, *Potamogeton tenuifolius*, *Utricularia ochroleuca*; **2** – *Potamogeton lacunatus*; **3** – *Potamogeton lacunatus*, *Utricularia australis*; **4** – *Potamogeton* × *pseudolacunatus*; **5** – *Stellaria fennica*, *Utricularia australis*; **6** – *Cypripedium macranthos*; **7** – *Pedicularis dasystachys*, *Ranunculus silvisteppaceus*; **8** – *Stuckenia chakassiensis* × *S. macrocarpa*, *Elodea canadensis*, *Zannichellia repens*; **9** – *Impatiens glandulifera*, *Phragmites altissimus*; **10** – *Phragmites altissimus*; **11** – *Galega orientalis*.

Note. This is an hybrid between *Potamogeton lacunatus* Hagstr. and *P. pusillus* L. (Papchenkov 2001, 2007).

***Potamogeton tenuifolius* Raffin.**

Material examined. RUSSIA, Tyumen Reg. – **Tobolsk distr.** • 9.5 km E of Tobolsk, E of the “Tobolsk-Polymer” site; 58.2200°N, 68.4718°E; channel along the railway, in front of the dam, shallow water; 19 Jul. 2019 (Fig. 1).

Note. This species differs from closely related *Potamogeton alpinus* Balb. by its smaller and narrower leaves (Papchenkov 2007).

***Stuckenia chakassiensis* (Kaschina) Klinkova × *S. macrocarpa* (Dobroch.) Tzvel.**

Material examined. RUSSIA, Tyumen Reg. – **Armizonsky distr.** • 3.2 km E of village Poloe; 55.7418°N, 67.8280°E; Lake Sen'kovo, sandy-silty shallow water on the south shore; salinity of the water is 2.8 g/l; 30 Jul. 2019; IBIW (Fig. 1).

Note. This hybrid has intermediate characteristics between the parent species: the fruits are smaller than those of *S. macrocarpa*, and not all ovaries develop into fruits; there are subepidermal bunds of mechanical tissue in the leaves, as in *S. chakassiensis* (Klinkova 2006; Kipriyanova and Bobrov 2016), but in lower numbers. The hybrid has also long peduncles – up to 23 cm in length (Fig. 2, A, B).

***Potamogeton alpinus* Balb.**

Material examined. RUSSIA, Tyumen Reg. – **Sladkovsky distr.** • Pobeda; 55.6870°N, 70.2949°E; Lake “Mogil'noe”, shallow coastal water; 11 Aug. 2016. – **Vagai distr.** • 2.8 km N-NE of Kobyakskaya; 58.0656°N, 68.9463°E; upper of the Kobyak River, in the watercourse; 25 Jun. 2019.

***Potamogeton friesii* Rupr.**

Material examined. RUSSIA, Tyumen Reg. – **Yarkovo distr.** • Lake Petigul'; 57.3903°N, 67.4678°E; shallow coastal water; 19 Jun. 2019; V.I. Kapitonov leg. – **Tobolsk distr.** • 450 m S of Bajgara; 58.0236°N, 68.8440°E; lake in the floodplain of the right coast of Irtysh River, shallow coastal water; 3 Jul. 2019. • 9.5 km E of Tobolsk; E of the “Tobolsk-Polymer” site; 58.2200°N, 68.4718°E; channel along the railway, in front of the dam, shallow water; 19 Jul. 2019.

Potamogeton lucens L.

Material examined. RUSSIA, Tyumen Reg. – **Armizonsky distr.** • 1.4 km E of Poloe; 55.7436°N, 67.7998°E; Lake Suponnoe, shallow water off the southeast shore; salinity of the water is 0.3 g/l; 30 Jul. 2019.

Potamogeton praelongus Wulf.

Material examined. RUSSIA, Tyumen Reg. – **Yurginsky distr.** • neighbourhood of Severo-Pletnyovo; 56.0445°N, 68.0960°E; northeastern shore of Lake Dubrovnoye, shallow water off the shore of lake; 17 Aug. 2008; I.V. Kuzmin leg.

Potamogeton rutilus Wolfg.

Material examined. RUSSIA, Tyumen Reg. – **Armizonsky distr.** • 3.4 km SW of Zhiryakovo; 55.8015°N, 67.4475°E; Lake Chernoe, shallow water off the shore; 31 Jul. 2019.

Potamogeton trichoides Cham. et Schlecht.

Material examined. RUSSIA, Tyumen Reg. – **Tobolsk distr.** • Savina; 58.2099°N, 68.2162°E; lake on the left coast floodplain of Irtysh River, shallow water off the shore; 21 Jul. 2018 • Savina; 58.2148°N, 68.2150°E; left coast floodplain of Irtysh

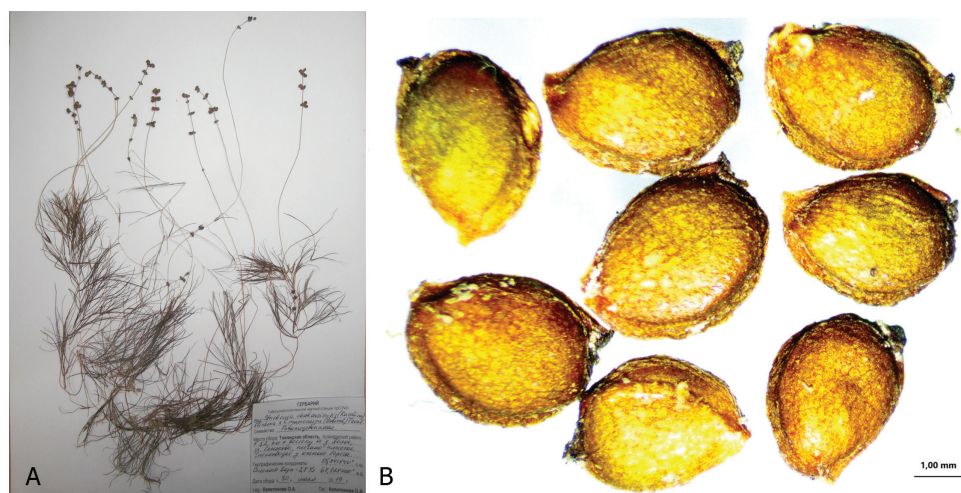


Figure 2. *Stuckenia chakassiensis* (Kaschina) Klinkova × *S. macrocarpa* (Dobroch.) Tzvel. **A** – Herbarium specimen from cited locality, **B** – fruits. Photo by author.

River, lake on the northern outskirts of the village, shallow water; 21 Jul. 2018 • 450 m S of Bajgara; 58.0236°N, 68.8440°E; lake in the floodplain of the right coast of Irtysh River, shallow coastal water; 3 Jul. 2019 • 9,5 km E of Tobolsk, E of the “Tobolsk-Polymer” site; 58.2200°N, 68.4718°E; channel along the railway, in front of the dam, shallow water; 19 Jul. 2019 • Tobolsk, microdistrict “Levoberezh'e”; 58.2313°N, 68.2133°E; left-coast floodplain of Irtysh River, Like “Bol'shoe Dikoe”, shallow water off the west shore, opposite house No 88; 25 Jul. 2019 • Tobolsk, microdistrict “Levoberezh'e”; 58.2110°N, 68.2265°E; left-coast floodplain of Irtysh River, the like, overgrown shallow water off the shore; 25 Jul. 2019.

Zannichellia repens Boenn.

Material examined. RUSSIA, Tyumen Reg. – **Armizonsky distr.** • 1.4 km E of Poloe; 55.7436°N, 67.7998°E; Lake Suponnoe, shallow water off the SE shore; salinity of the water is 0.3 g/l; 30 Jul. 2019 (Fig. 1).

The species is protected in the Tyumen Region (Yakushev VV 2017). In recent years, *Z. repens* is apparently expanding its area to the north and was recently found in the territory of Tobolsk (Kapitonova 2018).

Caryophyllaceae

Stellaria fennica (Murb.) Perf.

Material examined. RUSSIA, Tyumen Reg. – **Tobolsk** • microdistrict “Levoberezh'e”; 58.2193°N, 68.2146°E; left-coast floodplain of the Irtysh River, Like “Bol'shoe Dikoe”, floating mat off the west shore, edge of the floating mat; 25 Jul. 2019 (Fig. 1).

Note. This species differs from the closely related *Stellaria palustris* Retz. by its narrow green leaves, shorter sepals and petals and the presence of small acute tubercles in the lower part of the stem (Tzvelev 2000, 2004).

Spergularia salina J. et C. Presl.

Material examined. RUSSIA, Tyumen Reg. – **Armizonsky distr.** • 4 km NW of Yuzhno-Dubrovnoe; 55.7963°N, 67.6230°E; Lake Chernoe, sandy shore, salinity of the water is 3.5 g/l; 31 Jul. 2019.

Lentibulariaceae

Utricularia australis R. Br.

Material examined. RUSSIA, Tyumen Reg. – **Tobolsk distr.** • neighbourhood of Suzgun station; 58.2228°N, 68.1915°E; left coast of the floodplain of the Irtysh River,



Figure 3. *Utricularia australis* R. Br. Tobolsk distr., 400 m S of village Bajgara, lake in the floodplain of the Irtysh River, 3 Jul. 2019. Photo by author.

in a lake with shallow water; 21 Jul. 2018; V.I. Kapitonov leg. • 400 m S of village Bajgara; 58.0236°N, 68.8440°E; lake in the floodplain of the Irtysh River with shallow water on the east shore; 3 Jul. 2019. • 300 m S of village Bajgara; 58.0246°N, 68.8442°E; lake at the right bank of the Irtysh River, shallow water off the shore; 3 Jul. 2019 (Fig. 1).

Note. There are three specimens with flowers. This species differs well from its closely related *Utricularia vulgaris* L. based on the following characters: corolla with lower lip flat and spreading margins, palate without hairs (Taylor 1989) and some additional characters such as, the long straight pedicels, slightly deflected from the peduncle, being three or more times longer than the bracts, free anthers not intergrown with each other, and the curved S-shaped stem (Tzvelev 2000; Lisitsyna et al. 2009) (Fig. 3). This species is characterized by some environmental preferences. So, it was revealed that *U. australis* grows in warm (~ 26 °C), alkaline (pH 8.3 median value) and shallow (< 20 cm) waters (Ceschin et al. 2020). The examined species grows in the European part of Russia (Tzvelev 2000; Lisitsyna et al. 2009), including those specimens found in the southern regions (Astrakhan region) (Kapitonova et al. 2011) and in the Vyatka-Kama Cis-Urals (Kapitonova 2015). For Western Siberia, the species was not previously recorded (Lisitsyna and Papchenkov 2000; Doron'kin 2012).

Utricularia ochroleuca R. Hartm.

Material examined. RUSSIA, Tyumen Reg. – **Tobolsk distr.** • 9.5 km E of Tobolsk, E of the “Tobolsk-Polymer” site; 58.2302°N, 68.4745°E; reservoir off the dam, covered with plants shallow water off the shore; 19 Jul. 2019 (Fig. 1).

Note. There is one specimen without flowers. This species differs from the closely related *Utricularia intermedia* Hayne by the presence of single vesicles on green photosynthetic leaves and by the pointed segments of green leaves (Taylor 1989; Lisitsyna and Papchenkov 2000). For Western Siberia, the species was not previously recorded (Lisitsyna and Papchenkov 2000; Doron'kin 2012).

New records of some rare species have been documented in areas that were not previously known to occur within the studied administrative districts of Tyumen region (Glazunov et al. 2017).

Amaranthaceae

Atriplex patens (Litv.) Iljin

Material examined. RUSSIA, Tyumen Reg. – **Kazan distr.** • 4.25 km W-NW of Novoaleksandrovka; 55.4013°N, 68.7843°E; east coast of the Lake Siverga, coastal salt marshes; 4 Jun. 2019.

Poaceae

Beckmannia syzigachne (Steud.) Fern.

Material examined. RUSSIA, Tyumen Reg. – **Tobolsk distr.** • 7 km E of the station Denisovka; puddle by the road; 17 Sept. 2015 • neighbourhood of Tobolsk; north of the industrial area, puddle on the side of the road; 28 Sept. 2015 • neighbourhood of Tobolsk; site “Chistoe boloto”, causeway, puddle; 29 Sept. 2015 • 0.5 km SW of Klepalova; 58.3047°N, 68.4498°E; puddle on a forest road; 21 Jun. 2016 • Tobolsk; “Nizhnij Posad”, Bazarnaya Square, puddle on the side of the road; tightly; 5 Jul. 2016.

Cyperaceae

Bolboschoenus maritimus (L.) Palla

Material examined. RUSSIA, Tyumen Reg. – **Tobolsk distr.** • Tobolsk; “Nizhnij Posad”, Bazarnaya Square, puddle on the side of the road; tightly; 5 Jul. 2016. – **Abatsky distr.** • 2.8 km SW of Lapina; 56.2615°N, 70.5392°E; wet brackish meadow on the side of the road; 12 Aug. 2016.

Campanulaceae

Campanula bononiensis L.

Material examined. RUSSIA, Tyumen Reg. – **Armizonsky distr.** • 3.5 km SW of Armizonskoe; 55.9155°N, 67.7337°E; southwest coast of Lake Chashchino; sparse birch forest; 29 Jul. 2019.

Campanula sibirica L.

Material examined. RUSSIA, Tyumen Reg. – **Vagai distr.** • 2.2 km E-NE of Begishevo; 58.0492°N, 69.1366°E; slope of the right shore of Irtysh River, southern exposure; 27 Jun. 2019.

Brassicaceae

Cardamine dentata Schult.

Material examined. RUSSIA, Tyumen Reg. – **Vagai distr.** • 0.5 km N-NW of Doronona; 58.0271°N, 69.2825°E; right-coast floodplain of Irtysh River, Like Baikal; shallow water off the west shore, in sedge thickets; 27 Jun. 2019.

Thellungiella salsuginea (Pall.) O.E. Schulz

Material examined. RUSSIA, Tyumen Reg. – **Kazan distr.** • 4.2 km W-NW of Novoaleksandrovka; 55.4013°N, 68.7843°E; east coast of Lake Siverga, brackish meadow; 4 Jun. 2019.

Papaveraceae

Corydalis capnoides (L.) Pers.

Material examined. RUSSIA, Tyumen Reg. – **Vagai distr.** • spruce-fir forest near the settlement Inzhura; 16 Aug. 2008, B.S. Charitontsev leg.

Convolvulaceae

Cuscuta lupuliformis Krock.

Material examined. RUSSIA, Tyumen Reg. – **Armizonsky distr.** • 3.9 km E-NE of Poloe; 55.7577°N, 67.8342°E; birch forest on the west coast of Lake “Bol'shoe Beloe”; on the *Urtica*, *Rosa*, *Filipendula*; 30 Jul. 2019.

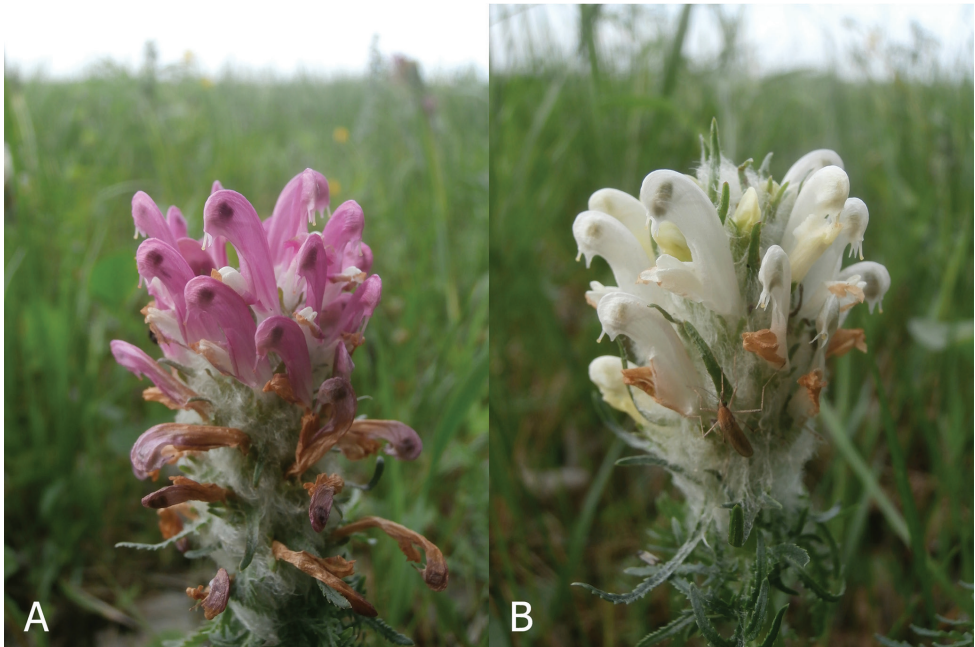


Figure 4. *Pedicularis dasystachys* Schrenk. Kazan distr., 4.1 km NW of Novoaleksandrovka, east coast of the Siverga Lake, steppe brackish meadow, 4 Jun. 2019. **A** – plant with typical flowers; **B** – white-flowered plant form. Photo by author.

Orchidaceae

Cypripedium macranthos Sw.

Material examined. RUSSIA, Tyumen Reg. – **Vagai distr.** • 2.3 km NE of Kobyakskaya; 58.0589°N, 68.9506°E; swampy buckbean-grassy birch forest; 25 Jun. 2019 (Fig. 1).

Note. The species is protected in the Tyumen Region (Yakushev VV 2017).

Cyperaceae

Eleocharis uniglumis (Link) Schult.

Material examined. RUSSIA, Tyumen Reg. – **Ishim distr.** • 400 m NW of Lariha; 55.8706°N, 68.3212°E; duct Ruchej (lake in the floodplain of Ishim River); marshy shore; 3 Jun. 2019.

Hydrocharitaceae

Elodea canadensis Michx.

Material examined. RUSSIA, Tyumen Reg. – **Armizonsky distr.** • 1.4 km E of Poloe; 55.7436°N, 67.7998°E; Lake Suponnoe, shallow water off the southeast shore; salinity of the water is 0.3 g/l; 30 Jul. 2019 (Fig. 1).

Note. A new location of this alien species in the territory of the Tyumen Region.

Rosaceae

Filipendula stepposa Juz.

Material examined. RUSSIA, Tyumen Reg. – **Vagai distr.** • 700 m W-SW of Doronina; 58.0206°N, 69.2740°E; right-coast floodplain of Irtysh River, Lake Suhoe, high shore, willow bushes; 27 Jun. 2019.

Potentilla goldbachii Rupr.

Material examined. RUSSIA, Tyumen Reg. – **Kazan distr.** • 3.8 km NW of Novoaleksandrovka; 55.4008°N, 68.7892°E; east coast of Lake Siverga, steppe brackish meadow; 4 Jun. 2019.

Fabaceae

Galega orientalis Lam.

Material examined. RUSSIA, Tyumen Reg. – **Vagai distr.** • neighbourhood of village Kas'yanova; 58.0181°N, 69.1345°E; left-coast floodplain of the Irtysh River, fallow on the manes between the lakes; 20 Jun. 2019; V.I. Kapitonov leg. (Fig. 1).

Note. A new location of this alien species in the territory of the Tyumen Region.

Melilotus dentatus (Waldst. et Kit.) Pers.

Material examined. RUSSIA, Tyumen Reg. – **Armizonsky distr.** • 4.3 km NE of Poloe; 55.7618°N, 67.8373°E; west shore of the Lake “Bol'shoe Beloe”, brackish meadow; 30 Jul. 2019.



Figure 5. *Ranunculus silvestepaceus* Dubovik from cited location. Photo by author.

Rubiaceae

Galium boreale L. s.l.

Material examined. RUSSIA, Tyumen Reg. – **Tobolsk distr.** • 10.5 km E of Tobolsk; E of the site “Tobolsk-Polymer”; 58.2323°N, 68.4866°E; waterlogged coniferous-small-leaved forest; 17 Jul. 2019.

Poaceae

Hierochloa arctica C. Presl

Material examined. RUSSIA, Tyumen Reg. – **Vagai distr.** • 1.5 km NE of Kobayakaya; 58.0531°N, 68.9458°E; wet meadow off the marge of the swampy birch forest; 25 Jun. 2019.

Phragmites altissimus (Benth.) Mabilie

Material examined. RUSSIA, Tyumen Reg. – **Ishim distr.** • 400 m NW of Lariha; 55.8706°N, 68.3212°E; duct Ruchej (lake in the floodplain of the Ishim River), shallow coastal waters; 3 Jun. 2019. – **Armizonsky distr.** • Zhiryakovo; 55.8202°N, 67.4970°E; Lake Kanovo, shallow water off the south shore; salinity of the water is 3.1 g/l; 1 Aug. 2019 (Fig. 1).

Note. The species is alien in the territory of Western Siberia.

Balsaminaceae

Impatiens glandulifera Royle

Material examined. RUSSIA, Tyumen Reg. – **Armizonsky distr.** • Zhiryakovo; 55.8202°N, 67.4970°E; wet roadside, descent to the Lake Kanovo; 1 Aug. 2019 (Fig. 1).

Note. This is a new location of this alien species in the territory of the Tyumen Region.

Orobanchaceae

Pedicularis dasystachys Schrenk

Material examined. RUSSIA, Tyumen Reg. – **Kazan distr.** • 6 km SE of Novoaleksandrovka; 55.3531 N, 68.9319 E; northwestern coast of the Lake Akush, brackish meadow in the floodplain of the lake; 4 Jun. 2019 • 4.1 km NW of Novoaleksandrovka; 55.4013°N, 68.7843°E; east coast of the Lake Siverga, steppe brackish meadow; 4 Jun. 2019 (Fig. 1).

Note. The species is protected in the Tyumen Region (Yakushev VV 2017). In the cited localities, plants with both the typical pink-flowered form and the less common white-flowered form of the plant are found (fig. 4).

Plantaginaceae

Plantago cornuti Gouan

Material examined. RUSSIA, Tyumen Reg. – **Kazan distr.** • 3.8 km W-NW of Novoaleksandrovka; 55.4008°N, 68.7892°E; east coast of the Lake Siverga, steppe brackish meadow; 4 Jun. 2019.

Plantago intermedia DC.

Material examined. RUSSIA, Tyumen Reg. – **Armizonsky distr.** • 4.3 km NE of Poloe; 55.7618°N, 67.8373°E; west shore of the Lake “Bol'shoye Beloe”, brackish meadow; 30 Jul. 2019.

Veronica teucrium L.

Material examined. RUSSIA, Tyumen Reg. – **Kazan distr.** • 5 km W of Novoaleksandrovka; 55.3912°N, 68.7681°E; east coast of Lake Siverga, steppe brackish meadow; 4 Jun. 2019.

Ranunculaceae

Ranunculus silviteppaceus Dubovik

Material examined. RUSSIA, Tyumen Reg. – **Kazan distr.** • 5 km W of Novoaleksandrovka; 55.3912°N, 68.7681°E; east coast of Lake Siverga, steppe brackish meadow; 4 Jun. 2019 (Fig. 1, 5).

Note. The species is protected in the Tyumen Region (Yakushev VV 2017). This is the second location of the species in the region (Glazunov et al. 2017).

Polygonaceae

Rumex stenophyllus Ledeb.

Material examined. RUSSIA, Tyumen Reg. – **Armizonsky distr.** • 6.4 km W-NW of Yuzhno-Dubrovnoe; 55.7891°N, 67.5832°E; Lake Chernoe, in water off the shore; salinity of the water is 2.5 g/l; 31 Jul. 2019.

Asteraceae

Senecio erucifolius L.

Material examined. RUSSIA, Tyumen Reg. – **Armizonsky distr.** • 9.2 km E-SE of Yuzhno-Dubrovnoe; 55.7618°N, 67.8373°E; west coast of Lake “Bol'shoe Beloe”, nature reserve “Beloozerskij”, steppe brackish meadow; 30 Jul. 2019.

Apiaceae

Seseli strictum Ledeb.

Material examined. RUSSIA, Tyumen Reg. – **Armizonsky distr.** • 1.8 km SE of Dan'kova; 55.8483°N, 67.8216°E; western shore of Lake Dan'kovo, pasture meadow; 30 July 2019 • 4.3 km NE of Poloe; 55.7618°N, 67.8373°E; at the western border of the Beloozerskij state nature reserve, brackish meadow; 30 Jul. 2019.

Juncaginaceae

Triglochin palustris L.

Material examined. RUSSIA, Tyumen Reg. – **Vagai distr.** • 1.5 km NE of Kob'yakskaya; 58.0531°N, 68.9458°E; wet meadow off the marge of the swampy birch forest; 25 Jun. 2019.

Conclusion

We revealed five species and three hybrids of vascular plants new to the Tyumen region. Seven taxa are hydrophytes and one species is a semi-aquatic plant. Our study also provides data on 37 plant species occurrence in the administrative districts of the Tyumen region, where they were not previously known. This list includes four regional protected species (*Cypripedium macranthos*, *Pedicularis dasystachys*, *Ranunculus silvisteppaceus*, *Zannichellia repens*) and four alien species (*Elodea canadensis*, *Galega orientalis*, *Impatiens glandulifera* and *Phragmites altissimus*).

Acknowledgements

Author would like to thank L.M. Kipriyanova (Institute for Water and Environmental Problems Siberian Branch Russian Academy of Science, Barnaul) for discussing the morphological features of genus *Stuckenia* species, and I.V. Kuzmin (Tyumen State University, Tyumen) for providing an opportunity to work with his herbarium.

The work was performed within the framework of the State Fundamental Scientific Research AAAA-A19-119011190112-5.

References

- Ceschin S, Bellini A, Traversetti L, Zuccarello V, Ellwood NTW (2020) Ecological study of the aquatic carnivorous plant *Utricularia australis* R.Br. (Lentibulariaceae). *Aquat. Ecol.* 54: 295–307. <https://doi.org/10.1007/s10452-019-09743-y>
- Cherepanov SK (1995) Vascular plants of Russia and Neighboring Countries (within the former USSR). Peace and family, St.-Petersburg, 992 pp.
- Doron'kin VM (2012) Family of Lentibulariaceae Rich. In: Baikov KS (Ed.) Synopsis of the flora of Asian Russia: vascular plants. Publishing house of the SB RAS, Novosibirsk, 412–413.
- Durnikin DA (2012) Family of Potamogetonaceae Bercht. et J. Presl. In: Baikov KS (Ed.) Synopsis of the flora of Asian Russia: vascular plants. Publishing house of the SB RAS, Novosibirsk, 434–436.
- Glazunov VA, Naumenko NI, Khozyainova NV (2017) Determinant of vascular plants of the Tyumen region. RG Prospect, Tyumen, 744 pp.
- Kapitonova OA, Sorokin AN, Krutskikh EV, Ivanova AV (2011) The materials for studying of aquatic macrophytes flora of Western Substeppe Ilmens. *Bulletin of the Volga University named after V.N. Tatishchev, Ecology Series* 12: 137–143.
- Kapitonova OA (2015) Synopsis of macrophyte flora of the Vyatka-Kama Cis-Urals. *Phyto-diversity of Eastern Europe IX* (4): 4–85.
- Kapitonova OA (2018) On main results of floristic studies in the Tyumen Region in 2018. *Tobolsk Scientific – 2018: Materials of the XV All-Russian (with international participation) Scientific and Practical Conference, Tobolsk (Russia) 15–16 November 2018.* Tobolsk, 36–40.
- Kaplan Z (2008) A Taxonomic Revision of *Stuckenia* (Potamogetonaceae) in Asia, with Notes on the Diversity and Variation of the Genus on a Worldwide Scale. *Folia Geobot.* 43: 159–234. <https://doi.org/10.1007/s12224-008-9010-0>
- Kipriyanova LM, Bobrov AA (2016) Morphological, anatomical and molecular genetic features of *Stuckenia* species (Potamogetonaceae) in the south of Siberia. *Problems of Botany of South Siberia and Mongolia: Proceedings of the 15h International Scientific and Practical Conference, Barnaul (Russia) 23–26 May 2016.* Publishing house of Altai State University, Barnaul, 334–337.
- Klinkova GYu (2006) Family of Potamogetonaceae Dumort. In: Skvortsov AK (Ed.) *Flora of the Lower Volga. Vol. 1.* KMK Scientific Press Ltd., Moscow, 74–88.
- Lisitsyna LI, Papchenkov VG (2000) *Flora of the water bodies of Russia: Determinant of the vascular plants.* Science, Moscow, 237 pp.
- Lisitsyna LI, Papchenkov VG, Artyemenko VI (2009) *Flora of the Volga basin reservoirs. Determinant of the vascular plants.* KMK Scientific Press Ltd., Moscow, 219 pp.

- Papchenkov VG (2001) The vegetation cover of reservoirs and watercourses in the Middle Volga region: Monograph. TSMP MUBiNT, Yaroslavl, 214 pp.
- Papchenkov VG (2007) Hybrids and little-known species of aquatic plants. Publisher Alexander Rutman, Yaroslavl, 72 pp.
- Taylor P (1989) The genus *Utricularia*: a taxonomic monograph. Bulletin Additional Series XIV. Royal Botanic Gardens, Kew, 724 pp.
- Tzvelev NN (2000) Manual of the vascular plants of North-West Russia (Leningrad, Pskov and Novgorod provinces). St.-Petersburg State Chemical-Pharmaceutical Academy Press, St.-Petersburg, 781 pp.
- Tzvelev NN (2004) Genus *Stellaria* L. In: Tzvelev NN (Ed.) Flora of Eastern Europe, vol. XI. KMK Scientific Press Ltd., Moscow; St.-Petersburg, 145–152.
- Yakushev VV (2017) List of species of animals, plants and fungi to be included in the Red Data Book of the Tyumen Region: Appendix to the Resolution of the Government of the Tyumen Region dated November 29, 2017 No. 590-p (2017) Official Internet Legal Information Portal: State system of legal information. <http://publication.pravo.gov.ru/Document/View/7200201712010002?index=0&rangeSize=1>