



Article

New records for the flora of Selenge Province (Mongolia)

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Abstract

Eleven taxa from Selenge Province are listed as new for the Mongolian flora. Nineteen taxa are new for the botanical-geographical region. New locations for 5 species were found.

Keywords: distribution, flora, Mongolia, new records, Selenge Province, vascular plants.

Introduction

In accordance with the international agreement on cooperation between the Central Siberian Botanical Garden SB RAS and the Institute of Botany, the Academy of Sciences of Mongolia, joint studies of the cross-boundary flora were conducted in 2012.

Materials and methods

Research was conducted in the Selenge Province of Mongolia, specifically, in the the Selenga River Valley, in Khentei, on the spurs of the Dzhida Ridge (Mandal, Yeroo, Khuder, Tushig and Shamar districts). The work covered four botanical-geographical regions: Khentei, Khangai, Khubsugul and Mongolian Dauria (Grubov, 1982). All herbarium material collected by the Russian part of the team is stored in CSBG SB RAS (NS, NSK), the material collected by the Mongolian specialists is stored in the Institute of Botany, MAS (UBA). This article includes data obtained by studying the herbarium of the Institute of Botany, MAS.

The following designations are used: * – a new taxon for the Mongolian flora, ** – a new taxon for the phytogeographical region, *** – a new location. References to the distribution of taxa belonging to the Mongolian flora are based mostly on the publications by Grubov (1982), Gubanov (1996; 1999) and Ganbold (2010) but also other recent publications and the “Virtual guide to the flora of Mongolia” of the University of Greifswald.

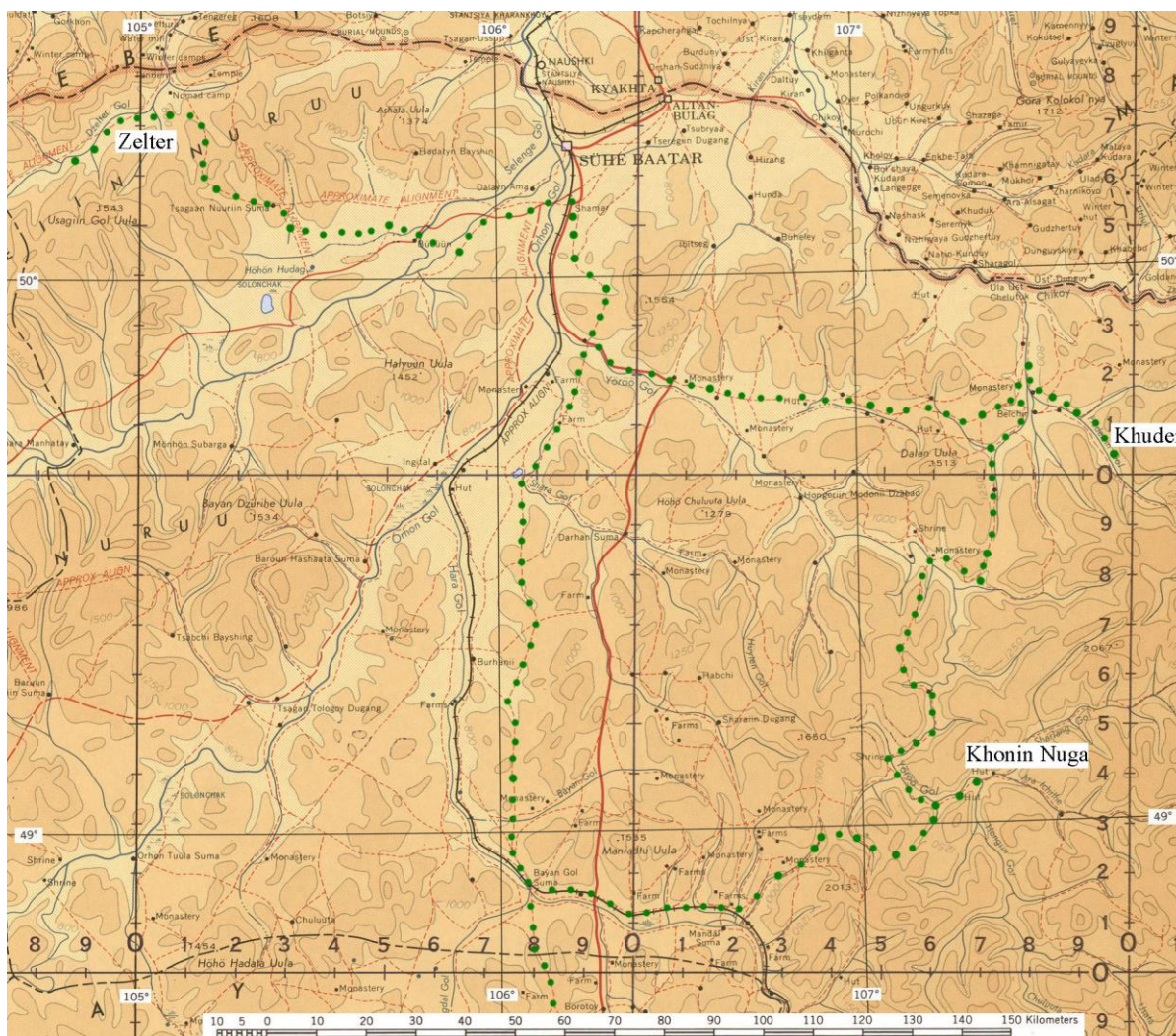


Fig. 1. Expedition route (green dotted line).

Results

Selaginellaceae Willk.

****Selaginella sanguinolenta* (L.) Spring, Bull. Acad. Roy. Sci. Bruxelles 10(1): 135, no. 2. 1843

Mongolia, Selenge Province, Tushig District, 27 km to WSW from Tushig Village, right bank of Zelter River, 50°14'N, 104°49'E, 773 m a.s.l., on rocks, 22. VI. 2012, V.M.Doronkin (NSK)

Previously found in the Khubsugul Region, Hovsgol Province, Taryalan District. Also known from Khangai, Mongolian Dauria, and Central Khalkha (Grubov, 1982).

Onocleaceae Pic. Serm.

**Onoclea sensibilis* L., Sp. Pl. 2: 1062. 1753.

Mongolia, Selenge Province, Khuder District, right bank of Khuder River 7 km upstream from Kharasi-gol River mouth. 49°38'N, 107°43'E, 787 m a.s.l., in pine and birch forest, 20. VI. 2012, I.V.Han, V.I.Ivleva (NSK).

Previously, the family Onocleaceae was represented in Khentei by one species - *Matteuccia struthiopteris* (L.) Tod.: Honin Nuga (Dulamsuren and Muhlenberg, 2003), Khuder River valley (Kamelin and Dariymaa, 2004). The genus *Onoclea* L. is the second genus of this family, new for Mongolia. The species has a disjunctive distribution, its nearest location in Russia is in Priargunsk (Chita Province) (Danilov, 1988, 2000). It also occurs in East Asia and North America.



Fig. 2. *Onoclea sensibilis* L.

Photo by I.Han

Poaceae Barnhart

***Melica turczaninowiana* Ohwi, Acta Phytotax. Geobot. 1(2): 142. 1932.

Mongolia, Selenge Province, Tushig District, 27 km WSW from Tushig Village, right bank of Zelter River, 50°13'N, 104°49'E, 807 m a.s.l., in larch forest-steppe, 23. VI. 2012, *V.M.Doronkin* (NSK).

A new record for Khubsugul Region. Previously reported for several regions: Khentei, Khangai, Mongolian Dauria, Great Khingan and East Mongolia (Grubov, 1982; Gubanov, 1996). An eastern Asiatic species which occurs in the mountain-steppe zone, less frequently in the mountain-forest zone (Ganbold, 2010).

Juncaceae Juss.

**Luzula pilosa* (L.) Willd., Enum. Pl. 1: 393. 1809.

Mongolia, Selenge Province, Khuder District, right bank of Khuder River, 7 km upstream from Kharasi-gol River mouth, 49°38'N, 107°43'E, 763 m a.s.l., in mixed fir and aspen forb forest, 20. VI. 2012, *D.N.Shaulo* (NS)

The nearest known locations in Russia are in the southern parts of Buryatiya and Chita Province (Kovtonyuk, 1987; 2001)

Convallariaceae Horan.

***Polygonatum sibiricum* Redouté, Liliac. 6: t. 315. 1811.

Mongolia, Selenge Province, Tushig District, 27 km WSW from Tushig Village, right bank of Zelter River, 50°13'N, 104°49'E, 807 m a.s.l., in larch forest-steppe, 23. VI. 2012, *V.M.Doronkin, I.V.Han* (NSK).

The same location, southern slope, near rock outcrops, 23. VI. 2012, *N.V.Vlasova* (NSK).

A new record for the Khubsugul Region. Listed for Khentei, Khangai, Mongolian Dauria, Great Khingan, Middle Khalkha and East Mongolia (Grubov, 1982; Gubanov, 1996).

Daurian-Mongolian-Manchurian species at the western limit of its area. Also occurs in southern Transbaikalia (Vlasova, 1987; 2001). It grows in mountain forest-steppe and mountain forest dominated by *Larix sibirica* Ledeb. or *Pinus sylvestris* L. (Grubov, 2001), or in associations with *Ulmus macrocarpa* Hance (Kamelin, 2005).



Fig. 3. *Polygonatum sibiricum* Redouté
Photo by I.Han

Iridaceae Juss.

***Iris ivanovae* Doronkin, Fl. Sibir. (Arac.-Orchidac.) 117. 1987.

Mongolia, Selenge Province, Khuder District, right bank of Khuder River, 1 km downstream from Shara-gol River mouth, vicinity of Bulantai Village, 49°48'N, 107°29'E, degraded steppe, 21. VI. 2012, *V.M.Doronkin, V.I.Ivleva* (NSK).

Reported for Northern Mongolia without specifying locations (Doronkin, 1987, 2001). Also found by Alekseeva (2011) in Khangai. The study of herbarium material from the MAS Institute of Botany (UBA) showed that all specimens from Mongolia previously determined as *I. tigridia* Bunge ex Ledeb. and listed by Grubov (1982) for Khubsugul, Khentei, Khangai, Mongolian Dauria, and Middle Khalkha also belong to *I. ivanovae*.



Fig. 4. *Iris ivanovae* Doronkin
Photo by I.Han

**Iris ruthenica* Ker-Gawl. subsp. *brevituba* (Maxim.) Doronkin, Fl. Sibir. (Arac.-Orchidac.): 121. 1987.

Mongolia, Selenge Province, Mandal District, Shivrín-gol River about 21 km NE of Zuunkharaa, 49°58'N, 106°52'E, 1141 m a.s.l., in grass-forb meadow, 16.VI.2012. *V.M.Doronkin & L.Enkhtuya* (NSK, UBA).

Mongolia, Selenge Province, Yeroo District. Khonin Nuga, left bank of Yeroo-gol River, 49°05'N, 107°18'E, 882 m a.s.l., in burnt birch forest with pine and larch, 16. VI. 2012, *V.M.Doronkin, I.V.Han & V.I.Ivleva* (NSK).

Mongolia, Selenge Province, Yeroo District. Khatangin-davaa Mountain Pass between the Yeroo-gol and Yablan-gol (Yaldag-gol) Rivers, 48°57'N, 107°04'E, 1380 m a.s.l., in pine and birch forest, 18. VI. 2012, *V.M. Doronkin & L.Enkhtuya* (NSK, UBA).

Mongolia, Selenge Province, Khuder District, right bank of Khuder River, 7 km upstream from Kharasi-gol River mouth, 49°38'N, 107°43'E, 787 m a.s.l., in pine and birch forest, 20. VI. 2012, *I.V. Han & V.I.Ivleva* (NSK).

Mongolia, Selenge Province, Tushig District, left bank of Zelter River, steppe meadow on rocky slope, 20. VI. 2012, *V.M.Doronkin* (NSK).

All *I. ruthenica* specimens found during the expedition had a short perianth tube more or less equal in length to the ovary, so these plants belong to *I. ruthenica* subsp. *brevituba*. This taxon was mentioned earlier for Mongolia without specifying locations (Doronkin, 1987, 2001). The study of herbarium collections (UBA) showed that all specimens of *I. ruthenica* from Selenge Province belong to *I. ruthenica* subsp. *brevituba*.

Orchidaceae Juss.

**Cypripedium ×ventricosum* Sw., Kongl. Vetensk. Acad. Handl. 21: 251. 1800.

Mongolia, Selenge Province, Yeroo District, 10 km NE of Bugant (Yeroo) Settlement, Galttain-gol River, 49°32'N, 107°22'E, 878 m a.s.l., in birch forest, 19. VI. 2012, *V.M.Doronkin* (NSK).

The same place, 19. VI. 2012, *D.N. Shaulo* (NS).

The species has a hybrid origin (*C. calceolus* L. × *C. macranthon* Sw.). It was reported for Northern Mongolia without specifying locations (Doronkin, 2003, 2007). The nearest location in Russia is in Buryatiya.



Fig. 5. *Cypripedium ×ventricosum* Sw.
Photo by V.Doronkin

Santalaceae R.Br.

**Thesium tuvense* Krasnob., Fl. Sibir. (Salicac.-Amaranthac.) 5: 86. 1992.

Uvs Province, Barunturun District, Gazryn nor., Booreg Deliyen els sand dunes, 44 km away from state farm, near road to Tes District, Zavkhan Province. 1974. VI .22. Khan. Botanical-geographical party. № 5585. (UBA)

Mongolia. Eastern (Dornod) Province. Khingan. Left bank of Dzargin-gol (Shine-gol) River. Sand hills east of Mount Emgant. On sand. 13. VII. 1987. R.V. Kamelin, Sh. Darijmaa, I.A. Gubanov. № 1476. (UBA)

Mongolia. Eastern margin of Uvs Basin. Southern part of Altan-Els Sands 70 km NW of Barun-Turun Village in Uvs Province. 5. VII. 1988. R.V. Kamelin, Sh. Darijmaa, E.Ganbold, A.L. Budantsev, I.A. Gubanov. (UBA)

Reported for northeastern Mongolia (Krasnoborov, 1992; 2003) but was not included in the publication by Gubanov (1996), as Krasnoborov had not specified locations within the Mongolian territory.

Caryophyllaceae Juss

****Cerastium holosteoides* Fries, Nov. Fl. Suec. 4: 52. 1817. Mongolia, Selenge Province, Khuder District, right bank of Khuder River, 7 km upstream from Kharasi-gol River mouth, 49°38'N, 107°43'E, 763 m a.s.l., on mine dumps, 19. VI. 2012, N.V.Vlasova (NSK).

This specimen has pubescent simple and glandular hairs and belongs to *C. holosteoides* subsp. *Glandulosum* (Boenn.) I.V.Sokolova (Sokolova, 2004). This combination is considered to be a synonym of the name *C. fontanum* Baumg. subsp. *vulgare* (Hartm.) Greuter et Burdet (www.theplantlist.org). However, the distribution range of *C. fontanum* needs further specification (Lu Dequan, J.K. Morton, 2001). Some authors designate *C. fontanum* subsp. *vulgare* as a distinct species *C. holosteoides* (N.Turland, M.Wyse Jackson, 1997). This species was listed for Mongolia as *C. pusillum* Ser., s.l. (Gubanov, 1996) and as *C. vulgatum* L. (Grubov, 1982).

The plant found by us was growing in a disturbed habitat and its adventive nature could not be excluded.



Fig. 6. *Cerastium holosteoides* Fr.
Photo by N.Vlasova

***Stellaria filicaulis* Makino, Bot. Mag. (Tokyo) 15: 113. 1901.

Mongolia, Selenge Province, Yeroo District, Khonin Nuga, left bank of Yeroo-gol River near confluence of the Yestin-gol (Hangyn-gol) and Sharlan-gol Rivers, 49°05'N, 107°18'E, 885 m a.s.l., on overgrown sandbank. 17. VI. 2012, N.V. Vlasova (NSK)

New for Khentei. Herbarium material indicates that this species occurs also in Middle Khalkha: Sukhe-Bator Province, Tumentsogt District, 22. VIII. 1982, 69, Ch. Sanchir (UBA). Previously was known from Khangai region (Gubanov, 1999; Lazkov, 1999). In mixed populations with *S. davurica* Willd. Ex D.K.F.Schltdl., it forms sterile hybrids.

Papaveraceae Adans. (incl. **Fumariaceae** Marquis)

***Corydalis capnoides* Pers., Syn. Pl. 2 (1): 270. 1806.

Mongolia, Selenge Province, Khuder District, right bank of Khuder River, 7 km upstream from Kharasi-gol River mouth, 49°38'N, 107°43'E, 763 m a.s.l., in mixed fir and aspen forb forest, 20. VI. 2012, *D.N.Shaulov* (NS).

New for Khentei. Previously, it was listed from Mongolian Altai and Dzungarian Gobi (Gubanov, 1996).

Brassicaceae Burnett

****Berteroa incana* (L.) DC., Syst. Nat. 2: 291. 1821.

Mongolia, Selenge Province, Khuder District, right bank of Khuder River, 7 km upstream from Kharasi-gol River mouth, 49°38'N, 107°43'E, 763 m a.s.l., on mine dumps, 19. VI. 2012, *V.M.Doronkin, I.V.Han & V.I.Ivleva* (NSK).

Reported for Khentei and Mongolian Dauria only from Ulaanbaatar (Neuffer *et al.*, 2012).

***Cardamine macrophylla* Willd., Sp. Pl. 3(1): 484. 1800.

Mongolia, Selenge Province, Khuder District, right bank of Khuder River, 7 km upstream from Kharasi-gol River mouth, 49°38'N, 107°43'E, 787 m a.s.l., in pine and birch forest, 20. VI. 2012, *I.V.Han* (NSK).

New for Khentei. Listed for Khubsugul, Khobdo and Mongolian Altai regions (Grubov, 1982; Gubanov, 1996).

Rosaceae Juss.

**Potentilla arenosa* (Turcz.) Juz., Fl. URSS 10: 137. 1941.

Mongolia, Selenge Province, Yeroo District, Khatangin-davaa Mountain Pass between the Yeroo-gol and Yablan-gol (Yaldag-gol) Rivers. 48°57'N, 107°04'E, 1380 m a.s.l., pine and birch forest, 18. VI. 2012, *D.N.Shaulov* (NS).

Possible occurrence in Mongolian Dauria (Grubov, 1982).

***Padus avium* Mill., Gard. Dict. (ed. 8) no. 1. 1768.

Mongolia, Selenge Province, Tushig District, 27 km WSW of Tushig Village, right bank of Zelter River, 50°14'N, 104°49'E, 773 m a.s.l., on River bank, 22. VI. 2012, *V.M.Doronkin* (NSK).

New for Khubsugul. Listed for Khentei, Khangai, Mongolian Dauria, Great Khingan, and East Mongolia as *Padus asiatica* Kom. (Grubov, 1982; Gubanov, 1996). Studies of the genus *Padus* confirmed the identity of *Padus avium* and *P. asiatica* (Polozhij, 1988, 2004).

Fabaceae Lindl.

***Gueldenstaedtia verna* (Georgi) Boriss., Spisok Rast. Gerb. Fl. SSSR Bot. Inst. Vsesojuzn. Akad. Nauk 12: 122. 1953.

Mongolia, Selenge Province, Tushig District, 27 km WSW from Tushig Village, right bank of Zelter River, 50°13'N, 104°49'E, 807 m a.s.l., larch forest-steppe, 23. VI. 2012, *V.I.Ivleva* (NSK).

New for Khubsugul. Listed for Khentei, Mongolian Dauria, East Mongolia (Grubov, 1982; Gubanov, 1996).

***Lathyrus pilosus* Cham., Linnaea 6(4): 548. 1831.

Mongolia, Selenge Province, Tushig District, 27 km WSW from Tushig Village, right bank of Zelter River, 50°13'N, 104°49'E, 807 m a.s.l., in larch forest steppe, 23. VI. 2012, *N.V.Vlasova* (NSK).

New for Khubsugul. Listed for Khentei, Khangai, Mongolian Dauria, Great Khingan and East Mongolia as *L. palustris* L. p.p. (Grubov, 1982) and as *L. palustris* L. subsp. *pilosus* (Cham.) <http://www.ipni.org> (Gubanov, 1996).

***Vicia nervata* Sipl., Novosti Sist. Vyssh. Rast.: 287. 1966.

Mongolia, Selenge Province, Shaamar District, vicinity of Shaamar Village, 50°05'N, 106°10'E, 600 m a.s.l., on sandy slope with pine trees, 24. VI. 2012, *N.V.Vlasova* (NSK).

New for Mongolian Dauria. Reported for Mongolia without specifying locations (Nikiforova, 1994, 2006).

Geraniaceae Juss.

**Geranium krylovii* Tzvelev, Novosti Sist. Vyssh. Rast. 29: 95. 1993.

Mongolia, Selenge Province, Yeroo District, mountain pass of Khatangin-davaa between the Yeroo-gol and Yablan-gol (Yaldag-gol) Rivers, 48°57'N, 107°04'E, 1380 m a.s.l., in pine and birch forest, 18. VI. 2012, *V.M.Doronkin, I.V.Han & V.I.Ivleva* (NSK).

Mongolia, Selenge Province, Khuder District. Right bank of Khuder River, 7 km upstream from Kharasi-gol River mouth, 49°38'N, 107°43'E, 787 m a.s.l., in pine and birch forest, 20. VI. 2012, *V.I.Ivleva* (NSK).

New for Khentei. Reported for Northern Mongolia without specifying locations (Peschkova, 1996, 2006; Gubanov, 1999). The nearest location in Russia is in Buryatiya and Chita Province.

Callitrichaceae Link.

***Callitriche hermaphroditica* L., Cent. Pl. 1: 31. 1755.

Mongolia, Selenge Province, Khuder District, right bank of Khuder River, 7 km upstream from Kharasi-gol River mouth, 49°38'N, 107°43'E, 763 m a.s.l., in slow flowing duct, 20. VI. 2012, *D.N.Shaulo* (NS)

Listed from Khangai, Mongolian Dauria and Khingan (Gubanov, 1996).

Violaceae Batsch

***Viola mauritii* Tepl., Zap. Ural'sk. Obshch. Lyubit. Estestv. 7(3): 37. 1882.

Mongolia, Selenge Province, Khuder District, right bank of Khuder River, 7 km upstream from Kharasi-gol River mouth, 49°38'N, 107°43'E, 763 m a.s.l., in mixed abies and aspen forb forest, 20. VI. 2012, *D.N.Shaulo* (NS).

New for Khentei. Listed for Khubsugul, Mongolian Altai, Eastern Mongolia, Gobi-Altai (Grubov, 1982; Gubanov, 1996).

**Viola nemoralis* Kütz., Linnaea 7(1): 46. 1832.

Mongolia, Selenge Province, Khuder District, right bank of Khuder River, 7 km upstream from Kharasi-gol River mouth, 49°38'N, 107°43'E, 763 m a.s.l., in mixed fir and aspen forest, 20. VI. 2012, *D.N.Shaulo* (NS).

Onagraceae Juss.

**Epilobium ciliatum* Raf. s.l., Med. Repos., 2(5): 361. 1808

Mongolia, Selenge Province, Khuder District, right bank of Khuder River, 7 km upstream from Kharasi-gol River mouth, 49°38'N, 107°43'E, 763 m a.s.l., on mine dumps, 19. VI. 2012, *N.V.Vlasova* (NSK).

New for Mongolia. Similar samples were previously attributed to *E. adenocaulon* Hauksskn. (Vlasova, 1996, 2006), which, along with some Far East species, can be a part of a complex set of *E. ciliatum* s.l.

The specimen we found was growing in a disturbed habitat and its adventive nature is not excluded.

Primulaceae Batsch ex Borkh.

****Primula matthioli* (L.) V.A.Richt. subsp. *mongolica* (Losinsk.) Kovt., Bot. Zhurn. (Moscow & Leningrad) 96, 7: 963. 2011

Mongolia, Selenge Province, Yeroo District, Khonin Nuga, left bank of Yeroo-gol River, 49°03'N, 107°14'E, 871 m a.s.l., near rocks on the northern slope, 17. VI. 2012, *V.M.Doronkin, N.V.Vlasova, I.V.Han & V.I.Ivleva* (NSK).

The same place, *D.N.Shaulo* (NS).

Listed from Mongolia as *Cortusa altaica* Losinsk. p.p. (Grubov, 1982; Gubanov, 1996). The genus *Cortusa* L. is included in the genus *Primula* L., sect. *Cortusoides* Balf. f., subsect. *Cortusa* (L.) Kovt., according to the current treatment (Kovtonyuk, 2011, 2013).



Fig. 7. *Primula matthioli* Richt. subsp. *mongolica* (Losinsk.) Kovt.
Photo by N.Vlasova

Asclepiadaceae Borkh.

***Cynoctonum purpureum* (Pall.) Pobed., Fl. URSS (V.L.Komarov) 18: 709. 1952.

Mongolia, Selenge Province, Tushig District, 27 km WSW from Tushig Village, right bank of Zelter River, 50°13'N, 104°49'E, 807 m a.s.l., in larch forest steppe, 23. VI. 2012, *V.M.Doronkin, N.V.Vlasova* (NSK).

New for Khubsugul. Listed for Khentei, Mongolian Dauria, Great Khingan, Middle Khalkha and East Mongolia (Grubov, 1982; Gubanov, 1996).



Fig. 8. *Cynoactonum purpureum* (Pall.) Pobed.
Photo by I.Han

Boraginaceae Juss.

***Lappula consanguinea* (Fisch. & C.A. Mey.) Guerke, Nat. Pflanzenfam. (H.G.A.Engler & K.A.E.Prantl) 4(3a): 107. 1897.

Mongolia, Selenge Province, Yeroo District, Khonin Nuga, left bank of Yeroo-gol River, near confluence of the Yestin-gol (Hangyn-gol) and Sharlan-gol Rivers, 49°05'N, 107°18'E, 885 m a.s.l., in degraded meadow, 17. VI. 2012, *I.V. Han & V.I.Ivleva* (NSK).

Mongolia, Selenge Province, Khuder District, right bank of Khuder River, 7 km upstream from Kharasi-gol River mouth, 49°38'N, 107°43'E, 763 m a.s.l., on mine dumps, 19. VI. 2012, *N.V.Vlasova* (NSK).

Mongolia, Selenge Province, Khuder District, right bank of Khuder River, 1 km downstream from Shara-gol River mouth, vicinity of Bulantai Village. 49°48'N, 107°29'E, degraded steppe, 21. VI. 2012, *V.M.Doronkin & V.I.Ivleva* (NSK).

New for Khentei. Listed for Khangai, Mongolian Dauria, Khobdo, Mongolian Altai, Valley of Great Lakes, Valley of Lakes, Gobi-Altai, Dzungarian Gobi (Grubov, 1982; Gubanov, 1996).

****Myosotis palustris* (L.) Nathh., Fl. Monspell. (C.Linnaeus): 11. 1756.

Mongolia, Selenge Province, Yeroo District, Khonin Nuga, left bank of Yeroo-gol River, near confluence of the Yestin-gol (Hangyn-gol) and Sharlan-gol Rivers, 49°05'N, 107°18'E, 885 m a.s.l., on degraded meadow. 17. VI. 2012, *N.V.Vlasova* (NSK).

Mongolia, Selenge Province, Khuder District, right bank of Khuder River, 7 km upstream from Kharasi-gol River mouth, 49°38'N, 107°43'E, 763 m a.s.l., on mine dumps, 19. VI. 2012, *I.V.Han* and *V.I.Ivleva* (NSK).

Mongolia, Selenge Province, Khuder District, right bank of Khuder River, 7 km upstream from Kharasi-gol River mouth, 49°38'N, 107°43'E, 787 m a.s.l., in pine and birch forest, 20. VI. 2012, *I.V.Han* (NSK).

In Mongolia this taxon was previously listed as *M. scorpioides* L. in Khentei: Yeroo River basin and in East Mongolia on Kerulen River floodplain (Gubanov, 1999). The nearest location in Russia is in Buryatiya – Bichura Village (Nikiforova, 1997, 2006).

***Nonea rossica* Steven, Bull. Soc. Imp. Naturalistes Moscou 24(1): 572. 1851.

Mongolia, Selenge Province, Tsagaannuur District, 13 km E of Tsagaannuur Village, 50°06'N, 105°35'E, 723 m a.s.l., on roadsides, steppe, 22. VI. 2012, *V.M.Doronkin* & *I.V.Han* (NSK).

New for Khangai. Listed as *N. pulla* for Mongolian Dauria, Middle Khalkha, East Mongolia and Dzungarian Gobi (Grubov, 1982; Gubanov, 1996). It was also found by Dulamsuren and Muhlenberg (2003) in Khentei (Khotongiin davaa).

Lamiaceae Martinov

***Lamium album* L., Sp. Pl. 2: 579. 1753.

Mongolia, Selenge Province, Tushig District, 27 km to WSW from Tushig Village, right bank of Zelter River, 50°14'N, 104°49'E, 773 m a.s.l., on river bank, 22. VI. 2012, *V.M.Doronkin* (NSK).

New for Khubsugul.

Listed for Khentei, Mongolian Dauria, Great Khingan, Mongolian Altai, East Mongolia (Grubov, 1982; Gubanov, 1996).

Scrophulariaceae Juss.

***Pedicularis striata* Pall., Reise Russ. Reich. 3: 737. 1776.

Mongolia, Selenge Province, Tushig District, 27 km WSW from Tushig Village, right bank of Zelter River, 50°13'N, 104°49'E, 807 m a.s.l., in larch forest-steppe, 23. VI. 2012, *I.V.Han* (NSK).

New for Khubsugul. Listed for Khentei, Khangai, Mongolian Dauria, Great Khingan, Middle Khalkha, East Mongolia and Dzungarian Gobi (Grubov, 1982; Gubanov, 1996). According to the latest data, this species does not occur in Dzungarian Gobi, as the specimen belongs to *P. altaica* Stephan ex Steven (Smirnov *et al.*, 2003).

Rubiaceae Juss.

***Galium amblyophyllum* Schrenk, Enum. Pl. Nov. (F.E.L.von Fischer & C.A.von Meyer) 1: 56. 1841.

Mongolia, Selenge Province, Khuder District, right bank of Khuder River, 7 km upstream from Kharasi-gol River mouth, 49°38'N, 107°43'E, 763 m a.s.l., on mine dumps, 19. VI. 2012, *V.M.Doronkin, N.V.Vlasova & V.I.Ivleva* (NSK).

Mongolia, Selenge Province, Tushig District, 27 km WSW from Tushig Village, right bank of Zelter River, 50°14'N, 104°49'E, 773 m a.s.l., on rocks, 22. VI. 2012, *I.V.Han* (NSK).

Listed for Dzungarian Gobi (Gubanov, 1996). New for Khentei and Khubsugul.

**Galium ruthenicum* Willd., Sp. Pl. ed. 4, 1(2): 597. 1798.

Mongolia, Selenge Province, Bayangol District, road from Darkhan to Ulan Bator, near 30 km N from Bayangol Village or 7 km SW from Ereniy Village, 49°06'N, 106°01'E, 853 m a.s.l., in dry steppe, 25. VI. 2012, *I.V.Han* (NSK).

Reported for Northern Mongolia without specifying locations (Naumova, 1996; 2007; Gubanov, 1999). Widespread in Buryatiya and Chita Province. Probably occurs in most regions of Northern Mongolia.

***Galium songaricum* Schrenk, Enum. Pl. Nov. (F.E.L.von Fischer & C.A.von Meyer) 1: 57. 1841.

Mongolia, Selenge Province, Tushig District, 27 km WSW from Tushig Village, right bank of Zelter River, 50°13'N, 104°49'E, 807 m a.s.l., in larch forest steppe, 23. VI. 2012, *I.V.Han* (NSK).

New for Khubsugul. Listed for Khentei and Khangai (Grubov, 1982; Gubanov, 1996).

****Galium uliginosum* L., Sp. Pl. 1: 106. 1753.

Mongolia, Selenge Province, Yeroo District, Khonin Nuga, left bank of Yeroo-gol River, near confluence of the Yestin-gol (Hangyn-gol) and Sharlan-gol Rivers, 49°05'N, 107°18'E, 885 m a.s.l., on overgrown sandbank, 17. VI. 2012, *N.V.Vlasova* (NSK).

Mongolia, Selenge Province, Khuder District, right bank of Khuder River, 7 km upstream from Kharasi-gol River mouth, 49°38'N, 107°43'E, 763 m a.s.l., on mine dumps, 19. VI. 2012, V.M.Doronkin, N.V.Vlasova, I.V.Han & V.I.Ivleva (NSK).

This species was found in Khentei by Dulamsuren and Muhlenberg (2003) in Khonin Nuga. Its location on Khuder is the second for this region. It is also listed for Khubsugul, Khangai, Mongolian Dauria, and Valley of Great Lakes (Grubov, 1982; Gubanov, 1996).



Fig. 9. *Galium uliginosum* L.
Photo by I.Han

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References

Alekseeva, N.B. 2011. Novye vidy roda *Iris* L. (Iridaceae) dlya flory Mongolii [New species of *Iris* L. (Iridaceae) for the flora of Mongolia]. *Turczaninowia* 14(1): 59–60. (In Russian)

- Danilov, M.P.** 1988. Sem. Onocleaceae – Onokleevye [Fam. Onocleaceae – Onokleevye]. In: Krasnoborov, I.M. (ed.), Flora Sibiri [Flora of Siberia] 1. Novosibirsk: Nauka: 52–54. (In Russian)
- Danilov, M.P.** 2000. Fam. Onocleaceae. In: Krasnoborov, I.M. (ed.), Flora of Siberia 1. Enfield (USA), Plymouth (UK): Science Publishers: 42–44.
- Doronkin, V.M.** 1987. Sem. Iridaceae – Kasatikovye [Fam. Iridaceae]. In: Malyshev, L.I. and Peschkova, G.A. (eds.), Flora Sibiri [Flora of Siberia] 4. Novosibirsk: Nauka.: 113–125. (In Russian)
- Doronkin, V.M.** 2001. Fam. Iridaceae. In: Malyshev, L.I. and Peschkova, G.A. (eds.), Flora of Siberia 4. Enfield (USA), Plymouth (UK): Science Publishers: 108–120.
- Doronkin, V.M.** 2003. Araceae — Orchidaceae In: Malyshev, L.I., Peschkova, G.A. and Baikov, K.S. (eds.), Tom. 3. Flora Sibiri. Dopolneniya i ispravleniya. Alfavitnye ukazateli [Vol. 3. Flora of Siberia. Additions and corrections. Alphabetical indexes] 14. Novosibirsk: Nauka.: 32–37. (In Russian)
- Doronkin, V.M.** 2007. Araceae – Orchidaceae. In: Malyshev, L.I., Peschkova, G.A. and Baikov, K.S. (eds.), Flora of Siberia Inc. Vol. 14. Additions and corrections. Alphabetical indexes 4. Enfield (USA), Plymouth (UK): Science Publishers: 38–44.
- Dulamsuren, C., Kamelin, R.V., Tzvelev, N.N., Hauck, M. and Muhlenberg, M.** 2004. Additions to the flora of the Khentei, Mongolia, 2. Willdenowia 34: 505–510.
- Dulamsuren, C. and Muhlenberg, M.** 2003. Additions to the flora of the Khentei, Mongolia. Willdenowia 33: 149–158.
- Ganbold, E.** 2010. Flora Severnoy Mongolii (sistematika, ekologiya, geografiya, istoriya razvitiya) [Flora of Northern Mongolia (systematics, ecology, geography, evolution history)]. Moscow.(In Russian)
- Grubov, V.I.** 1982. Opredelitel' sosudistyh rasteniy Mongolii [Key to the vascular plants of Mongolia]. Leningrad: Nauka. (In Russian)
- Gubanov, I.A.** 1996. Konspekt flory Vneshnei Mongolii (sosudistye rasteniya) [Synopsis of flora of Outer Mongolia (vascular plants)]. Moscow: Valang. (In Russian)
- Gubanov, I.A.** 1999. Dopolneniya i ispravleniya k «Konspekty flory Vneshnei Mongolii (sosudistye rasteniya)» [Additions and corrections to the «Conspectus of flora of Outer Mongolia (vascular plants)»]. Turczaninowia 2(3): 19–23. (In Russian)

- Kamelin, R.V., Darijmaa, Sch.** 2004. Novye i redkie vidy dlya flory Mongolii [New and rare species of the flora of Mongolia]. Bot. Zhurn. (Moscow & Leningrad) 89(2): 323–326. (In Russian)
- Kamelin, R.V.** 2005. Geografiya i phytocenologiya *Ulmus macrocarpa* (Ulmaceae) [Geography and phytocenology of *Ulmus macrocarpa* (Ulmaceae)]. Bot. Zhurn. (Moscow & Leningrad) 90(7): 969–998. (In Russian)
- Kovtonyuk, N.K.** 1987. Sem. Juncaceae – Sitnikovye [Fam. Juncaceae]. In: Malyshev, L.I. and Peschkova, G.A. (eds.), Flora Sibiri [Flora of Siberia] 4. Novosibirsk: Nauka: 16–43. (In Russian)
- Kovtonyuk, N.K.** 2001. Fam. Juncaceae. In: Malyshev, L.I. and Peschkova, G.A. (eds.), Flora of Siberia 4. Enfield (USA), Plymouth (UK): Science Publishers: 3–32.
- Krasnoborov, I.M.** 1992. Sem. Santalaceae – Santalovye [Fam. Santalaceae]. In: Krasnoborov, I.M. and Malyshev, L.I. (eds.), Flora Sibiri [Flora of Siberia] 5. Novosibirsk: Nauka: 81–87. (In Russian)
- Krasnoborov, I.M.** 2003. Fam. Santalaceae. In: Krasnoborov, I.M. and Malyshev, L.I. (eds.), Flora of Siberia 5. Enfield (USA), Plymouth (UK): Science Publishers: 77–83.
- Lazkov, L.A.** 1999. About some species of Caryophyllaceae from Central Asia. Komarovia 1: 41–44.
- Naumova, E.G.** 1996. Sem. Rubiaceae - Marenovye [Fam. Rubiaceae]. In: Polozhij, A.V. and Peschkova, G.A. (eds.), Flora Sibiri [Flora of Siberia] 12. Novosibirsk: Nauka: 110–125. (In Russian)
- Naumova, E.G.** 2007. Fam. Rubiaceae. In: Polozhij, A.V. and Peschkova, G.A. (eds.), Flora of Siberia 12. Enfield (USA), Plymouth (UK): Science Publishers: 122–139.
- Neuffer, B., Friesen, N., Ouyuntsetseg, B., Schamsran, Z. and Hurka, H.** 2012. Osnabruck botanical expeditions to Mongolia. Erforsch. Biol. Ress. Mongolei. (Halle/Saale). 12: 307–333.
- Nikiforova, O.D.** 1994. *Vicia* L. – Vika, goroshek. [*Vicia* L.] In: Polozhiy, A.V. and Malyshev, L.I. (eds.), Flora Sibiri [Flora of Siberia] 9. Novosibirsk: Nauka: 171–184. (In Russian)
- Nikiforova, O.D.** 1997. *Myosotis* L. – Nesabudka. [*Myosotis* L.] In: Malyshev, L.I. (ed.), Flora Sibiri [Flora of Siberia] 11. Novosibirsk: Nauka: 119–131. (In Russian)
- Nikiforova, O.D.** 2006. *Vicia* L. In: Polozhiy, A.V. and Malyshev, L.I. (eds.) Flora of Siberia 9. Enfield (USA), Plymouth (UK): Science Publishers: 169–184.

- Nikiforova, O.D.** 2006. *Myosotis* L. In: Malyshev, L.I. (ed.), Flora of Siberia 11. Enfield (USA), Plymouth (UK): Science Publishers: 132–145.
- Peschkova, G.A.** 1996. Sem. Geraniaceae – Geranievye [Fam. Geraniaceae]. In: Peschkova, G.A. (ed.), Flora Sibiri [Flora of Siberia] 10. Novosibirsk: Nauka: 8–22. (In Russian)
- Peschkova, G.A.** 2006. Fam. Geraniaceae. In: Peschkova, G.A. (ed.), Flora of Siberia 10. Enfield (USA), Plymouth (UK): Science Publishers: 8–21.
- Polozhij, A.V.** 1988. *Padus* Mill. – Cheremuha [Padus Mill.]. In: Polozhij, A.V. and Malyshev, L.I. (eds.), Flora Sibiri [Flora of Siberia] 8. Novosibirsk: Nauka: 130. (In Russian)
- Polozhij, A.V.** 2004. *Padus* Mill. In: Polozhij, A.V. and Malyshev, L.I. (eds.), Flora of Siberia 8. Enfield (USA), Plymouth (UK): Science Publishers: 126–127.
- Smirnov, S., German, D., Kosachev, P. and Dyachenko, S.** 2003. Dopolnenie k flore Mongolii [Addition to the flora of Mongolia]. Turczaninowia 6(4): 11–21. (In Russian)
- Sokolova, I.V.** 2004. Rod Yaskolka — *Cerastium* L. [Genus *Cerastium* L.]. In: Tzvelev, N.N. (ed.), Flora Vostochnoi Evropy [Flora of Eastern Europe] 11. St Petersburg: Tovarischestvo nauchnyh izdaniy KMK:157–171 . (In Russian)
- Tzvelev, N.N.** 2000. Opredelitel' sosudistyh rasteniy Severo-Zapadnoy Rossii (Leningradskaya, Pskovskaya i Novgorodskaya oblasti [Manual of the vascular plants of North-West Russia (Leningrad, Pskov and Novgorod Provinces)]. St Petersburg: Izdatelstvo Sankt-Peterburgskoi gosudarstvennoi chimiko-pharmatsevticeskoi akademii. (In Russian)
- Ulziyhutag, N.** 2003. Bobovye Mongolii (taxonomiya, ekologiya, geografiya, phylogeniya i chozaystvennoe znachenie) [Legumes of Mongolia: taxonomy, ecology, geography, phylogeny and economic importance]. Ulaanbaatar. (In Russian)
- Virtual guide to the flora of Mongolia.** <http://greif.uni-greifswald.de/floragreif/> (accessed 28 Aug 2014).
- Vlasova, N.V.** 1987. *Polygonatum* Mill. – Kupena. In: Malyshev, L.I. and Peschkova, G.A. (eds.), Flora Sibiri [Flora of Siberia] 4. Novosibirsk: Nauka: 110–111. (In Russian)
- Vlasova, N.V.** 1996. Sem. Onagraceae – Kipreinye, ili Oslinnikovye [Fam. Onagraceae]. In: Peschkova, G.A. (ed.), Flora Sibiri [Flora of Siberia] 10. Novosibirsk: Nauka: 106–120. (In Russian)
- Vlasova, N.V.** 2001. *Polygonatum* Mill. In: Malyshev, L.I. and Peschkova, G.A. (eds.), Flora of Siberia 4. Enfield (USA), Plymouth (UK): Science Publishers: 105–106.
- Vlasova, N.V.** 2006. Onagraceae. In: Peschkova, G.A. (ed.), Flora of Siberia 4. Enfield (USA), Plymouth (UK): Science Publishers: 137–155.