

VASCULAR PLANTS OF THE BOL'ŠOJ ČIVYRKUJ VALLEY, BARGUZINSKIJ RANGE

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Abstract: The article contains a list of vascular plants found in the Bol'šoj Čivyrkuj valley, Barguzinskij Range, East Siberia, during the Czech expedition in 1993, completed with the data scattered in literature. The list contains 450 taxa. Comparison with the floristic data in main regional floras were made. 26 species are recorded as new for the Zabajkal'skij National Park.

Key-words: Regional flora, floristics, Lake Baikal, East Siberia.

Introduction

In 1993, the third Czech expedition to the Zabajkal'skij National Park in Buryatia was undertaken. The aim of this expedition was to improve our knowledge of the flora and vegetation of the Park. The field research focused on the valley of the Bol'šoj Čivyrkuj river in southern part of the Barguzinskij Range. The valley was visited during the second part of July. We walked from the opening of the river into Lake Baikal to its source area and crossed the range. About 350 herbarium specimens were collected. They are stored in the Herbarium of the Moravian Museum, Brno (BRNM).

For the determination of plants, the following manuals and floras were used: Barkalov (1991), Charkevič (1992), Cvelev (1976), Komarov et al. (1930-1964), Krasnoborov (1988), Krasnoborov and Malyšev (1992), Malyšev and Peškova (1979, 1987, 1990, 1993), Peškova and Malyšev (1990) and Položij and Malyšev (1988). As far as possible, we made use of the exsiccate series (Herb. Fl. Ross. and Gerb. Fl. SSSR), stored in the Herbarium of Masaryk University, Brno (BRNU). Searching for distribu-

tion references in the study area, all available floras and papers scattered in Russian journals were compiled. Unclear and poorly interpretable references were ignored and some explaining comments and few taxonomical remarks were added. As the reference base for the distribution data in the area, the "Flora of the Zabajkal'skij Nature National Park" (Bojkov et al. 1991) and the papers by Anenonov et al. (1992), Danihelka and Chaloupková (1994) and Danihelka et al. (1994) were used.

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Area under study

The Bol'šoj Čivyrkuj basin is situated in the southern part of the Barguzinskij Range on its western side. The river empties into Lake Baikal in the northern part of the Čivyrkujskij Bay (53° 49' N and 109° 12' E, 455.9 m a.s.l.). The whole valley, running approximately in the E-W direction, is about 28 km long, broad and flat downstream 0-10 km from the mouth and narrow and deep upstream (see Fig. 1). A sand bar skirts the shores of Lake Baikal in the mouth and divides large wetlands and peatbogs from the lake. In the lower part of the valley, the river flows slowly and forms meanders in its alluvium. About 22 km E from the mouth, near the confluence with the Chožalyj creek, the river suddenly turns to NE direction. Boulder moraines and cirques suggest the glaciers during the Pleistocene to have been the main landscape-shaping factor in the upper part of the valley. Generally, the southern part of the Barguzinskij Range is formed of granites. Upstream, the Proterozoic intrusions of the Barguzinskij Complex prevail, represented by fine-grained granites. The middle and lower parts of the valley are formed by Paleozoic intrusions of the Vitimkanskij Complex: medium- and coarse-grained granites. On the left side of the valley between the Markuškina and Chožalyj creeks, medium- and fine-grained granites, syenites, siliceous syenites, pegmatites, aplites and granite-porphyrries are found. The bottom of the valley in its lower part is filled with Quaternary deposits: alluvial, lacustrine and eolian sands, gravels, loams, clays and sapropel peats (Davydov et al. 1980).

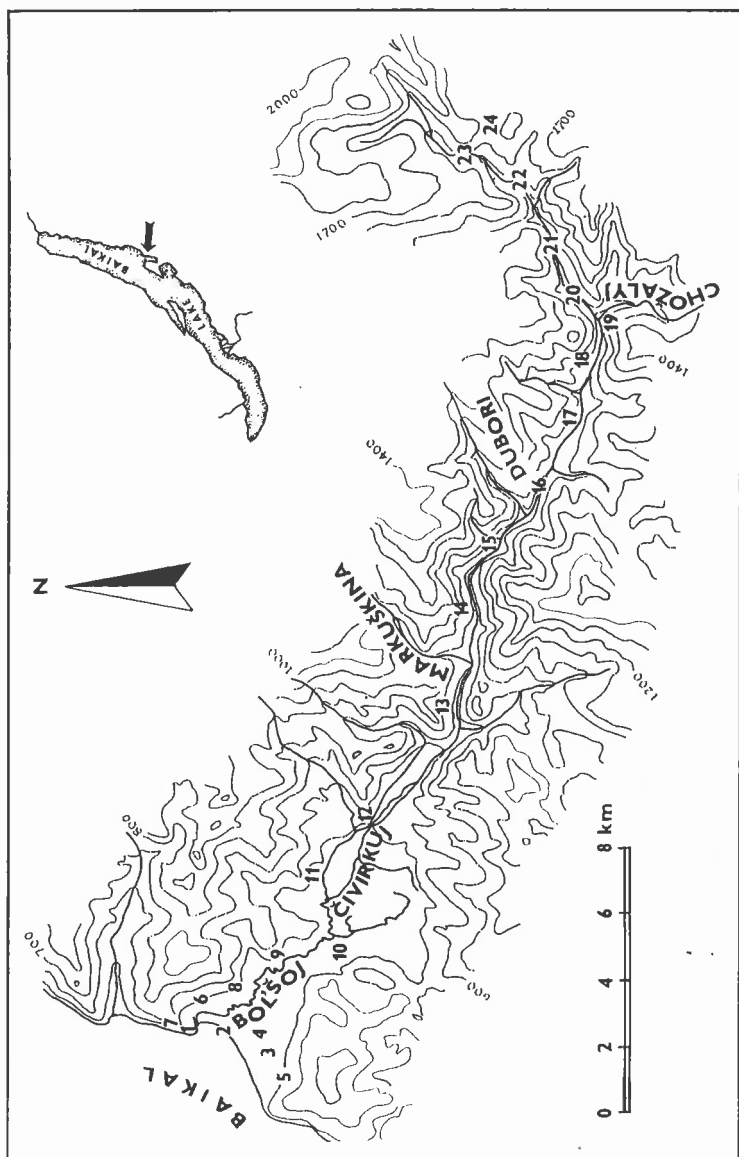


Fig. 1. Map of the Bol'shoj Čivyrkuj valley, with numbers of localities.

Localities (Fig. 1)

1. Settlement in the mouth of the Bol'. Čivyrkuj river, 460 m a.s.l.
2. Sandy dunes and shores of Lake Baikal on the left bank of the Bol'. Čivyrkuj river 0-2.5 km S-SW of its mouth, 460 m a.s.l.
3. Wetlands on the left bank of the Bol'. Čivyrkuj river 0.5-2 km S-SW of its mouth, 460 m a.s.l.
4. Taiga forest on sandy dunes on the left bank of the Bol'. Čivyrkuj river 2 km SSW of its mouth, 460 m a.s.l.
5. Krummholz on slopes ca 3 km SW of the mouth of the Bol'. Čivyrkuj river, 460-600 m a.s.l.
6. Taiga forest on the right bank of the Bol'. Čivyrkuj river 0-0.3 km E of its mouth, 470 m a.s.l.
7. Cliffs above the shores of Lake Baikal on the right side of the mouth of the Bol'. Čivyrkuj river, 480 m a.s.l.
8. Taiga forest along the path 0.3-2.5 km SE of the mouth of the Bol'. Čivyrkuj river, 470 m a.s.l.
9. Taiga forest and wetlands 3 km SE of the mouth of the Bol'. Čivyrkuj river, 460 m a.s.l.
10. Meadows and the left river bank ca 4.5 km SE of the mouth of the Bol'. Čivyrkuj river, 460 m a.s.l.
11. Taiga forest along the path 3-6 km SE of the mouth of the Bol'. Čivyrkuj river, 460-520 m a.s.l.
12. Taiga forest and the right river bank 6-7 km SE of the mouth of the Bol'. Čivyrkuj river, ca 500 m a.s.l.
13. Taiga forest and rocky slopes along the path 0-4 km WNW of the confluence of the Bol'. Čivyrkuj river and the Markuškina creek, 550-680 m a.s.l.
14. Taiga forest, rocks and the right river bank 0-2.5 km E of the confluence of the Bol'. Čivyrkuj river and the Markuškina creek, 680-770 m a.s.l.
15. Taiga forest and the right river bank 0-2 km NW of the confluence of the Bol'. Čivyrkuj river and the Dubori creek, 770-850 m a.s.l.
16. Taiga forest and the right river bank 0-2 km SE of the confluence of the Bol'. Čivyrkuj river and the Dubori creek, 850-930 m a.s.l.
17. Meadows and taiga forest on the right river bank 3.5 km WNW of the confluence of the Bol'. Čivyrkuj river and the Chožalyj creek, 930-950 m a.s.l.
18. Taiga forest and the right river bank 0-3.5 km WNW of the confluence of the Bol'. Čivyrkuj river and the Chožalyj creek, 950-1080 m a.s.l.
19. Taiga forest and river banks near the confluence of the Bol'. Čivyrkuj river and the Chožalyj creek, ca 1080 m a.s.l.
20. River banks, krummholz and screes on slopes 0-1.5 km NE of the Bol'. Čivyrkuj river and the Chožalyj creek, 1080-1160 m a.s.l.

21. River banks, krummholz and screes on slopes 1.5-3.0 km NE of the confluence of the Bol'. Čivyrkuj river and the Chožalyj creek, 1160-1300 m a.s.l.
22. River banks, meadows, krummholz and screes on slopes 3.0-5.3 km NE of the confluence of the Bol'. Čivyrkuj river and the Chožalyj creek, 1300-1550 m a.s.l.
23. Alpine tundra, meadows, river banks, krummholz and screes on slopes in the cirque of the Bol'. Čivyrkuj valley 5.5-7.5 km NE of the confluence with the Chožalyj creek, 1500-1650 m a.s.l.
24. Alpine tundra, krummholz and screes in the saddle between the Bol'. Čivyrkuj and Levaja valleys, 1650-1720 m a.s.l.

Systematic list

In the following list, the sequence of plant families follows the Engler's system used in Malyšev and Peškova (1979). Within the families, species are ordered alphabetically. The nomenclature of plant species follows, with some exceptions based on important taxonomic facts, the 7 already published volumes of the Flora of Siberia (Krasnoborov 1988 etc.) and Malyšev and Peškova (1979) for the families not treated yet. If in some cases other names are used for serious taxonomical reasons, the corresponding names from the above mentioned compendia are added in brackets. The numbers after species names correspond with those of localities in the above given list (see also Fig. 1). An exclamation point in brackets, associated with the locality number, indicates the collected herbarium specimen. Species marked "[§]" were not included, for various reasons, into the total number of species. Species new for the territory of the Zabajkal'skij National Park (missing in Bojkov et al. 1991, Danihelka et al. 1995 and Danihelka and Chaloupková 1995) are marked by two asterisks.

Lycopodiaceae

- Diphasiastrum alpinum* (L.) Holub: 18, 22, 23.
Diphasiastrum complanatum (L.) Holub: Bol'. Čivyrkuj river (Tjulina 1940 after Popov and Busik 1966); 4, 12, 13.
Lycopodium annotinum L.: Bol'. Čivyrkuj river (Tjulina after Popov and Busik 1966); 4, 5, 8, 12, 13, 19, 20, 22.
L. clavatum L.: 11.
L. juniperoides Sw.: mouth of the Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966); Bol'. Čivyrkuj river (Malyšev after Sergievskaja 1966, Ivanova and Čepurnov 1983).

Huperziaceae

- Huperzia selago* (L.) Bernh. ex Schrank et Mart.: 22(!).

Selaginellaceae

Selaginella rupestris (L.) Spring: mouth of the Bol'. Čivyrkuj river (Popov and Peškova 1954 after Popov and Busik 1966); 7, 13, 15, 24.

Equisetaceae

Equisetum arvense L.: Bol'. Čivyrkuj valley (Tjulina 1950 after Popov and Busik 1966); 1(!), 2, 9, 10, 11, 12(!), 13, 19.

E. fluviatile L.: 3, 9, 10.

E. hyemale L.: Bol'. Čivyrkuj river (Tjulina after Popov and Busik 1966); Chožalyj creek (Siplivinskij after Sergievskaja 1966); 1, 2, 10, 12, 13, 17.

E. pratense Ehrh.: mouth of the Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966); 1, 2, 4, 9, 10, 12, 13, 15, 19, 20, 22, 23.

E. scirpoides Michx.: 12(!).

E. sylvaticum L.: mouth of the Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966); 4, 8, 9, 14.

E. variegatum Schleich.: 17.

Ophioglossaceae

Botrychium lunaria (L.) Swartz: 13, 17(!).

B. multifidum (S. G. Gmelin) Rupr.: 17(!). [***].

Onocleaceae

Matteucia struthiopteris (L.) Tod.: Bol'. Čivyrkuj valley (Tjulina 1939 after Popov and Busik 1966); 11, 12, 15.

Athyriaceae

Athyrium filix-femina (L.) Roth: 11, 12, 14, 15.

Cystopteris fragilis (L.) Bernh.: 13(!).

Diplazium sibiricum (Turcz. ex G. Kunze) Kurata: "Čivyrkuj" (Siplivinskij and Lag. after Sergievskaja 1966); 12, 13, 15.

Woodsiaceae

Woodsia ilvensis (L.) R. Br.: Bol'. Čivyrkuj (Tjulina 1939 after Popov and Busik 1966); 7, 13, 15, 24(!).

Aspidiaceae

Dryopteris carthusiana (Vill.) H. P. Fuchs: 11, 12(!), 16.

D. fragrans (L.) Schott: Bol'. Čivyrkuj valley (Tjulina and Korneev 1939 after Popov and Busik 1966); 7, 15, 19, 24.

Gymnocarpium dryopteris (L.) Newm.: 1, 6, 12, 13, 14, 15, 19.

Thelypteridaceae

Phegopteris connectilis (Michx. fil.) Watt: Bol'. Čivyrkuj river valley (Tjulina 1939 after Popov and Busik 1966); 11, 12, 14.

Hypolepidaceae

Pteridium aquilinum (L.) Kuhn: 13, 15.

Polypodiaceae

Polypodium virginianum L.: 5(!), 7.

P. vulgare L.: Bol'. Čivyrkuj valley (Tjulina 1939 after Popov and Busik 1966). [§].

Note: This species should not occur in the region (Krasnoborov 1988). Probably, *P. virginianum* was mistaken for this species.

Pinaceae

Abies sibirica Ledeb.: 2, 6, 7, 9, 11, 12, 13, 17, 19.

Larix sibirica Ledeb.: 4, 5, 6, 9, 11, 13, 22.

Picea obovata Ledeb.: 9, 10, 11, 12, 13, 17, 19.

Pinus pumila (Pallas) Regel: 2, 4, 5, 9, 13, 17, 19, 20, 21, 22, 23, 24.

P. sibirica Du Tour: 4, 5, 7, 9, 10, 11, 12, 13.

P. sylvestris L.: 2, 6, 9, 11, 13, 14.

Cupressaceae

Juniperus sibirica Burgsd.: 2, 11(!), 14, 17, 20, 22, 23.

Sparganiaceae

Sparganium sp.: 1, 3.

Potamogetonaceae

Potamogeton alpinus Balb. subsp. *temuifolius* (Raf.) Hultén: 1(!), 3(!).

P. perfoliatus L.: 1(!).

P. berchtoldii Fieber.: 1(!).

Scheuchzeriaceae

Scheuchzeria palustris L.: mouth of the Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966, Poplavskaĵa after Sergeĵevskaĵa 1966; Ivanova and Čepurnov 1983); 3(!).

Alismataceae

Sagittaria natans Pallas: 1(!).

Poaceae

Agrostis clavata Trin.: 2, 10, 13(!), 14.

A. stolonifera L.: 1(!). [**].

Alopecurus aequalis Sobol.: mouth of the Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966, Popov after Sergeĵevskaĵa 1969); i, 3.

A. pratensis L.: Bol'. Čivyrkuj river (Ivanova and Čepurnov 1983); 1, 10(!).

Anthoxanthum alpinum A. et D. Löve: 4, 8, 17, 22, 23(!).

Brachypodium pinnatum (L.) Beauv.: Bol'. Čivyrkuj valley (Tjulina 1939 after Popov and Busik 1966); "Čivyrkuj" (?Tjulina after Sergeĵevskaĵa 1969); 18(!).

Bromopsis sibirica (Drobov) Peschkova: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966); 2(!), 7, 11(!), 13.

- Calamagrostis epigeios* (L.) Roth: 1, 2(!), 13.
C. lapponica (Wahl.) Hartm.: 24(!).
C. korotkyi Litv.: 7(!), 15(!), 24(!).
C. langsдорffii (Link) Trin.: 1, 2, 9, 10, 12, 13, 14, 15, 19, 20, 22, 23.
C. neglecta (Ehrh.) Gartner, Meyer et Scherber: 2(!).
C. obtusata Trin.: 5, 6, 8, 9, 12, 13, 19, 23.
Cinna latifolia (Trev.) Griseb.: Bol'. Čivyrkuj valley (Tjulina 1939 after Popov and Busik 1966); 12(!).
Deschampsia turczaninowii Litv.: Bol'. Čivyrkuj river (Popov 1952 after Popov and Busik 1966).
Elymus caninus (L.) L.: 11(!), 12, 13(!).
E. mutabilis (Drobov) Tzvelev: 2(!), 10(!).
E. sibiricus L.: 2(!).
E. transbaicalensis (Nevski) Tzvelev: 2(!).
Elytrigia repens (L.) Nevski: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966); 1, 2.
Festuca altaica Trin.: 22(!), 23.
F. kryloviana Reverd.: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966); Chožalyj valley (Tjulina 1939 after Popov and Busik 1966, Tjulina after Sergievskaja 1969); mountain ranges above the Bol'. Čivyrkuj river (Tjulina after Sergievskaja 1969).
F. ovina L.: 2(!), 4, 7, 11, 12, 15, 17, 18, 19, 20(!), 21, 22, 23, 24.
F. pratensis L.: 1(!).
F. rubra L.: mouth of the Bol'. Čivyrkuj river (Tjulina after Popov and Busik 1966); "Čivyrkuj" (?Tjulina after Sergievskaja 1969). [§].
F. rubra L. subsp. *baicalensis* (Griseb.) Tzvelev: 1, 2(!), 7.
Glyceria triflora (Korsh.) Kom.: 1(!).
Hierochloa alpina (Sw.) Roemer et Schultes: 24(!).
H. odorata (L.) Beauv.: 8, 10, 13.
Leymus secalinus (Georgi) Tzvelev: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966); 2(!).
Melica nutans L.: Bol'. Čivyrkuj river (Tjulina 1939 and Popov 1952 after Popov and Busik 1966); 6, 12, 17.
Milium effusum L.: Chožalyj valley (Tjulina 1939 after Popov and Busik 1966); Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966, Popov after Sergievskaja 1969); 6, 8, 12, 19, 21, 22(!).
Poa attenuata Trin.: 24(!).
P. angustifolia L.: 1.
P. palustris L.: 1(!), 10(!), 12.
P. pratensis L.: 1, 3(!), 9, 10(!), 12(!), 18(!), 20(!), 21, 22(!), 23.
P. pruinosa Korotky: 1(!).
P. remota Forselles: 10(!), 12. [**].
P. sibirica Roshev.: 8, 10, 16, 17, 19, 20, 21, 23.

P. supina Schrader: 1, 6, 12.

P. urssulensis Trin. vel *P. stepposa* (Krylov) Roshev.: 1(!), 7(!), 12(!), 13(!), 14, 15(!).

Note: The taxonomy of the group *Poa* sect. *Stenopoa* Dum. seems to be very complicated. The treatment of this group in Malyšev and Peškova (1979) is insufficient. Using the grass monograph of the former USSR (Cvelev 1976), some plants from dry sites were determined as *Poa tanfiljewii* Roshev. but they did not quite fit the description. The new treatment of the group (Olonova in Malyšev and Peškova 1990) is probably more realistic but the use of single determining characters in the key and descriptions is in our opinion not quite suitable. This was later pointed out by Olonova (1992) herself. A detailed study of variation and a new taxonomic treatment of *Poa* sect. *Stenopoa* Dum. are needed. For the purpose of this study, most plants were determined as *Poa urssulensis* Trin. or *P. stepposa* (Krylov) Roshev.

Puccinellia hauptiana Krecz.: 1.

Schizachne callosa (Turcz. ex Griseb.) Ohwi: 12(!), 13, 14.

Trisetum altaicum Roshev.: 20(!), 22(!), 23.

Cyperaceae

Carex amgunensis Fr. Schmidt: 6(!), 11.

C. argunensis Turcz. ex Trev.: "Čivyrkujskij saddle" (Korneev 1939 after Popov and Busik 1966); Bol'. Čivyrkuj river (Ivanova and Čepurnov 1983).

C. appendiculata (Trautv. et Meyer) Kük.: sand dunes in the mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966); Chožalyj creek (Tjulina 1939 after Popov and Busik 1966).

C. aterrima Hoppe: Bol'. Čivyrkuj river (Popov and Malyšev 1954 after Popov and Busik 1966); 12(!), 13, 15, 20(!), 21, 22(!), 23.

C. bigelowii Torrey ex Schwein. subsp. *ensifolia* (Gorodkov) Holub: 22(!), 23(!), 24. [**].

C. bipartita All.: 22(!), 23(!).

C. brunescens (Pers.) Poir.: 1(!), 22(!).

C. canescens L.: Chožalyj valley, alpine meadow (Korneev 1939 after Popov and Busik 1966); Bol'. Čivyrkuj (Korneev after Sergievskaja 1972a); 1, 3, 9, 10, 17, 22, 23(!).

C. capitata L.: 3.

C. chordorrhiza Ehrh.: mouth of the Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966, Popov after Sergievskaja 1972a).

C. dahurica Kük.: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 and Popov 1954 after Popov and Busik 1966).

C. ericetorum Pollich: mouth of the Bol'. Čivyrkuj river (Popov and Peškova 1954 after Popov and Busik 1966); Popov and Peškova after Sergievskaja 1972a); 2(!), 17.

- C. falcata* Turcz.: 8(!).
- C. globularis* L.: mouth of the Bol'. Čivyrkuj river (Popov and Busik 1966); 4, 5, 8, 9, 10, 11, 13, 23.
- C. heleonastes* Ehrh.: Bol'. Čivyrkuj river, "Lebedinoe" lake, peat bogs (Popov 1954 after Popov and Busik 1966).
- C. juncella* (E. Fries) T. Fries: 2, 3, 12, 15(!), 17, 20(!), 22(!), 23.
- C. korshinskiyi* Kom.: 7.
- C. lasiocarpa* Ehrh.: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966; Tjulina after Sergievskaja 1972a); 3.
- C. ledebouriana* C. A. Meyer: 24(!). [**].
- C. limosa* L.: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 and Popov and Peškova 1954 after Popov and Busik 1966; Tjulina after Sergievskaja 1972a); 3, 9, 23(!).
- C. loliacea* L.: 11(!), 14.
- C. macroura* Meinsh.: 1, 6(!), 12(!).
- C. pallida* C. A. Meyer: Bol'. Čivyrkuj river (Sergievskaja 1972a); mouth of the Bol'. čivyrkuj river (Ivanova and Čepurnov 1983); 2(!), 11(!), 12, 13, 15(!), 17, 19, 22, 23.
- C. pediformis* s.l.: 6, 13, 14, 17, 19. [§].
- C. podocarpa* R. Br.: upper part of the Chožalyj creek basin (?Siplivinskij and Lag. after Segievskaja 1972a); 20(!), 22, 23
- C. rhynchophysa* C. A. Meyer: 1, 2(!), 9, 10, 12.
- C. rostrata* Stokes: Bol'. Čivyrkuj (Tjulina after Sergievskaja 1972a); 3, 9, 23(!).
- C. sabulosa* Turcz. ex Kunth: mouth of the Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966; Ivanova and Čepurnov 1983); 2(!).
- C. schmidtii* Mensh.: mouth of the Bol'. Čivyrkuj river (Popov and Busik 1966); Bol'. Čivyrkuj river (Ivanova and Čepurnov 1983); 2(!), 9, 10(!).
- C. tenuiflora* Wahlenb.: mouth of the Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966; Popov after Sergievskaja 1972a Ivanova and Čepurnov 1983).
- C. vesicata* Meinsh.: 2(!), 9.
- Eleocharis acicularis* (L.) R. Br.: mouth of the Bol'. Čivyrkuj river (Malyšev 1954 after Popov and Busik 1966; Ivanova and Čepurnov 1983); "Čivyrkuj" (Malyšev after Sergievskaja 1972a); 1(!).
- E. mamillata* Lindb. fil. subsp. *mamillata* [incl. subsp. *ussuriensis* (Zinsler) Egor.] 1(!).
- E. palustris* (L.) Roem. et Schult.: mouth of the Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966). [§]. Because of the broadly conceived taxonomic conception of the group *Eleocharis palustris* s.l. (see Malyšev and Peškova 1979) it is not clear, which of the taxa is given under this name.
- Triphorum gracile* Koch 3(!)

- E. humile* Turcz. ex Steudel: mountain range in the upper part of the Bol'. Čivyrkuj river basin (Siplivinskij and Lag. after Sergievskaja 1972a).
E. polystachyon L.: Bol'. Čivyrkuj river (Tjulina after Popov and Busik 1966, Tjulina after Sergievskaja 1972a); 11(!).
E. russeolum Fries: right bank of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966); mouth of the Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966); Bol'. Čivyrkuj river (Tjulina after Sergievskaja 1972a); 3, 23(!).
E. scheuchzeri Hoppe: 23, 24(!).
Kobresia myosuroides (Vill.) Fiori et Paol.: 24(!).
Rhynchospora alba (L.) Vahl: 3(!). [**].

Juncaceae

- Juncus bufonius* L.: "Čivyrkuj river" (Popov 1954 after Popov and Busik 1966). [§].
J. bufonius s.l.: 1(!).
J. filiformis L.: "Čivyrkuj river" (Popov 1957 after Popov and Busik 1966); 1, 2.
J. stygius L.: 3(!). [**].
Luzula camtschadalarum (Sam.) Gorodkov: 22(!), 23(!).
L. confusa Lindeb.: 24(!). [**].
L. parviflora (Ehrh.) Desv.: "Čivyrkuj pathway" (Tjulina after Popov and Busik 1966); along the Bol'. Čivyrkuj river (Tjulina after Sergievskaja 1972a); Chožalyj valley (Korneev 1939 after Popov and Busik 1966); Meževyj valley (Korneev 1939 after Popov and Busik 1966); along the Chožalyj creek (Tjulina after Sergievskaja 1972a); 11(!), 17.
L. pilosa (L.) Willd.: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966); Tjulina after Sergievskaja 1972a); 6, 12.
L. rufescens Fischer ex Meyer: 9, 12.
L. sibirica V. Krecz.: 12, 15, 17, 19, 21(!), 22, 23(!).

Liliaceae

- Allium splendens* Willd. ex Schult. et Schult. fil.: 2 (!), 7, 13, 15, 24(!).
Allium pilosiusculum (Freyn) Miscz.: 6, 8, 12, 13, 17.
Lloydia serotina (L.) Reichb.: upper part of the Chožalyj valley (?Siplivinskij and Lag. after Sergievskaja 1972b).
Maianthemum bifolium (L.) F. W. Schmidt: 4, 6, 9, 11, 12, 13, 19.
Paris quadrifolia L.: 9, 12, 19.
Smilacina trifolia (L.) Desf.: 9, 10.
Veratrum lobelianum Bernh.: 9, 10, 12, 13, 15, 19, 23.

Iridaceae

- Iris laevigata* Fischer et Meyer: Bol'. Čivyrkuj river (Sergievskaja 1972b).

Orchidaceae

- Coeloglossum viride* (L.) C. Hartman: Bol'. Čivyrkuj river (Ivanova and Čepurnov 1983); 24(!). [**].
- Corallorhiza trifida* Chatel.: mouth of the Bol'. Čivyrkuj river (Popov 1955 after Popov and Busik 1966; Popov after Sergievskaja 1972b).
- Cypripedium guttatum* Sw.: mouth of the Bol'. Čivyrkuj river (Malyšev 1954 after Popov and Busik 1966); Bol'. Čivyrkuj river (?Siplivinskij after Sergievskaja 1972b).
- Dactylorhiza cruenta* (O. F. Mueller) Soó: mouth of the Bol'. Čivyrkuj river, peat bogs (Popov 1954 after Popov and Busik 1966); Bol'. Čivyrkuj river (Popov after Sergievskaja 1972b).
- D. meyeri* (Reichenb. fil.) Aver.: 6, 8(!), 9, 13, 16.
- Epipactis helleborine* (L.) Crantz: 13, 14(!).
- Goodyera repens* (L.) R. Br.: Bol'. Čivyrkuj river (Tjulina after Sergievskaja 1972b).

Salicaceae

- Populus suaveolens* Fischer: 12, 13.
- P. tremula* L.: "Čivyrkuj river" (Georgi 1775 after Popov and Busik 1966); 6, 12, 13, 14.
- Salix burjatika* Nasarov (syn.: *S. dasyclados* auct. fl. sib. non Wimmer): Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966); 1, 2, 10, 12, 13.
- S. caprea* L.: 6, 12, 13, 14, 16.
- S. glauca* L.: upper part of the Chožalyj creek basin (Tjulina 1939 after Popov and Busik 1966); 22(!), 24(!). [**].
- S. hastata* L.: 11(!), 17(!).
- S. jensiseensis* (Fr. Schmidt) B. Flod.: mouth of the Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966).
- S. krylovii* E. Wolf: "gol'cy" of the Bol'. Čivyrkuj river (Malyšev 1954 after Popov); mouth of the Bol'. Čivyrkuj river (Popov after Popov and Busik 1966); 2(!), 10, 17(!), 21, 22, 23.
- S. myrtilloides* L.: Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966); 3(!), 11(!).
- S. myrtilloides* L. x *S. rhamnifolia* Pallas subsp. *saposhnikovii* (A. Skvortsov) N. Bolschakov: wetlands in the mouth of the Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966).
- S. phyllicifolia* L. subsp. *divaricata* (Pallas) N. Bolschakov: 2(!), 10(!), 12, 17, 19, 21(!), 24(!).
- S. pseudopentandra* (B. Flod.) B. Flod.: Bol'. Čivyrkuj river (Popov and Busik 1966). [**].
- S. rectijulis* Ledeb. ex Trautv.: Bol'. Čivyrkuj river (Malyšev 1954 after Popov and Busik 1966); 16, 17(!), 20(!), 22(!), 23(!).

- S. rhamnifolia* Pallas subsp. *saposhnikovii* (A. Skvortsov) N. Bolschakov (syn.: *S. arbuscula* auct., non L. p.): Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966).
- S. rorida* Laksch.: Bol'. Čivyrkuj river (Popov and Busik 1966); Chožalyj creek (Popov and Busik 1966); 10(!), 12, 13, 19.
- S. rosmarinifolia* L.: Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966); 10(!).
- S. sphenophylla* A. Skvortsov: 24(!).
- S. turczaninowii* Laksch.: 23(!).

Betulaceae

- Alnus hirsuta* (Spach) Turcz. ex Rupr.: mouth of the Bol'. Čivyrkuj river (Popov and Busik 1966).
- Betula divaricata* Ledeb.: Bol'. Čivyrkuj river (Bardunov and Malyšev 1954 and Popov 1954 after Popov and Busik 1966); Ivanova and Čepurnov 1983); 22, 23, 24(!).
- B. fruticosa* Pallas s.l.: Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966).
- B. nana* L. subsp. *exilis* (Sukaczew) Hultén: 4(!), 17, 22(!), 23.
- B. nana* L. subsp. *rotundifolia* (Spach) Malyshev: mouth of the Bol'. Čivyrkuj river (Malyšev and Peškova 1954 after Popov and Busik 1966). [S].
- B. pendula* Roth: 2, 4, 5, 6, 7, 10, 12, 13, 17, 19.
- Duschekia fruticosa* (Rupr.) Pouzar: 5, 6, 12, 13, 14, 19, 22.

Urticaceae

- Urtica cannabina* L.: "Čivyrkuj river" (Malyšev 1954 after Popov and Busik 1966); 1.
- U. dioica* L.: "Čivyrkuj river" (Malyšev 1954 after Popov and Busik 1966); 1, 10, 12(!), 13(!), 14, 15, 20.
- U. urens* L.: "Čivyrkuj river" (Malyšev 1954 after Popov and Busik 1966; Ivanova and Čepurnov 1983). [**].

Santalaceae

- Thesium repens* Ledeb.: "Čivyrkuj" (Popov and Busik 1966).

Polygonaceae

- Acomogonon ajanense* (Regel et Tiling) Hara: 2 (!). [**].
- A. ocreatum* (L.) Hara: mouth of the Bol'. Čivyrkuj river (Popov and Busik 1966); 2, 7, 15(!), 23, 24(!).
- A. sericeum* (Pallas ex Georgi) Hara: upper part of the Bol'. Čivyrkuj river basin (Malyšev 1954 after Popov and Busik 1966).
- Bistorta vivipara* (L.) S. F. Gray: 7, 8, 17, 22, 24(!).
- Fallopia convolvulus* (L.) A. Löve: 1.
- Oxyria digyna* (L.) Hill: 16, 19, 22, 23.

Persicaria hydropiper (L.) Spach: mouth of the Bol'. Čivyrkuj river (Ivanova and Čepurnov 1983): 1.

P. lapathifolia (L.) S. F. Gray subsp. *mesomorpha* (Danser) Soják: 1, 3. [**].

Note: Popov and Busik (1966) reported *Polygonum tomentosum* Schrank for the Bol'. Čivyrkuj river. As was pointed out by Chrtěk (1990), *Persicaria lapathifolia* (L.) S. F. Gray subsp. *mesomorpha* (Danser) Soják was usually mistaken for *Persicaria tomentosa* (Schrank) Bicknell. The same was probably done in Krasnoborov and Malyšev (1992) who used the name *P. lapathifolia* (L.) S. F. Gray var. *tomentosa* (Schrank) Tzevelev instead of *Persicaria lapathifolia* subsp. *mesomorpha*. *Persicaria tomentosa* (Schrank) Bicknell is another, more or less European taxon of the complicated group *Persicaria lapathifolia* s.l. For details see Chrtěk (1990).

Polygonum aviculare s.l.: mouth of the Bol'. Čivyrkuj river (Popov and Busik 1966): 1(!).

Rumex acetosa L.: 9, 10, 19, 20, 22, 23(!).

R. aquaticus L. subsp. *protractus* Rech. fil.: 1, 3, 8, 10, 12.

Truellum sieboldii (Meisn.) Soják: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966; Ivanova and Čepurnov 1983): 1(!).

Chenopodiaceae

Chenopodium furskewii Aellen et Iljin in Komarov: 1(!). [**].

Note: This hybridogenous taxon of *C. album* group, taxonomical status of which is not quite clear, is not mentioned in the Flora of Siberia (Krasnoborov and Malyšev 1992) at all.

C. opulifolium Schrader ex DC.: 1. [**].

C. x pseudostriatum Zschacke: 1(!), 2. [**].

Note: This hybridogenous taxon of *C. album* group, taxonomical status of which is not quite clear, is not mentioned in the Flora of Siberia (Krasnoborov and Malyšev 1992) at all.

Corspermum ulopterum Fenzl: 2(!).

C. sibiricum Iljin: mouth of the Bol'. Čivyrkuj river (Tjulina after Popov and Busik 1966). [**].

Caryophyllaceae

Cerastium holosteoides Fries: 1.

Dianthus superbus L.: 15, 17(!), 21, 22, 23(!).

D. versicolor Fischer ex Link: 2.

Dichodon cerastioides (L.) Reichenb.: 15(!), 18(!), 19, 20, 23.

Mimurta arctica (Steven ex Ser.) Graebner: 24(!).

M. biflora Schinz et Thell.: 23(!).

M. verna (L.) Hiern: 22(!), 23, 24(!).

- Moehringia lateriflora* (L.) Fenzl: 1, 8, 10, 11, 12, 14, 15.
Sagina procumbens L.: 1.
Silene chamarensis Turcz.: 24(!).
S. repens Patrin: 2, 7, 11, 13, 14, 15, 17.
Stellaria angarae M. Popov.: 1(!), 15(!).
S. filicaulis Makino: 10(!).
S. longifolia Muehl. ex Willd.: Bol'. Čivyrkuj river (Popov and Busik 1966); 10(!), 15.
S. media (L.) Villars: 1.
S. peduncularis Bunge: 24(!).
S. schischkinii Peschkova: Bol'. Čivyrkuj river valley, on a slope (Tjulina 1940 after Popov and Busik 1966). [***].
S. umbellata Turcz. ex Kar. et Kir.: 18(!), 19, 22.

Ranunculaceae

- Aconitum baicalense* Turcz. ex Rapaics (incl. *Aconitum longiracemosum* Worosch.): mouth of the Bol'. Čivyrkuj river (Bardunov 1953 after Popov and Busik 1966); 8, 9, 10(!), 13(!), 19, 20, 21, 22.
A. rubicundum Fischer: 6, 8, 10, 12, 15, 19, 20, 22, 23.
Actaea erythrocarpa Fischer: Bol'. Čivyrkuj valley (Tjulina 1939 after Popov and Busik 1966); 11, 12, 15.
Anemonastrum sibiricum (L.) Holub: 21, 22, 23, 24.
Anemonidium dichotomum (L.) Holub: Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966); 9.
Aquilegia glandulosa Fischer ex Link: Bol'. Čivyrkuj river (Popov and Busik 1966); 19, 20, 22, 23.
A. sibirica Lam.: 14.
Atragene speciosa Weinm.: 11, 12, 13, 15.
Batrachium circinatum (Sibth.) Spach: 1, 3.
Caltha arctica R. Br.: 22(!).
C. membranacea (Turcz.) N. Schipcz.: Chožalyj valley (Tjulina after Popov and Busik 1966).
C. palustris s.l.: 9, 10(!), 14, 15(!), 19, 20, 23. [§].
Delphinium elatum L.: mouth of the Bol'. Čivyrkuj river, stony bank (Tjulina 1939 after Popov and Busik 1966).
Pulsatilla multifida (G. Pritzel) Juz.: mouth of the Bol'. Čivyrkuj river (Malyšev 1954 after Popov and Busik 1966).
P. patens s.l.: 13, 17. [§].
Ranunculus propinquus C. A. Meyer: 1, 8, 9, 10, 17(!), 19, 22, 23.
R. repens L.: 10.
R. reptans L.: 1.
R. sceleratus L.: 1.
Thalictrum foetidum L.: mouth of the Bol'. Čivyrkuj river, rocks (Tjulina 1939 after Popov and Busik 1966); 7.

T. minus L.: 6, 10, 12, 13, 14, 15, 17, 19.

Trollius kytmanovii Reverd.: 8, 9, 10, 12, 15, 20, 22, 23(!).

Papaveraceae

Chelidonium majus L.: 1, 5, 15.

Papaver nudicaule L.: mouth of the Bol'. Čivyrkuj river (Popov and Busik 1966 after Tjulina 1939); 2.

Brassicaceae

Arabis hirsuta (L.) Scop.: "Čivyrkuj pathway" (Tjulina 1939 after Popov and Busik 1966).

A. hirsuta (L.) Scop. var. *borealis* (Andrz.) Fedtsch.: Bol'. Čivyrkuj river, rocks (Popov and Peškova 1954 after Popov and Busik 1966). [§].

A. pendula L.: 1.

Armoracia sp.: 1.

Barbarea stricta Andrz.: 1.

Borodinia baicalensis N. Busch: 24(!).

Brassica campestris L.: 1(!).

Capsella bursa-pastoris (L.) Medikus: 1.

Cardamine microphylla Willd.: "Čivyrkuj pathway" (Tjulina 1939 after Popov and Busik 1966); Chožalyj valley (Tjulina 1939 after Popov and Busik 1966): 8, 9, 10, 11, 12, 13, 14, 15, 19, 20.

C. trifida (Poir.) B. M. G. Jones: Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966). [**].

Descurainia sophia (L.) Webb ex Prantl: 1. [**].

Draba baicalensis Tolm.: mouth of the Bol'. Čivyrkuj river (Malyšev and Peškova 1979): (7)!, 13.

D. subamlexicaulis C. A. Meyer: mouth of the Bol'. Čivyrkuj river (Popov 1952 after Popov and Busik 1966). [§].

Note: According to Malyšev and Peškova (1979), this species should not be found in the area. For example, the species *Draba hirta* L. or *D. baicalensis* Tolm. could have been mistaken for this one.

D. nemorosa L.: 7.

Erysimum hieracifolium L.: 1.

E. cheiranthoides L.: Bol'. Čivyrkuj (Popov and Busik 1966). [**].

Hesperis sibirica L.: 1.

Isatis oblongata DC.: 2.

Macropodium vivale (Pallas) R. Br.: 18, 22, 23(!).

Rorippa palustris (L.) Besser: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966): 1, 3.

Thlaspi arvense L.: 1.

Turritis glabra L.: 13.

Droseraceae

Drosera anglica Hudson: 3(!).

D. rotundifolia L.: mouth of the Bol'. Čivyrkuj (Popov 1954 after Popov and Busik 1966); 3.

Crassulaceae

Orostachys spinosa (L.) C. A. Meyer: 7.

Rhodiola rosea L.: upper part of the Bol'. Čivyrkuj valley (Popov and Busik 1966); 7(!), 23.

Sedum aizoon L.: 7, 13.

S. maximum s.l.: 13(!).

Saxifragaceae

Bergenia crassifolia (L.) Fritsch: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966); 5, 6, 19, 22, 23, 24.

Chrysosplenium alternifolium L.: 11(!), 12, 13, 14, 15(!), 19, 20, 23.

Mitella nuda L.: 11, 12, 17, 18, 19.

Parnassia palustris L.: 17, 22, 23.

Ribes utropurpureum C. A. Meyer: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966).

R. fragrans Pallas: Bol'. Čivyrkuj valley (Tjulina 1939 after Popov and Busik 1966); 5, 15, 24.

R. nigrum L.: Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966); mouth of the Chožalyj creek (Tjulina 1939 after Popov and Busik 1966); 1, 6, 12, 13, 14, 15, 19.

R. spicatum Robson: 12(!), 19.

Saxifraga algisii Egor. et Sipl.: 24(!).

S. bronchialis L.: 7, 13, 15, 24.

S. flagellaris Sternb. et Willd. subsp. *setigera* (Pursh) Tolm.: 24(!).

S. nivalis L.: mouth of the Bol'. Čivyrkuj river (Popov and Peškova 1954 after Popov and Busik 1966).

S. punctata L.: mouth of the Bol'. Čivyrkuj river (Malyšev 1954 after Popov and Busik 1966); 10, 12, 13, 15, 19, 20, 22(!), 23.

Rosaceae

Comarum palustre L.: 3, 9, 10, 23.

Cotoneaster melanocarpus Fischer ex Blytt: 13.

Dryas incisa Juz.: 24(!). [**].

Filipendula palmata (Pallas) Maxim.: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966); 9, 10, 12.

F. ulmaria (L.) Maxim.: 11.

Fragaria vesca L.: 1.

Geum aleppicum Jacq.: 1.

Note: Georgi (1775, after Popov and Busik 1966) gave *Geum urbanum* L. for the Bol'. Čivyrkuj river. Undoubtedly, this information refers to *Geum aleppicum* Jacq.

Padus avium Miller: 12.

- Pentaphylloides fruticosa* (L.) O. Schwartz: 9.
Potentilla anserina L.: 1.
P. crebridens Juz. subsp. *hemicyophila* Jurtz. (syn. *P. nivea* auct. non L.): 24(!).
P. norvegica L.: 1.
P. sericea L.: Bol'. Čivyrkuj river (Popov and Busik 1966).
P. tanacetifolia Willd. ex Schlecht.: Bol'. Čivyrkuj river, sands (Popov 1954 after Popov and Busik 1966).
Rosa acicularis Lindley: 1, 2, 6, 9, 11, 12, 13, 14, 15, 17, 24.
Rubus arcticus L.: 9, 10, 11, 12, 17, 22, 23.
R. chamaemorus L.: Bol'. Čivyrkuj river (Popov and Busik 1966); 4.
R. sachalinensis Lévl.: 1, 2, 6, 7, 12, 13, 14, 15.
R. saxatilis L.: 6, 12.
Sanguisorba officinalis L.: 8, 13, 17.
Sibbaldia procumbens L.: "gol'cy" of the Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966); 22, 23.
Sorbaria pallasii (G. Don fil.) Pojark.: 18, 19, 22, 24.
Sorbus sibirica Hedl.: 4, 6, 12, 13, 14, 15, 19, 21
Spiraea media Franz Schmidt: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966); 6, 7, 12, 13, 14, 15 17.
S. salicifolia L.: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966); 9, 10.

Fabaceae

- Astragalus propinquus* Schischkin: 2, 4, 12, 13, 17(!).
A. saralensis Gontsch.: 20(!), 23(!).
A. trigonocarpus (Turcz.) Bunge: 24(!). [**].
Lathyrus humilis (Ser.) Sprengel: 6, 11, 12, 13, 14.
L. pilosus Cham.: 1, 8, 9, 10.
L. pratensis L.: 1, 6, 9.
Oxytropis alpicola Turcz.: 24(!).
Trifolium pratense L.: 1.
T. repens L.: 1, 6, 8.
Vicia cracca L.: 1, 8, 9, 10, 12.
V. nervata Sipl.: 2(!), 6, 10, 12, 13.
V. sepium L.: 6, 8.
V. venosa (Willd. ex Link.) Maxim. (incl. *V. baicalensis* (Turcz.) B. Fedtsch.): Bol'. Čivyrkuj river (Malyšev 1954 after Popov and Busik 1966); 8(!), 9, 12, 14, 17.

Geraniaceae

- Geranium albiflorum* Ledeb.: 6, 9, 10, 12, 13, 14, 16, 19, 20, 21, 22, 23.
G. albiflorum Ledeb. var. *lilacinum* (Krylov) Malyshev: mouth of the Bol'. Čivyrkuj (Popov 1954 after Popov and Busik 1966). [§]

Oxalidaceae

Oxalis acetosella L.: 12, 19.

Callitrichaceae

Callitriche palustris L.: 1(!), 3(!).

Empetraceae

Empetrum subholarcticum V. Vassil.: 4(!), 5, 8, 9, 11, 22(!), 24(!).

Violaceae

Viola altaica Ker-Gawler: Bol'. Čivyrkuj valley (Tjulina 1939 after Popov and Busik 1966); near the confluence with the Chožalyj creek (Tjulina 1939 after Popov and Busik 1966); 22(!), 23.

V. biflora L.: Bolšoj Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966); 12(!), 20.

V. brachyceras Turcz.: Chožalyj creek (Tjulina 1939 after Popov and Busik 1966); Bol'. Čivyrkuj river (Popov and Peškova 1954 after Popov and Busik 1966); 6, 12, 13, 14.

V. repens Turcz. ex Trautv. et Meyer: mouth of the Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966); 11, 12(!), 15(!) 22(!), 23.

V. sachalinensis Boiss.: 1, 7, 12, 14, 18.

V. selkirkii Pursh ex Goldie: 12(!). [**].

V. uniflora L.: 11, 12(!), 13, 16, 19, 23(!).

Onagraceae

Chamaenerion angustifolium (L.) Scop.: 1, 2, 6, 9, 11, 12, 13, 14, 15, 17, 19, 20, 22.

C. latifolium (L.) Th. Fries et Lange: 12, 18, 19, 20, 22.

Circaea alpina L.: Bol'. Čivyrkuj river valley (Popov and Busik 1966 after Tjulina 1939); 11, 12.

Epilobium anagallidifolium Lam.: Chožalyj creek valley (Tjulina 1939 after Popov and Busik 1966); 12(!), 14, 19, 20, 22, 23.

E. palustre L.: 1, 5, 12(!), 14, 15, 22(!), 23.

Hippuridaceae

Hippuris vulgaris L.: 1, 3, 9.

Apiaceae

Aegopodium alpestre Ledeb.: Bol'. Čivyrkuj river (Popov and Busik 1966); 1, 8, 9, 10, 12, 15, 19, 22.

Angelica decurrens (Ledeb.) O. Fedtsch.: 1, 10, 13, 15, 19, 20, 21, 22, 23.

A. saxatilis Turcz. ex Ledeb.: 20, 22, 24.

Anthriscus aemula (Woronow) Schischkin: 1, 10, 12, 13, 19, 20, 22.

Bupleurum triradiatum Adam ex Hoffm.: 17, 22, 23, 24.

Carum carvi L.: 1, 6.

Cicuta virosa L.: 3, 9.

C. virosa L. var. *tenuifolia* (Froehl.) Koch: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966). [§].

Heraclenum dissectum Ledeb.: 2.

Phlojodicarpus baicalensis M. Popov: 2(!).

Pleurospermum uralense Hoffm.: 6, 9, 10, 12, 13, 20, 22, 23.

Schulzia crinita (Pallas) C. Sprengel: 22(!), 23, 24(!).

Pyrolaceae

Moneses uniflora (L.) A. Gray: 12(!), 13, 18.

Orthilia secunda (L.) House: 4, 6, 12, 13.

Pyrola asarifolia Michaux: 6, 8, 9, 11(!), 12, 13.

P. chlorantha Sw.: 18(!).

P. media Sw.: mouth of the Bol'. Čivyrkuj (Popov 1954 after Popov and Busik 1966).

P. minor L.: 11(!), 14, 22, 23.

P. rotundifolia L.: 8.

Ericaceae

Andromeda polifolia L.: mouth of the Bol'. Čivyrkuj river (Popov and Peškova 1954 after Popov and Busik 1966); 3.

Arctostaphylos uva-ursi (L.) Sprengel: 2, 4.

Chamaedaphne calyculata (L.) Moench: 1, 3.

Ledum palustre L.: 1, 4, 5, 9, 11, 12, 19, 20, 22, 24.

Rhododendron aureum Georgi: 20, 22, 23.

Vacciniaceae

Oxycoccus microcarpus Turcz. ex Rupr.: mouth of the Bol'. Čivyrkuj river (Popov and Busik 1966); 3(!).

O. palustris Pers: Bol'. Čivyrkuj river (Popov and Busik 1966); 3(!), 9.

Rhodococcum vitis-idaea (L.) Avrorin: 2, 4, 5, 6, 9, 11, 12, 13, 14, 17, 19, 22, 23, 24.

Vaccinium myrtillus L.: Bol'. Čivyrkuj valley (Popov and Busik 1966); 9, 11, 12, 13, 14, 19, 22, 23.

V. uliginosum L.: 1, 2, 4, 9, 11, 12, 22, 24.

Primulaceae

Androsace filiformis Retz.: 1(!). [**].

A. lactiflora Fischer ex Duby: 13.

Cortusa altaica Losinsk. vel *C. sibirica* Andr.: "*C. matthioli* L.: Bol'. Čivyrkuj river" (Popov and Busik 1966).

Naumburgia thyrsoflora (L.) Reichb.: 1, 3, 9.

Primula farinosa L.: Bol'. Čivyrkuj river (Popov and Peškova 1954 after Popov and Busik 1966).

Trientalis europaea L.: 5, 6, 9, 10, 12, 13, 19.

Gentianaceae

Gentiana algida Pallas: 24(!).

G. grandiflora Laxm.: 22, 23.

G. tenella Rottb.: 24(!). [**].

Menyanthaceae

Menyanthes trifoliata L.: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966); 3, 9.

Cuscutaceae

Cuscuta europaea L.: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966)

Polemoniaceae

Polemonium borale Adam: Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966).

P. coeruleum L.: Bol'. Čivyrkuj river (Popov and Malyšev 1954 after Popov and Busik 1966). [§].

Note: According to Malyšev and Peškova (1979) this species does not occur in East Siberia. Probably, the following species was mistaken for this one.

P. racemosum (Regel) Kitam.: 1, 10(!), 12(!), 15, 19.

Boraginaceae

Craniospermum subvillosum Lehm.: mouth of the Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966); 2(!).

Myosotis caespitosa K. F. Schultz: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966); 18.

M. krylovii Serg.: 12(!), 13(!), 20(!), 23.

M. scorpioides L. var. *nemorosa* (Besser) M. Ivanova: upper part of the Chožalyj creek basin (Tjulina 1939 after Popov and Busik 1966); 1, 8, 10(!), 12, 13(!), 14, 15, 19, 20, 22(!), 23.

M. suaveolens Waldst. et Kit.: 2(!), 7, 13, 24(!).

Lamiaceae

Dracocephalum altaense Laxm.: 18, 20, 22, 23.

D. nutans L.: 13(!), 22, 23.

D. ruschiana L.: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966).

Galeopsis bifida Boenn.: 1.

Lamium album L.: 1, 10(!), 15, 19, 20, 22, 23.

Origanum vulgare L.: 13(!).

Scutellaria galericulata L.: 10.

Scrophulariaceae

Euphrasia sp.: 1(!), 2, 15, 17.

Linaria acutiloba Fischer ex Reichenb.: 2(!).

Pedicularis amoena Adam ex Steven: 24(!).

P. karoi Freyn: mouth of the Bol'. Čivyrkuj river (Popov 1952 after Popov and Busik 1966); 3(!).

P. labradorica Wirsing: Bol'. Čivyrkuj valley (Korneev 1939 after Popov and Busik 1966); 4, 8, 9, 11, 13, 15, 17, 24(!).

P. oederi Vahl: 24(!).

P. resupinata L.: 8, 9, 10.

P. uncinata Stephan: 19, 20, 22, 23.

Scrophularia incisa Weinm.: 2.

Veronica densiflora Ledeb.: 23.

V. longifolia L.: 9, 10, 12, 13, 15, 19, 20.

Lentibulariaceae

Utricularia intermedia Hayne: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 and Popov 1954 after Popov and Busik 1966); 3.

Plantaginaceae

Limosella aquatica L.: 1(!). [***].

Plantago major L.: 1.

Rubiaceae

Galium boreale L.: 4, 6, 9, 10, 12, 13, 14, 15, 17, 19.

G. trifidum L.: 3, 9.

G. triflorum Michaux: 12(!), 13(!).

G. uliginosum L.: 10(!).

G. verum L.: 2.

Caprifoliaceae

Linnaea borealis L.: 4, 5, 8, 9, 11, 12, 13, 19, 22.

Lonicera cf. *pallasii* Ledeb.: 5, 9, 10(!), 12(!), 15, 19, 24(!).

Sambucus sibirica Nakai: 1, 5, 13, 14, 15.

Adoxaceae

Adoxa moschatellina L.: 12.

Valerianaceae

Patrinia sibirica (L.) Juss.: mouth of the Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966); 2(!), 24(!).

Valeriana transjensisensis Kreyer: 7, 15.

Campanulaceae

Campanula glomerata L.: 13(!), 14.

C. rotundifolia s.l.: 2(!), 4, 12, 13, 14, 15, 17, 22, 23.

C. rotundifolia L. subsp. *langsdorffiana* (Fischer ex Trautv. et Meyer) Vodop.: mouth of the Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966). [§].

Asteraceae

- Achillea asiatica* Serg.: 1, 2.
Antennaria dioica (L.) Gaertner: 4, 8, 12, 13, 14, 17, 22, 23.
Artemisia dolosa Krasch.: "Čivyrkuj river" (Galazij 1954 after Popov and Busik 1966), "Čivyrkuj" (Malyšev and Peškova 1979).
A. furcata Bieb.: 24(!). [**].
A. lagocephala (Besser) DC.: 24(!).
A. leucophylla (Besser) Turcz. ex Clarke: 2(!), 12, 13(!).
A. pubescens Ledeb.: 2(!).
A. sericea Weber ex Stechm.: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966); 7(!), 13(!).
A. tanacetifolia L.: 6(!).
A. cf. vulgaris L.: 1.
Aster korshinskyi Tamamsch.: 15(!).
Bidens radiata Thuil.: 1(!).
Carlina biebersteinii Bernh. ex Hornem.: 14(!).
Cirsium helenioides (L.) Hill: 1, 8, 9, 10, 12, 13, 14, 15, 19, 20, 22, 23.
C. serratuloides (L.) Hill: 14.
Cacalia hastata L.: mouth of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966); 10, 12, 19, 20.
Crepis chrysantha (Ledeb.) Turcz.: 24(!). [**].
C. sibirica L.: 8, 10, 15.
Dendranthemum mongolicum (Ling.) Tzvelev: 7(!).
D. zawadskii (Herb.) Tzvel.: 13(!), 14, 15.
Doronicum altaicum Pallas: Bol'. Čivyrkuj valley (Malyšev and Popov 1954 after Popov and Busik 1966); 16, 18, 19, 20, 22, 23.
Erigeron politus Fries: 1, 2(!), 13, 15, 19.
Gnaphalium norvegicum Gunn.: 22(!).
G. sylvaticum L.: 1, 14.
Hieracium ganeschii Zahn: Bol'. Čivyrkuj river (Popov and Busik 1966); Chožalyj creek (Popov and Busik 1966); 1, 2(!), 6, 7, 8, 11(!), 14, 15, 17(!), 21, 23(!).
H. krylovii Nevski: 11(!), 13(!).
H. cf. narymense Schischkin et Serg.: 8, 11(!), 12, 14(!).
H. cf. tephrochlorellum (Ganeschin et Zahn) Juxip: 11(!), 13(!). [**].
 Note: As follows from the comparison with Malyšev and Peškova (1979), this could be the first finding of this species in the Bajkalskoe Upland.
H. umbellatum L.: 8, 11(!), 12, 13, 14(!), 15.
Lactuca sibirica (L.) Benth. ex Maxim.: 1, 2, 9, 10, 12.
Leucanthemum vulgare Lam.: mouth of the Bol'. Čivyrkuj river (Popov and Busik 1966).

- Matricaria discoidea* DC.: Bol'. Čivyrkuj river (Popov 1954 after Popov and Busik 1966); 1.
- Pyrethrum pulchellum* Turcz. ex DC.: 22(!).
- Saussurea parviflora* (Poir.) DC.: along the Chožalyj creek up to the "gol'cy" (Tjulina 1939 after Popov and Busik 1966); 9, 11(!), 13, 14, 19, 20, 22, 23(!).
- Scorzonera radiata* Fischer: 4, 18(!).
- Senecio asiaticus* Schischkin et Serg.: 20(!), 22, 23.
- S. integrifolius* (L.) Clairv.: sources of the Bol'. Čivyrkuj river (Tjulina 1939 after Popov and Busik 1966). [§].
- Note: Taking into account ecology of this species, it is obvious that *S. asiaticus* Schischkin et Serg. was mistaken for this species. See also Malyšev and Peškova (1979: 866).
- S. nemorensis* L.: 1(!), 10(!), 12, 13, 19, 20.
- S. turczaninovii* DC.: 24(!).
- Solidago dahurica* Kitag.: 11(!), 12, 13, 19, 20, 23.
- Tanacetum vulgare* L. (incl. *T. boreale* Fischer ex DC.): 2, 10, 12, 13, 15, 19, 20, 22, 23.
- Taraxacum ceratophorum* (Ledeb.) DC.: mouth of the Bol'. Čivyrkuj river (Popov 1959 after Popov and Busik 1966). [§].
- T. officinale* L.: mouth of the Bol'. Čivyrkuj river (Popov and Peškova 1954 after Popov and Busik 1966). [§].

Summary

The floristic survey of the Bol'šoj Čivyrkuj valley contains 450 species, subspecies and hybrids of vascular plants belonging to 66 families, of which we personally collected and observed 403 taxa. The remaining references are based on literature data only. The taxa considered to be endemic for the Baikal region are *Craniospermum subvillosum*, *Draba baicalensis*, *Oxytropis alpicola*, *Phlojodicarpus baicalensis*, *Salix phylicifolia* subsp. *divaricata* and *Saxifraga algisii*. The following species are included in the Red Data Book of the Buryatia (Pronin 1988): *Astragalus trigonocarpus*, *Botrychium multifidum*, *Corispermum ulopterum*, *Craniospermum subvillosum*, *Epipactis helleborine*, *Galium triflorum*, *Iris laevigata*, *Lilium pilosusculum*, *Padus avium*, *Rhodiola rosea* and *Rhynchospora alba*.

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