



Bluegrasses (*Poa* L., Poaceae)
of Sakha (Yakutia) Republic,
an annotated checklist

Marina V. OLONOVA & E. G. NIKOLIN

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Bluegrasses (*Poa* L., Poaceae) of Sakha (Yakutia) Republic, an annotated checklist

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ABSTRACT

Thirty four species of genus *Poa* L. are reported on the territory of Yakutia, two of them are represented by several subspecies. *Poa sergievskajae* Prob. and *P. ochotensis* Trin. are reported there for the first time, as well as four species – *P. angustiglumis* Roshev., *P. attenuata* Trin., *P. subglabriflora* Roshev., and *P. trivialis* L. were excluded, being erroneously reported previously. The key for identification and new species *Poa orienti-sibirica* sp. nov. is presented here. The new species is morphologically close to *P. stepposa* (Krylov) Roshev. and *P. skvortzovii*. It differs from *P. stepposa* by pilose rachilla, and from *P. skvortzovii* by a long, more than 1.8 mm, ligule.

KEY WORDS

Poa L.,
Sibérie,
biodiversité,
biogéographie,
new species.

RÉSUMÉ

Une liste annotée des pâturins (Poa L., Poaceae) de la République de Sakha (Yakoutie).

Trente-quatre espèces du genre *Poa* L. sont signalées sur le territoire de Yakoutie, dont deux sont représentées par plusieurs sous-espèces. *Poa sergievskajae* Prob. et *P. ochotensis* Trin. sont signalées pour la première fois, tandis que quatre espèces – *P. angustiglumis* Roshev., *P. attenuata* Trin., *P. subglabriflora* Roshev. et *P. trivialis* L. – ont été exclues, signalées par erreur précédemment. La clé d'identification et la nouvelle espèce *Poa orienti-sibirica* sp. nov. sont présentées ici. La nouvelle espèce est morphologiquement proche de *P. stepposa* (Krylov) Roshev. et *P. skvortzovii* Prob. Elle diffère de *P. stepposa* par le rachille pileux, et de *P. skvortzovii* par une ligule longue de plus de 1,8 mm.

MOTS CLÉS

Poa L.,
Sibérie,
biodiversité,
biogéographie,
espèce nouvelle.

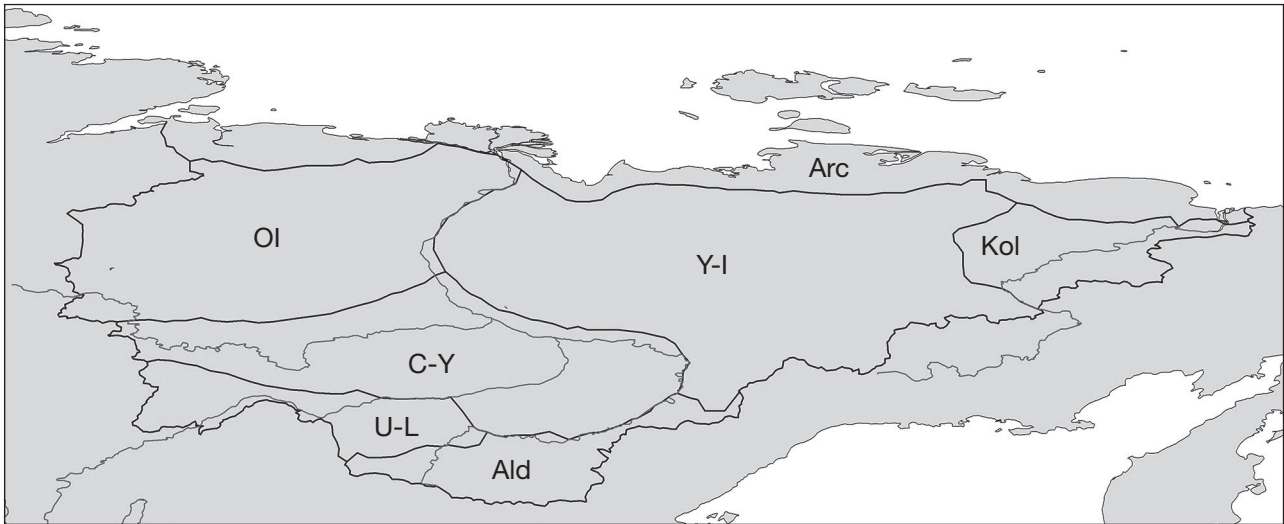


Fig. 1. — Floristic subdivision of Yakutia (Republic of Sakha).

INTRODUCTION

The Republic of Sakha (Yakutia) is a part of the Russian Federation and occupies the North-East, the most severe and least populated part of Siberia: 40% of the territory of Yakutia is located above the Arctic Circle. The vast territory (an area 3103.3 thousand km²) with a variety of environmental conditions, from the arctic tundra and alpine meadows to forests and steppes demonstrates an unusual biodiversity for such severe conditions.

The start of botanical research in Yakutia was laid by expedition of Gmelin in 1736. It resulted in the major book *Flora Sibirica* (Gmelin 1757). The floristic research in Yakutia is also associated with the names of Middendorf, Adams, Maak, Abolin. The most intensive study of the flora of Yakutia began at the beginning of the last century with the foundation and activities of the Resettlement Department. The results of their botanical research were summarized by Komarov (1926), and extensive collection of grasses was treated by Rozhevitz (1934) in a fundamental work *Flora of the USSR*. Systematic study of flora continued and the materials, which were accumulated by the time, were the basis for *Synopsis of the Flora of Yakutia*, published by Karavaev (1958). The result of the further stages of the Yakut flora study was the *Identification Book of High Plants of Yakutia* (Perfiljeva 1974), edited by Tolmachev, where the keys for the identification and information about 1560 plant species were given. In particular, it cited 20 species of bluegrasses.

The coming out of new data in the literature (Egorova *et al.* 1991; Gogoleva & Cherosov 2005; Petrovskiy & Sekretareva 2010; Nikolin 2013) and research of new materials in LE, MAG, VLAD, NS, SASY, TK (*Index Herbariorum*, on line), collected over the last 40 years on the territory of Yakutia, required a new revision of the genus in this territory. In addition, the materials of MW, TK, ALTB and NSK were used in this work.

The genus *Poa* L. – bluegrass – is one of the largest genera of extratropical grasses; however, the propensity of its species to hybridization and apomixis made it one of the most polymorphic and difficult in taxonomical respect. The treatment and morphological limits of their species were revised several times, and the list of species changed. The current list of bluegrasses is given in accordance with the system, proposed by Gillespie & Soreng (2005).

ABBREVIATIONS

Sakha (Yakutia) districts

The subdivision of the Sakha (Yakutia) into districts was accepted in accordance with the *Conspect of Flora of Yakutia* (Kuznetsova & Zakharova 2012).

Ald	Aldan;
Arc	Arctic;
U-L	Upper-Lena;
Kol	Kolyma;
Ol	Oleneksky;
C-Y	Central Yakutia;
Y-I	Yano-Indigirka (Fig. 1).

General distribution

The general distribution based on the scheme adopted by Tzvelev (1976).

Atl. Eur.	Atlantic Europe;
Cauc.	Caucasus;
East Eur.	East Europe;
Himal.	Himalaya;
Ir.	Iran;
Jap.-Chin.	Japano-Chinese region;
Jung.-Kashg.	Jungaro-Kashgaria;
Mediterr.	Mediterranean;
Middle Eur.	Middle Europe;
Min. As.	Minor Asia;
Mong.	Mongolia;
N Amer.	North America;
Rus. Far East	Russian Far East, Middle Asia;
Scand.	Scandinavia (Scandinavian peninsula, Finland, Iceland, Svalbard);
Sib.	Siberia.

SYSTEMATICS

Genus *Poa* L.

This genus contains about 500 species, distributed mostly in extra-tropical regions of both hemispheres (Clayton & Renvoize 1986).

TYPUS. — *Poa pratensis* L.

Subgenus *Ochlopoa* (Asch. & Graebn.) Hyl.

In Botaniska Notiser 3: 354 (1953).

Sect. *Micrantherae* Stapf.

In The Flora of British India 7 (22): 338 (1897 [1896]).

Sect. *Ochlopoa* Asch. & Graebn., *Synopsis der Mitteleuropäischen Flora* 2: 387 (1900).

1. *Poa supina* Schrad.

In Flora Germanica 1: 289 (1806). — Rozhevitz, *Flora of the USSR* 2: 379 (1934). — Tzvelev, *Arctic Flora of the USSR* 2: 160 (1964); *Grasses of the USSR*: 465 (1976). — Olonova, *Flora of Siberia* 2: 178 (1990).

LECTOTYPUS. — “*Poa supina* Schrad. ab ipso acc. Gott. 1836” (Tzvelev 1976: 465) (LE!). — Moist meadows and slopes: Ald, U-L.

GENERAL DISTRIBUTION. — Scand., Atl. and Middle Eur., East Eur., Sib., Rus. Far East, Middle Asia, Mediterr., Ir., Himal., Jung.-Kashg., Mong.

2. *Poa annua* L.

In Species Plantarum: 68 (1753). — Rozhevitz, *Flora of the USSR* 2: 397 (1934). — Tzvelev, *Arctic Flora of the USSR* 2: 161 (1964); *Grasses of the USSR*: 466 (1976). — Perfiljeva, *Identification Book of High Plants of Yakutia*: 72 (1974). — Olonova, *Flora of Siberia* 2: 178 (1990).

LECTOTYPUS. — “Habitat in Europa ad vias” (LINN-87.17, plant from right side; Soreng *in* Cafferty *et al.* 2000: 254). — Near settlements, along roads, moist meadows, and woodsides: all districts, but Kol.

GENERAL DISTRIBUTION. — Semicosmopolitan.

Subgenus *Poa*Sect. *Macropoa* F. Herm. ex Tzvelev

In Novosti Systematiki Vysshikh Rasteniy 9: 49 (1972).

3. *Poa sibirica* Roshev.

In Izvestija Imperatorskogo S.-Peterburgskogo Botanicheskogo Sada 12: 121 (1912). — Rozhevitz, *Flora of the USSR* 2:

380 (1934). — Tzvelev, *Arctic Flora of the USSR* 2: 159 (1964). — Perfiljeva, *Identification Book of High Plants of Yakutia*: 72 (1974). — Olonova, *Flora of Siberia* 2: 177 (1990). — Basionym: *P. sibirica* subsp. *sibirica* (Roshev.) Tzvelev, *Grasses of the USSR*: 462 (1976).

LECTOTYPUS. — “Russia: Krasnoyarsk Terr.: Enisei prov., Kanskii post, slope toward the stream amidst sparse birch forests, W of Balai village, № 354. 9.VI.1911, I. Kuzenetsov” (Tzvelev 1976: 364) (LE!). — Larch and birch forests, thickets, meadows and pebbly banks of rivers and streams. Rare: all districts but Kol.

GENERAL DISTRIBUTION. — East Eur., Sib., Rus. Far East., Middle Asia, Jung.-Kashg., Mong., Jap.-Chin.

Sect. *Cenisia* Asch. & Graebn.

In Synopsis der Mitteleuropäischen Flora: 404 (1900).

Aggr. *Poa lanata* (4-5)4. *Poa lanata* Scribn. & Merr.

In Contributions from the United States National Herbarium 13 (3): 72, table 16 (1910). — Tzvelev, *Arctic Flora of the USSR* 2: 126 (1964); *Grasses of the USSR*: 453 (1976).

TYPUS. — “Aleuten Islands, Dutch Harbor, spent a few hours ascending the mountain (about 1800 ft high) near the wharf, 17 Jul 1899, F.V. Coville et T.H. Kearney, No 2191” (US-376421) (Soreng *et al.* 2003: 543). — Sandy and pebble banks of rivers and streams: Kol.

GENERAL DISTRIBUTION. — Rus. Far East, N Amer.

5. *Poa malacantha* Komarov

In Botanicheskkiye Materialy Gerbariya Glavnogo Botanicheskogo Sada R.S.F.S.R. 5 (10): 149 (1924). — Rozhevitz, *Flora of the USSR* 2: 422 (1934). — Tzvelev, *Arctic Flora of the USSR* 2: 126 (1964); *Grasses of the USSR*: 453 (1976).

TYPUS. — “Kamchatka: Basin of Rv. Kamchatka: down from hot springs on Rv. Kashkan, subalpine. No 2832. 25.IV.1909. V.L. Komarov.” (LE!) (Tzvelev 1976: 453). — Stony and gravel tundras, gritty substrates. Quite rare: Y-I, Arc (on the border with Magadan oblast).

GENERAL DISTRIBUTION. — Rus. Far East, N Amer.

6. *Poa platyantha* Komarov

In Botanicheskkiye Materialy Gerbariya Glavnogo Botanicheskogo Sada R.S.F.S.R. 5: 148 (1924). — Rozhevitz, *Flora of the USSR* 2: 423 (1934). — Tzvelev, 1964, *Arctic Flora of the USSR* 2: 126 (1964); *Grasses of the USSR*: 453 (1976).

TYPUS. — “Kamchatka: vic. settlement Nashiki: birch grove in valley of river Poperechnaya. 30.VII.1908. V.Komarov” (LE!) (Tzvelev 1976: 453). — Pebbly and sandy banks of rivers and streams. Rare: Arc (on the border with Magadan oblast).

GENERAL DISTRIBUTION. — Rus. Far East.

7. *Poa smirnowii* Roshev.

In Izvestiya Glavnogo Botanicheskogo Sada R.S.F.S.R. 28: 381 (1929). — Rozhevitz, *Flora of the USSR* 2: 424 (1934). — Olovona, *Flora of Siberia* 2: 174 (1990).

P. smirnowii subsp. *smirnowii* (Roshev.). — Tzvelev, *Novosti Systematiki Vysshikh Rasteniy* 11: 26 (1974); *Grasses of the USSR*: 452 (1976).

TYPUS. — “Siberia, Irkut basin, Tunkinskii bald mountain peaks, sandy deposits at source of Tunka, above 2000 m, 11.VIII.1926. V. Smirnov” (LE!) (Tzvelev 1976: 452). — Meadows at the high mountain belt, rockslides and gritty substrates: Ald, Y-I.

GENERAL DISTRIBUTION. — Sib., Mong.

REMARK

Common Siberian species, related and morphologically similar to *P. arctica* R.Br. and in the North-East part of range its populations have intermediate features.

Aggr. *Poa arctica* (8, 9)

8. *Poa arctica* R.Br.

In Chloris Melvilliana a List of Plants Collected in Melville Island (latitude 74-75 N., longitude 110-112 W.) in the Year 1820; by the Officers of the Voyage of Discovery under the Orders of Captain Parry, with Characters and Descriptions of the new Genera and Species: 30 (1823). — Rozhevitz, *Flora of the USSR* 2: 410 (1934). — Tzvelev, *Arctic Flora of the USSR* 2: 127 (1964); *Grasses of the USSR*: 455 (1976). — Perfiljeva, *Identification Book of High Plants of Yakutia*: 75 (1974). — Olovona, *Flora of Siberia* 2: 170 (1990).

ISOTYPUS. — “Melville Isl., Parry. No 1825” (LE!) (Tzvelev 1976: 455). — Meadows at the high mountain belt, rockslides and gritty substrates, pebbly and sandy banks of streams: Ald, Arc, Kol, Ol, Y-I.

GENERAL DISTRIBUTION. — Scand., East Eur., Sib., Rus. Far East, N Amer.

9. *Poa lindebergii* Tzvelev

In Novosti Systematiki Vysshikh Rasteniy 11: 27 (1974). — Olovona, *Flora of Siberia* 2: 172 (1990).

P. tolmachewii var. *stricta*, Tzvelev, *Arctic Flora of the USSR* 2: 132 (1964).

ISOTYPUS. — “M.N. Blytt & C.J. Lindeberg. Norway: Dovre.” (LE!) (Tzvelev 1976: 455). — Stony and clay slopes. Rare: Arc. (Ridge Tuora-Sis).

GENERAL DISTRIBUTION. — Scand.

REMARK

This is viviparous taxon, related to *P. arctica* and sometimes treated as subspecies within it. *Poa lindebergii* is a *nomen novum* for *P. stricta* Lindeb.

Sect. *Poa* L.

Aggr. *Poa pratensis* (10-13)

REMARK

The unit comprises some morphologically similar species, originated presumably from a same ancestor, as a result of adaptive radiation.

10. *Poa pratensis* L.

In Species Plantarum: 67 (1753). — Ledebour, *Flora Altaica* 1: 96 (1829). — Rozhevitz, *Flora of the USSR* 2: 388 (1934). — Tzvelev, *Arctic Flora of the USSR* 2: 132 (1964); *Grasses of the USSR*: 456 (1976). — Perfiljeva, *Identification Book of High Plants of Yakutia*: 74 (1974). — Olovona, *Flora of Siberia* 2: 172 (1990).

NEOTYPUS. — “Rossia, Prov. Sanct-Petersburg, 5 km australi-occidentum versus a st. viae ferr. Mga. pratulum ad ripam dextram fl. Mga, N-257; 26.VI.1997. N.N. Tzvelev” (LE!) (Soreng & Barrie 1999: 157-159). — Meadows, woodsides, river banks: all districts.

GENERAL DISTRIBUTION. — Scand., Atl. and Middle Eur., East Eur., Cauc., Sib., Rus. Far East, Middle Asia, Mediterr., Ir., Himal., Jung.-Kashg., Mong., Jap.-Chin, N Amer.

10a. *Poa pratensis* subsp. *skrjabinii* Tzvelev

In Novosti Systematiki Vysshikh Rasteniy 11: 38 (1974); *Grasses of the USSR*: 458 (1976).

TYPUS. — “Kobiayskiy distr., on the sands Bolshiye Tukulany to the West from lake Nidzheli, 29.VII.1967, S. Skrjabin” (LE!) (Tzvelev 1976: 458). — Aeolian sands along river banks: C-Y., Endemic.

REMARK

Differs from subsp. *pratensis* with involute and firm innovation blades, 0.4-0.7 mm wide; from *P. angustifolia* it differs with single innovations.

11. *Poa sergievskajae* Prob.

In Novosti Systematiki Vysshikh Rasteniy 8: 28 (1971). — Olovona, *Flora of Siberia* 2: 173 (1990).

P. pratensis subsp. *sergievskajae* (Prob.) Tzvelev, *Novosti Systematiki Vysshikh Rasteniy* 11: 27 (1974); *Grasses of the USSR*: 458 (1976).

TYPUS. — “Amurskaya Distr., Amursko-Zejskoe Plateau: basin of Rv. M.Pery: village Klimoutsy. Grassy birch forest on the plateau. 11.VII.1957. Lipatova V., Petrova J.” (LE!) (Tzvelev 1976: 458). — Birch and fir woods, woodsides, among thickets: Kol.

GENERAL DISTRIBUTION. — East Eur., Sib., Rus. Far East, Mong.

REMARK

Morphologically very similar to *P. pratensis*, this species differs from it in narrower leaves and moderately pubescent lemmas. Originated apparently from hybridization between *P. pratensis* and some species of sections *Homalopoa* or *Macropoa*, it

replaces *P. pratensis* in forests. All samples of *P. subglabriflora* Roshev. and *P. angustiglumis* Roshev. from Yakutia are to be attributed to *P. sergievskajae*. Detailed studies have also shown that all samples of *P. raduliformis* Robat. reported in Yakutia (Olonova 1990) were attributed to this species, based only on formal features, and rather belong to *P. sergievskajae* as well.

12. *Poa angustifolia* L.

In *Species Plantarum*: 67 (1753). — Rozhevitz, *Flora of the USSR* 2: 388 (1934). — Tzvelev, *Arctic Flora of the USSR* 2: 139 (1964). — Perfiljeva, *Identification Book of High Plants of Yakutia*: 73 (1974). — Olonova, *Flora of Siberia* 2: 170 (1990). —

P. pratensis subsp. *angustifolia* (L.) Dumort., *Observations sur les Graminées de la Flore Belgique*: 112 (1824). — Tzvelev, *Grasses of the USSR*: 458 (1976).

LECTOTYPUS. — “Habitat in Europa ad agrorum versuras (LINN-87.12, excluding second culm from the left” (LINN) (Soreng in Cafferty *et al.* 2000: 254). — Steppes and dry meadows: Ald, Arc, Ol, C-Y, Y-I.

GENERAL DISTRIBUTION. — Scand., Atl. and Middle Eur., East Eur., Cauc., Sib., Rus. Far East, Middle Asia, Mediterr., Ir., Himal., Jung.-Kashg., Mong., Jap.-Chin, N Amer.

REMARK

This species is a steppe race of *P. pratensis* s.l. or steppe segregate of *P. pratensis* Aggr. R. Soreng treats *P. angustifolia* as a low polyploid ($2n = 28-49$) taxon of Mediterranean and Iranoterranian steppes and arid forests. The studies have shown (Olonova 2007), that neither the width of the vegetative shoots leaves, nor even the characters of habit do not provide the complete success in distinguishing of *P. angustifolia* and *P. pratensis*. These characters rather reflect the evolutionary trends, and *P. angustifolia* is very close to *P. pratensis*. To avoid the confusion, ones should be especially attentive, attributing the narrow leaf samples of Aggr. *P. pratensis* to *P. angustifolia*, because the narrow and folded leaves are characteristic not only for samples of semiarid habitat, like steppes, but also in the wet meadows and peat bogs. Wetland plants of boreal regions belong to other subspecies or species of the *Poa pratensis* complex. The narrow leaves in the wet land plants are not like those of *P. angustifolia* (Olonova 2007).

13. *Poa alpigena* Lindm.

In *Svensk Fanerogamflora*: 91 (1918). — Rozhevitz, *Flora of the USSR* 2: 390 (1934). — Tzvelev, *Arctic Flora of the USSR* 2: 135 (1964). — Perfiljeva, *Identification Book of High Plants of Yakutia*: 73 (1974). — Olonova, *Flora of Siberia* 2: 169 (1990).

P. pratensis subsp. *alpigena* (Blytt) Hiitonon, *Suomen Kasvio*: 205 (1933). — Tzvelev, *Grasses of the USSR*: 456 (1976).

LECTOTYPUS. — “Alpes Norveg. pass, (9: 93, plant A)” (LE). — Basionym: *P. pratensis* var. *alpigena* Fr. ex Blytt, nom. illeg. superfl. for “*P. pratensis* var. *iantha*” Laest (Tzvelev 1976: 457). — Tundras and meadows, sandy and pebble banks of rivers and streams: Arc, Ol, Y-I.

GENERAL DISTRIBUTION. — Scand., East Eur., Sib., Rus. Far East, Mong., Jap.-Chin., N Amer.

13a. *Poa alpigena* subsp. *colpodea*

(Th. Fr.) Jurtzev & Petrovsky

In *Bulleten' Moscovskogo Obschestva Ispytateley Prirrody, Biologia* 85 (6): 100 (1980). — Tzvelev, *Grasses of the USSR*: 457 (1976). —

P. alpigena var. *colpodea* (Th. Fr.) Schol., *Skrifter om Svalbard og Ishavet/Norges Svalbard- og Ishavs-undersøkelser* 62: 89 (1934). — Tzvelev, *Arctic Flora of the USSR* 2: 136 (1964).

P. alpigena f. *vivipara* Roshev., *Flora of the USSR* 2: 390 (1934).

TYPUS. — “Insulae Spetsbergensis, Liefdebay, 2.IX.1868, Th. M. Fries” (LE!, US-947469!) (Tzvelev 1976: 457). — Basionym: *Poa stricta* subsp. *colpodea* Th. Fr. — Tundras and meadows, sandy and pebble banks of rivers and streams: Arc, Y-I.

GENERAL DISTRIBUTION. — Scand., East Eur., Sib., Rus. Far East, N Amer.

14. *Poa sublanata* Reverd.

In *Animadversiones Systematicae ex Herbario Kryloviano Universitatis Tomskensis* 2–3: 1 (1934). — Tzvelev, *Arctic Flora of the USSR* 2: 134 (1964); *Grasses of the USSR*: 458 (1976). — Olonova, *Flora of Siberia* 2: 174 (1990).

LECTOTYPUS. — “Russia: Enisei, 69°45'N, Leontievskii Island, sands. 31.VII.1914. V. Reverdatto” (TK!) (Tzvelev 1976: 456). — Tundras and meadows, sandy and pebble banks of rivers and streams: Arc. — Was reported in C-Y and Ol as well (Kuznetsova & Zakharova 2012), which is doubtful.

GENERAL DISTRIBUTION. — Rus. Far East., N Amer. (Alaska).

14a. *Poa sublanata* subsp. *vivipara* (Tzvelev) Olonova

In *Turczaninovia* 1(4): 13 (1998).

P. sublanata var. *vivipara* Tzvelev., *Arctic Flora of the USSR* 2: 135 (1964). — Basionym: *P. sublanata* var. *vivipara* Tzvelev. — Tundras on sandy and pebble banks of rivers and streams: Arc.

GENERAL DISTRIBUTION. — Scand., Sib.

15. *Poa tianschanica* (Regel) Hack. ex O. Fedtsch.

In *Trudy Peterburgskogo Botanicheskogo Sada* 21: 441 (1903). — Tzvelev, *Grasses of the USSR*: 459 (1976). — Olonova, *Flora of Siberia* 2: 174 (1990).

TYPUS. — “In valle Dshauku med., 8500-11600, 7.IX.1877, A. Regel.” (LE!) (Tzvelev 1976: 459). — Basionym: *P. macracalyx* var. *tianschanica* Regel. — Saline places in steppes and dry meadows. Ascending to high mountain belt: C-Y.

GENERAL DISTRIBUTION. — Sib., Middle Asia, Himal., Jung.-Kashg., Mong., Jap.-Chin.

16. *Poa sabulosa* (Roshev.) Turcz. ex Roshev.

In *Flora of the USSR* 2: 394 (1934). — Olonova, *Flora of Siberia* 2: 173 (1990).

P. pratensis subsp. *sabulosa* (Roshev.) Tzvelev, *Novosti Systematiki Vysshikh Rasteniy*: 27 (1974); *Grasses of the USSR*: 458 (1976).

TYPUS. — “In sabulosis ad Baicalem prope Posolskoi, 1829, Turczaninow” (LE!) (Tzvelev 1976: 458). — Basionym: *Poa pratensis* var. *sabulosa* Turcz. ex Roshev. — Saline places in steppes and dry meadows of plains and lower mountain belt: U-L, Ol, C-Y.

GENERAL DISTRIBUTION. — Sib., Mong.

Sect. *Poastena* Prob.

Flora of Russian Far East: 443 (2006).

17. *Poa tolmachewii* Roshev.

In *Izvestiya Botanicheskogo Sada AN SSSR* 30: 299 (1932b); *Flora of the USSR* 2: 411 (1934). — Tzvelev, *Arctic Flora of the USSR* 2: 131 (1964); *Grasses of the USSR*: 455 (1976). — Perfiljeva, *Identification Book of High Plants of Yakutia*: 75 (1974). — Olovona, *Flora of Siberia* 2: 175 (1990).

HOLOTYPUS. — “Eastern Taimyr, lower reaches of Yamu-Tarida, lower part of the slope near the Yamu-Tarida banks. No 834. 13.IX.1928. A. Tolmatchev” (LE!) (Tzvelev 1976: 455). — Gravel slopes, rocky and mountain tundras, gritty substrates. Rare: Arc, Y-I.

GENERAL DISTRIBUTION. — Scand., East Eur., Sib., Rus. Far East, N Amer.

Subgenus *Stenopoa*
(Dumort.) Soreng & L.J. Gillespie

In *Aliso* 23: 432 (2007).

Sect. *Abbreviatae* Nannf.

In *Symbolae Botanicae Upsalienses* 5: 29 (1935).

18. *Poa pseudoabbreviata* Roshev.

In *Botanicheskiye Materialy Gerbariya Botanicheskogo Instituta im. V. L. Komarova AN SSSR* 3: 91 (1922); *Flora of the USSR* 2: 413 (1934). — Tzvelev, *Arctic Flora of the USSR* 2: 146 (1964); *Grasses of the USSR*: 467 (1976). — Perfiljeva, *Identification Book of High Plants of Yakutia*: 74 (1974). — Olovona, *Flora of Siberia* 2: 179 (1990).

LECTOTYPUS. — “Irkutsk: Distr. Tunkinsk: montius Sajanensis, trajectus Gargansk 30-31.VII. 1902. V. Komarov” (LE!) (Tzvelev 1976: 467). — Rocky tundras and pebbly banks of streams: Arc, Y-I (Ridges Verkhojanskiy, Cherskogo).

GENERAL DISTRIBUTION. — Sib., Rus. Far East, N Amer. Taking into account occurrence of this species on adjacent territories of Chitinskaya oblast, on Baykalskiy ridge and Stanovoe mountains, this species may be found in Aldan and Upper-Lena regions (Ald, U-L).

19. *Poa abbreviata* R.Br.

In *Chloris Melvilliana a list of plants collected in Melville Island (latitude 74-75 N., longitude 110-112 W.) in the year 1820; by the*

officers of the voyage of discovery under the orders of Captain Parry, with characters and descriptions of the new genera and species 29-30: 287 (1824). — Rozhevitz, *Flora of the USSR* 2: 412 (1934). — Tzvelev, *Arctic Flora of the USSR* 2: 142 (1964); *Grasses of the USSR*: 467 (1976). — Perfiljeva, *Identification Book of High Plants of Yakutia*: 74 (1974). — Olovona, *Flora of Siberia* 2: 179 (1990).

ISOTYPUS. — “Melville Island, leg. Parry” (LE!) (Tzvelev 1976: 467). — Meadow and gravelly tundras, pebbly and sandy banks of streams. Very rare: Arc (ridge Tuora-Sis, mont. Sokuydakh Khaya).

GENERAL DISTRIBUTION. — Scand., Sib., Rus. Far East, N Amer.

Sect. *Oreinos* Asch. & Graebn.

In *Synopsis der Mitteleuropäischen Flora* 2: 400 (1900).

20. *Poa paucispicula* Scribn. & Merr.

In *Contributions from the United States National Herbarium* 13 (3): 69 (1910). — Tzvelev, *Arctic Flora of the USSR* 2: 144 (1964). — Perfiljeva, *Identification Book of High Plants of Yakutia*: 76 (1974). — Olovona, *Flora of Siberia* 2: 178 (1990)

P. leptocoma subsp. *paucispicula* (Scribn. & Merr.) Tzvelev, *Novosti Systematiki Vysshikh Rasteniy* 9: 54 (1972); *Grasses of the USSR*: 464 (1976).

ISOTYPUS. — “Yakutat Bay, Hidden Glacier, 20 VI 1899, № 970, F.V. Coville and T.H. Kearney” (LE!) (Tzvelev 1976: 465). — Rocky tundras, pebbly and sandy banks of streams: Ald., Arc.

GENERAL DISTRIBUTION. — Sib., Rus. Far East, N Amer.

Sect. *Stenopoa* Dumort.

In *Observations sur les Graminées de la Flore Belgique* 10: 1132 (1823 [1824]).

21. *Poa nemoralis* L.

In *Species Plantarum*. 1: 69 (1753). — Ledebour, *Flora Altaica* 1: 99 (1829). — Rozhevitz, *Flora of the USSR* 2: 400 (1934). — Tzvelev, *Arctic Flora of the USSR* 2: 148 (1964). — Olovona, *Flora of Siberia* 2: 184 (1990).

P. nemoralis subsp. *nemoralis* (L.) Tzvelev, *Grasses of the USSR*: 468 (1976).

LECTOTYPUS. — “Sweden. Uppland, Danmark Parish, Linnés Hammarby, 14 VI 1933, Hylander s.n.” (BM!) (Soreng in Cafferty *et al.* 2000: 255). — Deciduous and mixed forests and woodsides, among thickets: Ald.

GENERAL DISTRIBUTION. — Scand., Atl. and Middle Eur., East Eur., Cauc., Sib., Rus. Far East, Middle Asia, Mediterr., Min. As., Ir., Himal., Jung.-Kashg., Mong., Jap.-Chin., N Amer.

REMARK

The samples from Yakutia are found in isolated location. They seem to deviate to *P. intricata* Wein, and are also likely to have a hybrid origin.

22. *Poa palustris* L.

In Systema Naturae, ed. 10, 2: 874 (1759). — Rozhevitz, *Flora of the USSR* 2: 397 (1934). — Tzvelev, *Arctic Flora of the USSR* 2: 150 (1964). — Perfiljeva, *Identification Book of High Plants of Yakutia*: 76 (1974). — Olonova, *Flora of Siberia* 2: 184 (1990).

P. palustris subsp. *palustris* (L.) Tzvelev, *Grasses of the USSR*: 470 (1976).

LECTOTYPUS. — (LINN-87.21) (Soreng in Cafferty *et al.* 2000: 256). — Meadows, river banks, thickets and thinned forests: all districts.

GENERAL DISTRIBUTION. — Scand., Atl. and Middle Eur., East Eur., Cauc., Sib., Rus. Far East, Middle Asia, Mediterr., Ir., Himal., Jung.-Kashg., Mong., Jap.-Chin., N Amer.

REMARK

Probably, it occurs in Yakutia much more frequently. All samples of *P. trivialis* from Yakutia, are to be attributed to *P. palustris*. The nearest known occurrences of *P. trivialis* are on Sakhalin and vicinity of lake Khanka in Primorye.

Aggr. *Poa intricata*23. *Poa intricata* Wein (pro hybr.)

In Repertorium Specierum Novarum Regni Vegetabilis 9: 378 (1911).

TYPUS. — “Germany: Harzes, In Gebüsch an der Eine südwestlich von Abberode und am Kunstteiche bei Wettelrode mit den häufigen Eltern” (OM) (Soreng 2018). — Woodsides of deciduous and mixed forests, among thickets, cliffs, rocks and meadows. Ald, C-Y.

GENERAL DISTRIBUTION. — Scand., Atl. and Middle Eur., East Eur., Cauc., Sib., Rus. Far East, Middle Asia, Mediterr., Mong., Jap.-Chin., N Amer.

REMARK

The hybrids between *P. palustris* and *P. nemoralis* have been described under this name, but as in Siberia, a huge number of populations seem to be of hybrid origin, having *P. palustris* and *P. nemoralis* as a parental species, there is a need to include somewhere the population, where the morphological features of both prospective parents are expressed equally. Thus, we treat here *P. intricata* not as a contemporary hybrid, but as a species of hybrid origin.

24. *Poa urssulensis* Trin.

In Mémoires présentés à l'Académie impériale des Sciences de St.-Petersbourg par Divers Savans et lus dans ses Assemblées 2: 527 (1835). — Tzvelev, *Grasses of the USSR*: 471 (1976). — Olonova, *Flora of Siberia* 2: 185 (1990).

HOLOTYPE. — “Altai, ad fl. Urssul, 1833, A. Bunge” (LE!) (Tzvelev 1976: 471). — Steppe and gravel slopes, among thickets. Ascending middle mountain belt. Ald, Y-I.

GENERAL DISTRIBUTION. — Scand., Atl. and Middle Eur., East Eur., Cauc., Sib., Rus. Far East, Middle Asia, Mong., Jap.-Chin.

REMARK

This species was treated by Grisebach (Grisebach ex Ledebour 1853) and Krylov (1928) as a xeromorphic variety of *P. nemoralis*. The research has revealed this species to be a very difficult complex of hybrid structure. It combines populations, slightly more xeromorphic than *P. palustris* and *P. nemoralis*, but more mesomorphic than *P. stepposa*. It seems to contain both the xeromorphic derivatives of *P. insignis* and the hybrids between the xeromorphic derivatives of *P. palustris* and *P. nemoralis*.

25. *Poa skvortzovii* Prob.

In Novosti Systematiki Vysshikh Rasteniy 10: 72 (1972). — Tzvelev, *Grasses of the USSR*: 471 (1976). — Olonova, *Flora of Siberia* 2: 185 (1990).

TYPUS. — “Manshuria, mt. Takuokui, in silvis montanis, 3 VII 1948, B. Skvortzov” (T) (Tzvelev 1976: 471). — Steppes, rocky and gravel slopes. Ald.

GENERAL DISTRIBUTION. — Sib., Mong., Jap.-Chin.

REMARK

The East Asian species. Its main area lies in Transbaikalia, Mongolia and Northeast China. It occurs in the North of the Chita region, and was registered in adjacent areas in Yakutia (Yakutia, Olekma, the river Serelyakh, the surrounding estuary, the bank of the river. 23.VIII.89. P. Golyakov). The samples from the Upper Kolyma District (Verkhne-Kolymsky District, Ugolny Settlement, on the pebble of the Zyryanka River bank, No. 188. 1.VIII.86. Gogoleva PA, Cherosov MM) according to formal characters – the position of the uppermost node, pubescent rachilla and ligule length may be attributed to *P. skvortzovii*, however, in order to ensure that this population belongs to *P. skvortzovii*, more detailed studies, including molecular genetic studies, should be carried out.

Aggr. *Poa versicolor* (26-28).26. *Poa stepposa* (Krylov) Roshev.

In Flora Turkmenii 1: 145 (1932a); *Flora of the USSR* 2: 401, 754 (1934). — Tzvelev, *Arctic Flora of the USSR* 2: 151 (1964). — Perfiljeva, *Identification Book of High Plants of Yakutia*: 75 (1974). — Olonova, *Flora of Siberia* 2: 185 (1990).

P. versicolor subsp. *stepposa* (Krylov) Tzvelev, *Novosti Systematiki Vysshikh Rasteniy* 9: 51 (1972); *Grasses of the USSR*: 472 (1976).

LECTOTYPUS. — “Altai, Katunskie belki, larch forests between Bortuldag and Kair, along banks of rivulet, 25.VII.1903. P. Krylov” (LE!) (Tzvelev 1976: 472). — Basionym: *P. attenuata* var. *stepposa* Krylov. — Steppes, dry rocky and gravel slopes, among dry thinned larch forests: all districts but Ol.

GENERAL DISTRIBUTION. — East Eur., Cauc., Sib., Rus. Far East, Middle Asia, Jung.-Kashg., Mong.

REMARK

Sometimes this species is synonymed with *P. transbaicalica* Roshev. (Peshkova 1979), nevertheless *P. transbaicalica* differs with more broad panicle and it is taller as a whole.

27. *Poa botryoides* (Trin. ex Griseb.) Komarov

In *Flora of Kamchatka* 1: 177 (1927). — Rozhevitz, *Flora of the USSR* 2: 404 (1934). — Tzvelev, *Arctic Flora of the USSR* 2: 154 (1964). — Perfiljeva, *Identification Book of High Plants of Yakutia*: 75 (1974). — Olovona, *Flora of Siberia* 2: 181 (1990).

P. attenuata subsp. *botryoides* (Trin. ex Griseb.) Tzvelev, *Grasses of the USSR*: 473 (1976).

LECTOTYPUS. — “In pratis siccis transbaicalensibus, 1829, Turczaninow.” (LE!) (Tzvelev 1976: 474). — Basionym: *P. serotina* var. *botryoides* Trin. ex Griseb. — Steppes, dry rocky and gravel slopes: Ald., Arc, U-L., C-Y, Y-I.

GENERAL DISTRIBUTION. — Sib., Rus. Far East, Mong., Jap.-Chin.

REMARK

Often combined with a similar species *P. stepposa*, however L. Sergievskaya (1961) noted, that *P. stepposa* clearly differs from *P. botryoides* with wide, up to 4 cm, panicle and stem, leafy above its middle. In her opinion *Poa botryoides* is a more xeromorphic species and replaces *P. stepposa* in Eastern Siberia. *Poa botryoides* possesses a high modification variability. When it grows at high temperatures and lack of moisture, it seems to be able to form dwarfish forms, returning to normal habitus when growing under optimal conditions. These dwarf forms are most likely not identical to the Central-Asian *P. attenuata*, which reaches the mountains of Southern Siberia, predominantly in the Western part. The sample from the Central Yakutia, (Tabaginsky Cape, 35 km of the Pokrovsky tract, SW slope of the bank of the Lena river, mixed forb-grass steppe. 17.VI.2004. Nikolin E.G.), identified as *Poa arctosteporum* Probat., rather belongs to *P. botryoides*, being its dwarfish form.

28. *Poa ochotensis* Trin.

In *Mémoires de l'Académie imperiale des Sciences de St.-Petersbourg*, 6. *Sciences Mathématiques, Physiques et Naturelles* 1 (4): 377 (1831). — Rozhevitz, *Flora of the USSR* 2: 404 (1934).

P. versicolor subsp. *ochotensis* (Trin.) Tzvelev, *Novosti Systematiki Vysshikh Rasteniy* 11: 31 (1974); *Grasses of the USSR*: 472 (1976).

HOLOTYPE. — “Circa Ochotsk, 1828, Redowsky” (LE!) (Tzvelev 1976: 473). — Steppes, dry rocky and gravel slopes, among dry thinned larch forests and thickets: C-Y.

GENERAL DISTRIBUTION. — Sib., Rus. Far East, Mong., Jap.-Chin.

REMARK

Probably was originated from hybridization of E Asian *P. spondylodes* Trin. with any species, closed to *P. stepposa*.

29. *Poa orienti-sibirica* Olovona, sp. nov.

(Fig. 2)

A Poa stepposa (Krylov) Roshev. *pilosus rachillis atque*, *P. skvortzovii* *Prob. longis ligulis praecipue differt.*

TYPE. — Russia. Chitinskaya oblast, Sretenskiy district, vicinity Sretensk city, shrubby steppe slope, 06.VII.1990, V. Kurbatskiy, M. Olovona, S. Kobylenko & E. Sytina s.n. (holo-, TK[TK-001731]).

PARATYPES. — Russia. Chitinskaya oblast, Mogochinskiy district, vicinity settlement Sobolino, dry birch-pine forest along the slope, 08.VII.1990, V. Kurbatskiy, M. Olovona, S. Kobylenko & E. Sytina s.n. (TK). — Republic Buryatia, Baykalskiy ridge, cape Khibilen, stony bank of Baikal, 17.VIII.1981, V. Kurbatskiy, M. Olovona & O. Lishen s.n. (TK). — Republic Sakha (Yakutia), Viluyskiy district, road Viluysk-Voronovo, right bank of Viluy river, pine forest with *Arctostaphylos uva-ursi* and lichens, 63°42'48"N, 121°31'42"E, alt. 162 m, 09.VII.1996, E.G. Nikolin s.n. (TK). — Republic Buryatia, Baykalskiy ridge, Baikal vicinity, cape Bolsodoy, stony bank of dry brook, 14.VIII.1981, V. Kurbatskiy, M. Olovona & O. Lishen s.n. (TK, LE).

DISTRIBUTION AND HABITAT. — East Siberia. It occurs on dry steppe slopes, among bushes, in dry pine forests, cliffs and stony banks. — Dry forests, dry rocky and gravel slopes: C-Y.

GENERAL DISTRIBUTION. — East Siberia.

AFFINITIES. — *Poa orienti-sibirica* probably is a stable hybridogenous species. New species is morphologically close to *P. stepposa* and *P. skvortzovii*. It differs from *P. stepposa* by pilose rachilla; from *P. skvortzovii* it differs by long ligule.

DESCRIPTION

Plants perennial, culms slightly scabrous, erect, densely tufted, 30-60 cm tall, nodes 2 or 3, uppermost to 1/3 way up culm. Extravaginal branching prevailing. Upper leaf sheath closed for 1/2 of length, scabrid, usually longer than blade; blade narrowly linear, flat or folded, 0.5-1.2(-3) mm wide, scabrid. Apex pointed, never naviculate. Ligules of flag leaves (1.6) 2-2.5(3) mm, slightly pointed. Panicles more or less spreading to spiciform, (4.5-)6-10(-17) × 1-3-5) cm; branches densely scabrous, erect, (1/5-1/4-1/3-1/2) × as long as panicle. Spikelets lanceolate, (3-)3.5-4.5 mm, light green or yellowish, apex yellow, rarely more or less violet, florets 2-5; rachilla pilose. Glumes subequal, lanceolate, 3-4 mm, glabrous or slightly scabrous. Lemma 3.5-4 mm, keel shortly villous for 1/2 of length, marginal veins for 1/3, area between veins glabrous, callus webbed to almost glabrous; palea glabrous between keels, with short spinules along keels. Anthers 1.3-2 mm, ovary light brown. Fl. 6-8.

30. *Poa filiculmis* Roshev.

In *Botanicheskiye Materialy Gerbariya Botanicheskogo Instituta im. V. L. Komarova AN SSSR* 11: 29 (1949). — Tzvelev, *Arctic Flora of the USSR* 2: 153 (1964); *Grasses of the USSR*: 474 (1976). — Olovona, *Flora of Siberia* 2: 183 (1990).

P. stepposa (Kryl.) Roshev., *Flora Turkmenii* 1: 145 (1932a). — Perfiljeva, *Identification Book of High Plants of Yakutia*: 75 (1974).

TYPUS. — “Basin of Rv. Anadyr: valley of rv. Anadyr: mouth of Rv. Majna: on sands. 1160; 13.VII.1933. I.Vasilev” (LE!) (Tzvelev 1976: 474). — Pebbly and sandy river and stream banks: Arc, Kol.

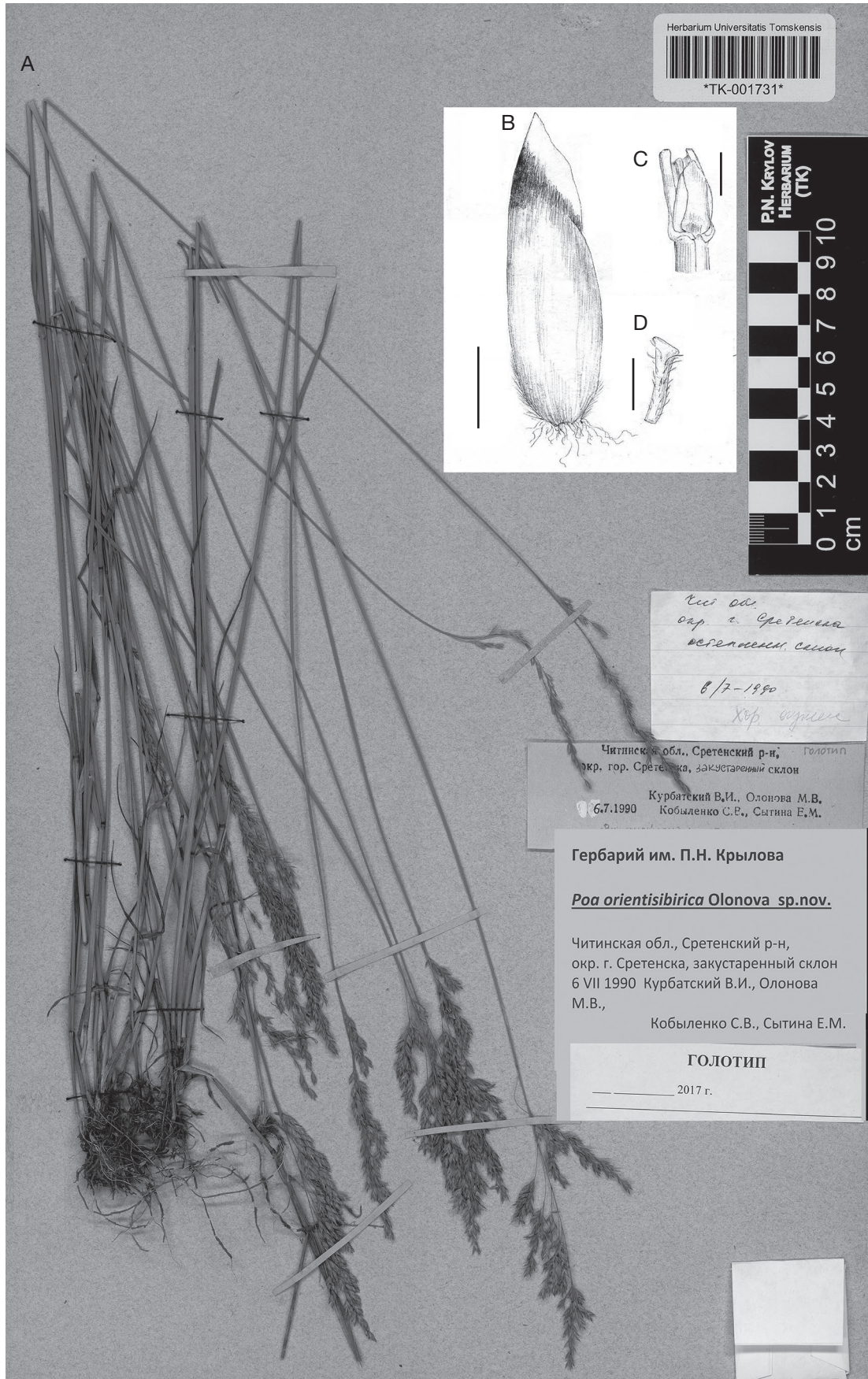


FIG. 2. — *Poa orientisibirica* Oloнова, sp. nov.: **A**, holotype; **B**, lemma; **C**, ligule; **D**, rachilla. Scale bars: B-D, 1 mm.

KEY FOR IDENTIFICATION OF BLUEGRASSES (*Poa* L.) IN YAKUTIA

1. Uppermost sheaths closed for $\frac{2}{3}$ or more. Lemmas completely glabrous. Plants predominantly in forest belt. The leaf blades 1.5-4 mm width, the stems in the lower nodes are 1-2 mm in diameter 3. *P. sibirica* Roshev.
— Uppermost sheaths closed less than $\frac{2}{3}$ 2
2. Uppermost sheaths closed for more than $\frac{1}{4}$ 3
— Uppermost sheaths closed for less than $\frac{1}{4}$ 21
3. Lemma callus glabrous 4
— Lemma callus with a tuft of long hairs, sometimes negligible 5
4. Anthers not more than 1 mm long 2. *P. annua* L.
— Anthers more than 1 mm long 1. *P. supina* Schrad.
5. Anthers 0.6-0.8 mm long. Plants 5-25 cm high 20. *P. paucispicula* Scribn. & Merr.
— Anthers 1 mm or longer 6
6. Paleas, and most often lemmas, are pubescent between keels (veins). Plants of Arctic or upper mountain belt 7
— Both paleas and lemmas, are glabrous between keels (veins), lemmas pubescent along veins only. Plants of plains and lower mountain belt 13
7. Spikelets 4-6 mm long, arctic and subarctic plants 8
— Spikelets 6-8 mm long, arctic and arcto-alpine plants 10
8. Plants with long thin creeping shoots 8. *P. arctica* R.Br.
— Plants tufted, with a small number of shoots or without them 9
9. Loosely tufted. Panicle dense, compressed, with viviparous spikelet 9. *P. lindebergii* Tzvelev
— Densely tufted. Panicle open, without viviparous spikelet 17. *P. tolmatchewii* Roshev.
10. Plants of the upper mountain belt on the South of Yakutia 7. *P. smirnowii* Roshev.
— Arctic plants of the North-East of Yakutia 11
11. Sheaths of the uppermost leaves as long as their blades 6. *P. platyantha* Komarov
— Sheaths of the uppermost leaves twice longer than blades 12
12. Plants with creeping shoots, not tufted. Lemma along keel and marginal veins with abundant long (more than 1 mm) hairs 4. *P. lanata* Scribn. & Merr.
— Plants form turfs, sometimes rather dense, connected by short creeping shoots. The hairs along keel and marginal veins of lemma not exceeding 1 mm 5. *P. malacantha* Komarov
13. Plants with hard grayish-green leaf blades 14
— Plants with more or less soft green or bluish waxy leaf blades 16
14. Leaves of innovations flat, 2-4 mm wide, slightly fleshy, folded, arcuate
..... 15. *P. tianschanica* (Regel) Hack. ex O. Fedtsch.
— Leaves of innovations narrow, convolute, up to 1 mm in diameter, setiform 15
15. Innovations and flowering shoots are in clusters, enclosed by dead leaves sheaths 12. *P. angustifolia* L.
— Innovations single. Plants of beaches along the banks of the Lena river
..... 10a. *P. pratensis* subsp. *skerjabinii* Tzvelev
16. Plants of the Arctic, subarctic or upper mountain belt. Panicle branches smooth 13. *P. alpigena* Lindm., 17
— Plants of the middle and lower mountain belts or plains. Panicle branches scabrid 18
17. Panicle without proliferated (viviparous) spikelets 13. *P. alpigena* subsp. *alpigena* Lindm.
— Panicle with proliferated spikelets 13a. *P. alpigena* subsp. *colpodea* (Th. Fr.) Jurtzev & Petrovsky
18. Lemma abundantly covered with long hairs, tuft of hairs on the lemma callus is very long and dense. Arctic and subarctic plants, sometimes with viviparous spikelets 14. *P. sublanata* Reverd.
— Lemma pubescence moderately developed. Meadow plants 19
19. Blades of innovation leaves usually flat, more 1.2 mm wide. Forest or alluvial plants 20
— Blades of innovation leaves more than 1.2 mm wide. Meadow plants 10. *P. pratensis* L.

KEY FOR IDENTIFICATION OF BLUEGRASSES (*POA* L.) IN YAKUTIA (CONTINUATION)

20. Spikelets 2-3 mm long, alluvial plants 16. *P. sabulosa* (Roshev.) Turcz. ex Roshev.
 — Spikelets 3-5 mm long, forest plants 11. *P. sergievskajae* Prob.
21. Anthers 0.4-1 mm long, mainly mountainous, arctic and subarctic plants 22
 — Anthers more than 1 mm long 23
22. Panicle thick, compressed, 0.5-2.5 cm long, lemma usually pubescent between veins, rarely glabrous
 19. *P. abbreviata* R.Br.
 — Panicle open, 2-5 cm long, lemma glabrous between veins 18. *P. pseudoabbreviata* Roshev.
23. Culms (25) 30-100 cm, uppermost node is usually open. Plants of lower mountain belt 24
 — Culms up to 25 (40) cm, uppermost node usually in the lower part of the stem and enclosed by sheath. Plants
 of arctic tundra and upper mountain belt; if in the plain then the panicle is compressed, from dense ovate to
 spiciform 34
24. Mesomorphic plants; upper node in the upper half of the stem (rarely-slightly lower). Leaf blades soft, flat, (1-)2-4(-5)
 mm wide, longer than sheath; panicle open, with long branches reaching half of panicle length 25
 — More or less xeromorphic plants; uppermost node in the lower half of the culm. Leaf blades from relatively soft,
 withering with drying, to hard, setiform, equal to sheath or slightly shorter. Panicle quite narrow, with long
 branches reaching 1/3 of panicle length 27
25. Ligule of uppermost leaves (1.8) 2-3 mm long 22. *P. palustris* L.
 — Ligule of uppermost leaves 0.2-1.5 (2) mm long 26
26. Rachilla glabrous 23. *P. intricata* Wein (pro hybr.)
 — Rachilla pubescent 21. *P. nemoralis* L.
27. Uppermost node between the half and lower 1/3 of culm, leaf blades soft, almost equal to sheath. Panicle branches
 2.5-3 times shorter than panicle length 28
 — Uppermost node in the lower 1/3 of culm, leaf blades quite firm, folded, 2 or more times shorter than sheath.
 Panicle branches 3 and more times shorter than panicle length 29
28. Lemma callus with a tuft of long hairs. Plants mostly of Southern Yakutia 24. *P. urssulensis* Trin.
 — Lemma callus glabrous or with poor tuft of hairs. Plants of the circumpolar area 34. *P. tanfiljewii* Roshev.
29. Rachilla pubescent 30
 — Rachilla glabrous 31
30. Ligule shorter than 1 (1.2) mm 25. *P. skvortzovii* Prob.
 — Ligule longer (1.5) 2 mm 29. *P. orienti-sibirica* Olonova, sp. nov.
31. Lemma pubescent between veins 30. *P. fliculmis* Roshev.
 — Lemma glabrous between veins 32
32. Panicle quite open, (1.5) 2-7 (11) cm wide, especially during flowering, with branches up to 1/3 its length 33
 — Panicle narrow, compressed, spicate, up to 1.5 cm wide, with short branches not exceeding 1.5 (2) cm and usu-
 ally not reaching 1/3 its length 27. *P. botryoides* (Trin. ex Griseb.) Komarov
33. Ligule 2.5-3 mm long, culm under the panicle almost smooth. Plants of Eastern Yakutia 28. *P. ochotensis* Trin.
 — Ligule up to 2 (2.5) mm long, culm under the panicle scabrous 26. *P. stepposa* (Krylov) Roshev.
34. Plants greyish-green, often dark-colored. Panicles from elongated to almost pyramidal, the longest branches 1.5-2
 cm, spikelets from poorly crowded to scattered, (3.8) 4-6 (8) mm long; upper internode often up to 1.5-2 mm in
 diameter. Leaf blades folded or flat. Arctic and subarctic plants 35
 — Panicles from dense ovate to almost spicate, with erect branches, the longest of them up to 1 (1.5) cm, spike-
 lets 3-4 (5) mm long, crowded on branches, upper internode relatively thin, not more than 1 mm in diam-
 eter. Leaf blades firm, setiform, when dried, wire-like. Plants of the lower mountain belt or plain
 27. *P. botryoides* (Trin. ex Griseb.) Komarov
35. Lemma callus glabrous 32. *P. anadyrica* Roshev.
 — Lemma callus with a tuft of hairs 36
36. Lemma glabrous between veins 31. *P. glauca* Vahl
 — Lemma pubescent between veins 33. *P. bryophila* Trin.

GENERAL DISTRIBUTION. — Sib., Rus. Far East.

REMARK

Closely related to Aggr. *P. crymophila*, which includes the populations, presumably resulted from hybridization of *P. glauca* s.l. and *P. versicolor* s.l., but, according to Tzvelev (1976) and Probatova (1985), *P. arctica* might be the third species, which took part in the origin of *P. filiculmis*.

Aggr. *P. glauca* (31-33)

31. *Poa glauca* Vahl

In *Icones plantarum sponte nascentium in regnis Daniae et Norvegiae, in ducatibus Slesvici et Holsaticae, et in comitatibus Oldenburgi et Delmenhorstiae; ad illustrandum opus de iisdem plantis, regio jussu exarandum, Florae danicae nomine inscriptum* 6 (17): 3 (1790). — Rozhevitz, *Flora of the USSR* 2: 398 (1934). — Tzvelev, *Arctic Flora of the USSR* 2: 154 (1964). — Perfiljeva, *Identification Book of High Plants of Yakutia*: 75 (1974). — Olovona, *Flora of Siberia* 2: 183 (1990).

P. glauca subsp. *glauca* (Vahl) Tzvelev, *Grasses of the USSR*: 475 (1976).

TYPUS. — “Legi in Alpibus Norvegica Valdres verser Vang” (C!) (Tzvelev 1976: 475). — Dry stony and gravelly tundras, cliffs, rocky slopes, sandy and pebbly banks of streams: Arc, U-L, C-Y, Y-I.

GENERAL DISTRIBUTION. — Scand., Middle Eur., East Eur., Cauc., Sib., Rus. Far East., Middle Asia, Himal., Jung.-Kashg., Mong., Jap.-Chin., N Amer.

32. *Poa anadyrica* Roshev.

In *Botanicheskiye Materialy Gerbariya Botanicheskogo Instituta im. V. L. Komarova AN SSSR* 9: 26 (1946). — Tzvelev, *Arctic Flora of the USSR* 2: 157 (1964).

P. glauca subsp. *glauca* (Vahl) Tzvelev, *Grasses of the USSR*: 475 (1976).

P. glauca Vahl, in Perfiljeva, *Identification Book of High Plants of Yakutia*: 75 (1974).

LECTOTYPUS. — “[Chukotka]: Rv. Anadyr’: Mt. Talizhak: on slope. 29.VII.1932. L. Tyulina. n° 200” (LE!) (Tzvelev 1976: 476). — Rocky and gravel tundras: Arc, Y-I.

GENERAL DISTRIBUTION. — Sib., Rus. Far East.

33. *Poa bryophila* Trin.

In *Mémoires de l’Académie impériale des Sciences de Saint-Petersbourg*, 6. *Sciences Mathématiques, Physiques et Naturelles*, 2. *Sciences Naturelles* 4, 2 (1): 65 (1836); *Bulletin de l’Académie Impériale des Sciences de Saint-Petersbourg* 1: 69 (1836). — Tzvelev, *Arctic Flora of the USSR* 2: 158 (1964).

P. glauca subsp. *glauca* (Vahl) Tzvelev, *Grasses of the USSR*: 475 (1976).

P. glauca Vahl, in Perfiljeva, *Identification Book of High Plants of Yakutia*: 75 (1974).

HOLOTYPUS. — “Sinaewin Strasse, leg. Mertens.” (LE!) (Tzvelev 1976: 475). — Cliffs, rocky and gravel tundras.: Arc, Ol.

GENERAL DISTRIBUTION. — Sib., Rus. Far East.

REMARK

Aggr. *P. balfouri* (34) is one of the most difficult aggregates in section *Stenopoa*. It combines the population, resulted presumably from hybridization of *P. nemoralis* and *P. glauca*. Species and population of uncertain taxonomic rank, attributed to this aggregate, are more mesomorphic than the common samples of *P. glauca*, and the uppermost node among these populations is much higher (Olovona 1998). Pleistocene migration resulted in massive hybridization between *P. nemoralis* and *P. glauca* not only in Scandinavia, but also in Central Europe.

Aggr. *Poa balfouri* (34)

34. *Poa tanfiljewii* Roshev.

In *Flora of the USSR* 2: 413 (1934). — Tzvelev, *Arctic Flora of the USSR* 2: 149 (1964); *Grasses of the USSR*: 469 (1976).

TYPUS. — “Timanskaya tundra, ad ripam fluv. Peczora, apud Karabosa: 8.VIII.1892. G. Tanfiljew” (LE!) (Tzvelev, 1976: 469). — Well drained graminoid meadow and rocky tundras, rocky slopes, sandy and pebbly banks of streams: Y-I.

GENERAL DISTRIBUTION. — Scand., East Eur., Sib.

REMARK

This species seems to belong to one of the most difficult aggregates in section *Stenopoa*. It combines the population, resulted presumably from hybridization of *P. nemoralis* and *P. glauca*. Species and population of uncertain taxonomic rank, attributed to this aggregate, are more mesomorphic than the common samples of *P. glauca*, and the uppermost node among these populations is much higher (Olovona 1998). Pleistocene migration resulted in massive hybridization between *P. nemoralis* and *P. glauca* not only in Scandinavia, but also in Central Europe.

CONCLUSION

Thirty four species of genus *Poa* are reported on the territory of Yakutia, two of them are represented by several subspecies. *Poa sergijevskajae* and *P. ochotensis* are reported there for the first time, as well as four species – *P. angustiglumis*, *P. attenuata*, *P. subglabriflora*, and *P. trivialis* — were excluded, being erroneously reported previously.

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