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Two new combinations in *Stipa* sect. *Smirnovia* (Poaceae)

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Based on morphological observations and phytogeographical considerations, two new combinations are provided in *Stipa* section *Smirnovia* (Poaceae), a group of taxa mainly distributed in central Asia: *Stipa lingua* Junge subsp. *lipskyi* (Roshev.) R. Gonzalo *comb*. & *stat*. *nov*. and *Stipa lingua* subsp. *magnifica* (A. Junge) R. Gonzalo *comb*. & *stat*. *nov*. *Stipa ovczinnikovii* Roshev. is recognized as a taxonomic synonym of *S*. *lingua*. A key to the subspecies of *S*. *lingua* is provided.

Stipa section *Smirnovia* includes 13 species mainly ranging from Caucasus to western China and southern Siberia, reaching the highest diversity in central Asia. These species thrive from lowlands to high mountain ranges, occurring in subdeserts and steppes. The section is easily recognized by having a unigeniculate awn with a glabrous to pilose column, and a plumose seta (Tzvelev 1974).

Stipa lingua, *S*. *ovczinnikovii*, *S*. *lipskyi*, and *S*. *magnifica* constitute a very polymorphic group of taxa in the section *Smirnovia*. The group is characterized by a long, straight, and plumose seta, and a foot-like expanded callus (Tzvelev 1983). The distribution of these taxa ranges from northern Iran through Afghanistan, Turkmenistan, the Pamir, and the Altai to western Tian Shan range (Junge 1910, Pazij 1968, Tzvelev 1983, Freitag 1985). Other species that could be related to them due to their similar awn structure are *S*. *karataviensis*, *S*. *aktauensis*, and *S*. *longiplumosa*. *Stipa karataviensis* has a foot-like expanded callus, but it can be readily distinguished from *S*. *lingua* and its closest relatives by having three distinct rows of hairs along the lemma instead of seven rows, and much smaller spikelets. *Stipa aktauensis* also has smaller spikelets and lacks a foot-like expanded callus. Finally, *S*. *longiplumosa* is quite similar in size to the group of *S*. *lingua*, but it has a longer column and a glabrous lemma apex, whereas the members of the *S*. *lingua* group have a coronula.

After a careful examination of the morphology of the species in *Stipa* sect. *Smirnovia*, as well as a critical study of the diagnostic characters, we consider *S*. *magnifica* and *S*. *lipskyi* to be subspecies of *S*. *lingua*, and treat *S*. *ovczinnikovii* as a taxonomic synonym of *S*. *lingua* subsp. *lingua*.

Stipa lingua Junge subsp. ***lipskyi*** (Roshev.) R. Gonzalo, *comb.* & *stat. nov.*

Stipa lipskyi Roshev. *in* B. Fedtsch. (ed.), Fl. Aziat. Ross. 12: 153. 1916. — Type. Uzbekistan. Samarkand district, Samarkand, 27.V.1897 *Lipsky 4530* (lectotype LE!, designated by Tzvelev 1983; isolectotype MW, not seen).

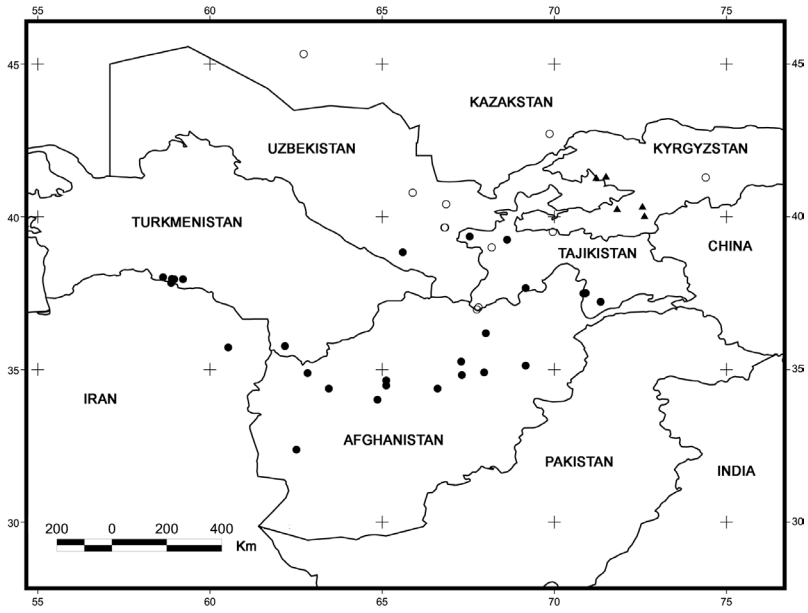

Fig. 1. Distribution map of *Stipa lingua* subsp. *lingua* (●), *S lingua* subsp. *lipskyi* (○) and *S. lingua* subsp. *magnifica* (▲).

Stipa lingua Junge subsp. ***magnifica*** (A. Junge) R. Gonzalo, *comb.* & *stat. nov.*

Stipa magnifica A. Junge, Izv. Imp. S.-Peterburgsk. Bot. Sada. 10: 128, tab. IV. 1910. — TYPE. Kyrgyzstan. Fergana province, Oš district, close to Gulcza, VI.1900 *Transchel s.n.* (holotype LE!; isotypes LE!, MW, not seen).

Stipa barbata Desf. var. *platyphylla* Hack. *in* Paulsen, Vidensk. Meddel. Dansk Naturhist. Foren. Kjøbenhavn 65: 163 (1903). — TYPE. Kyrgyzstan. Alai mountains, Sufi Kurgan., 18.VI.1898, *Paulsen 407* (C).

Stipa lingua subsp. *lipskyi* essentially differs from the other subspecies by having a glabrous column with small tubercles (invisible to the naked eye). It shares with subsp. *magnifica* a wholly villous callus, whereas in subsp. *lingua* it usually is almost glabrous. Despite of the general distinction between these two taxa, we have observed that some specimens of subsp. *lingua* from Afghanistan have a wholly villous callus. The resemblances in size and shape of the spikelet between these two taxa, was also noticed by Tzvelev (1983), who suggested to consider a subspecies status for *S. lipskyi,* in agreement with the combination here proposed. *Stipa lingua* subsp. *lipskyi* occurs from the Kyrgyzian steppes through the Kyzylkum desert and western Tian Shan range to western Tajikistan, whereas subsp. *lingua* is a more southern taxon, occurring from Turkmenistan mountains, through northern Iran and Afghanistan, to the southwestern Pamir. The distribution areas of the two subspecies only overlap in the southwestern Tajikistan (Fig. 1).

Stipa lingua subsp. *magnifica* has been separated from *S. lingua* on account of its larger florets and longer awns (23–28 *vs*. 15–20 cm), non-swollen upper cauline sheaths, free panicles from their sheath, and the wholly villous callus (Junge 1910, Roshevitz 1934, Pazij 1968, Tzvelev 1983). However, after a careful morphological revision of the collected material, we checked these morphological characters and found them to be highly variable. It was not possible to detect a clear difference in the size of the floret. Moreover, some specimens of subsp. *lingua* have awns ca. 24 cm long (e.g., *Michelson 234*, G!), and others, from Turkmenistan and Afghanistan, have non-swollen upper cauline leaf sheaths with free panicles and a wholly villous callus. This makes the diagnostic reliability of these characters doubtful. Only the absence of hairs below the culm nodes and the lengthy hairy branches of the panicle showed to be stable enough to distinguish the two subspecies (Table 1). *Stipa lingua* subsp. *magnifica* is a more eastern taxon than the other subspecies, occurring in the Alai mountains of Kyrgyzstan, from where no specimens of subsp. *lingua* have been collected (Fig. 1).

Stipa ovczinnikovii requires special attention. It was originally distinguished from *S. lingua* (Roshevitz 1934) by its shorter floret (12–13 *vs*. 14–16 mm) and the equal plumosity of the awn. Tzvelev (1984) retained its specific rank and suggested its possible hybrid origin between *S. lingua* and *S. longiplumosa*. However, Pazij (1968) and Freitag (1985) listed *S. ovczinnikovii* as a synonym of *S. lingua*. A careful examination of the plants studied supports the latter view, as most of the specimens of *S. lingua* have intermediate morphological features.

Key to the subspecies of *Stipa lingua*

1. Column scabrous or tuberculate ..... subsp. *lipskyi*
1. Column pilose 2
2. Panicle branches with hairs (0.2)0.3–0.4(1.3) mm long; culms below nodes pilose; lemma with hairs (1.1)1.3–1.6(2.2) mm long; callus dorsal surface usually glabrous; seta (13.9)16.7–19.7(24.4) cm long ..... subsp. *lingua*
2. Panicle branches with hairs 1–2.2(2.5) mm long; culms below nodes glabrous; lemma with hairs (0.7)1–1.1(1.3) mm long; callus dorsal surface villous; seta (19)21–22(26) cm long ..... subsp. *magnifica*

Additional specimens examined: — ***Stipa lingua*** subsp. ***lingua***. **Afghanistan**. Prov. Samangan, *Podlech 31631* (G, M); Prov. Parwan, *Anders 10834* (G); Wardar, X.1952, *Volk 1281* (B); Prov. Parwan, *Podlech 12051* (K, M); Prov. Ghorat, *Rechinger 18898* (G, W); Hari-rud valley, *Aitchinson 1137* (G, K, UPS, WU); Elepasti, *Rodenburg 233* (L); Hari-rud valley, *Aitchinson 1137* (C, UPS); Prov. Herat, *Unger 117* (MSB); High part of Shibar pass, *Pabot 1110* (G). **Iran**. Prov. Khorasan, *Rechinger 1357* (S, W); Herat and Farah, *Gilli 413* (W). **Tajikistan**. West Pamir, low part of Šachdary river valley, southwest slope of Schugnan range, 13.VII.1964 *Grubov, Kurbambekov & Yunysov s.n.* (LE); Schugnan, *Tuturin & Bessedin 371* (LE); Zeravshan range in the plateau of high mountains close to Kitut river mouth, 7.VI.1932 *Ovchinnikov & Slobodov s.n.* (LE); Low part of Šachdary river, *Tuturin & Bessedin 379* (LE); West Pamir, *Lavrenko & Rodin 945* (LE); West Pamir, *Lavrenko & Rodin 887* (LE). **Turkmenistan**. Central Kopet-Dagh mountains, Distr. Geok-Tepe, between Čuli and Časkon, 29.V.1958 *Čopanov*, *s.n.* (COI, G, GH, JE, K, LD, W); Prov. Aschabad, *Michelson 234* (G, S, W, WU); Transcaspia region, *Michelson 319* (M, WU); Prov. Zakaspiyskiy, Čuli close to Aschabad, 9.VI.1911 *Seidmuradova s.n.* (LE); Badkhyz region, *Gorelova 3* (LE). **Uzbekistan**. Oy-Badak-Sai deep valley, *Czestnaja 48* (LE). — ***Stipa lingua*** subsp. ***lipskyi***. **Uzbekistan**. Siab river valley, *Michelson 1983* (K); Samarkand district, Samarkand, 29.V.1897 *Lipskyi s.n.* (W); Prov. Buchara: Nura-Tau range at south of Djizlok pass, 26.V.1964 *Priajin s.n.* (LE); North Aktau pass, *Bochantsev & Kamelin 483* (LE). **Tajikistan**. Koyki-Tau mountains at NW of Ljublikar village, 18.V.1960 *Nepli s.n.* (LE); Koyki-Tau mountains, *Bochantsev & Egorova 17* (LE); Zeravshan pass, 3.VI.1932 *Ovczinnikov & Slobodov s.n.* (LE); Zeravshan pass, *Kozlova 355* (LE). **Kazakhstan**. Tian-Shan occid., *Mikeschin 93* (B, FI, G, H, J, L, LE, S, W); Prov. Turgai, *Kraschenninikov 5003* (LE). — ***Stipa lingua*** subsp. ***magnifica***. **Kyrgyzstan**. Čatkalskiy range, Bozbu-Too mountain close to Djuk-Beli pass, 17.V.2005 *Lazkov s.n.* (LE); Prov. Fergana: Sari-Kamysh-Sau gorge close to Tash-Kumyr mountain, 4.V.2005 *Lazkov s.n.* (LE); Prov. Fergana, *Alexeenko 1422* (LE); Prov. Oškaya, *Tzvelev 7* (LE).

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Table 1. Main morphological differences among three subspecies of *Stipa lingua*.

Characters	subsp. *lingua*	subsp. *magnifica*	subsp. *lipskyi*
Panicle	usually enclosed	exserted or partially enclosed	enclosed or partially enclosed
Sheaths of upper cauline leaves	usually swollen	non-swollen	non-swollen or slightly swollen
Culm internodes	pubescent	glabrous	pubescent
Branches hairs length (mm)	(0.2)0.3–0.4(1.3)	1–2.2(2.5)	(0.1)0.3–0.8(1.1)
Floret (mm)	(12.1)12.5–14(14.8)	(13.7)13.9–15.4(16)	(12.3)13–14(14.5)
Lemma hairs length (mm)	(1.1)1.3–1.6(2.2)	(0.7)1–1.1(1.3)	(1)1.2–1.3(1.4)
Callus indument	glabrous or only ventral surface villous, rarely wholly villous	wholly villous	wholly villous
Awn (cm)	(13.9)16.7–19.7(24.4)	(21.4)23–24.8(28.5)	(13.3)15.9–17.3(18.4)
Column indument	pilose	pilose	tuberculate or scabrous
Seta length (cm)	(11.5)13.5–17.4(22.5)	(19)21–22(26)	(11.1)13.6–15.1(16.2)
Seta hairs length (mm)	(7.6)8.9–10.5(12)	(6.8)7.9–8.9(10.6)	(5.9)6.4–8(8.2)

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