

Online Resource 1 Selected specimens studied

Stipa macroglossa subsp. *macroglossa* (**var. *pubescens*): TAJIKISTAN: Zeravshan Mts, SE slope of the Nofin Lake, near Nofin settlement, steppe, 39°11'02"N/67°50'09"E, alt. 1800 m, incl. NW, slope 35°, 13 Jun 2009, *M. Nobis* (KRA) ×6; Zeravshan Mts, ca. 0.5 km NE of Varzob tourbase (near Iskanderkul Lake), high mountain rocky steppe, 39°05'17.3"N/68°22'31.8"E, alt. 2280 m, incl. SW, slope 30°, 18 Jun 2008, *M. Nobis* & *A. Nowak* (KRA); Zeravshan Mts, ca. 0.5 km NE of Varzob tourbase, near Iskanderkul Lake, high mountain steppe, 39°05'17.3"N/68°22'31.8"E, alt. 2800 m, incl. SW, slope 30°, 18 Jun 2007, *M. Nobis* (KRA); Zeravshan Mts, near Sierimadarum Lake, ca. 100–200 m N of Iskanderkul Lake (near Varzob tourbase), high mountain steppe, 39°05'07"N/68°22'20"E, alt. 2210 m, incl. SE, slope 10–30°, 6 Jun 2009, *M. Nobis* (KRA); Fan Mts, on left slope of Iskanderkul Lake, ca. 200–400 m NE of Varzob tourbase, rocky high mountain steppe, 39°05'08"N/68°22'19"E, alt. 2800 m, incl. SW, slope 30°, 14 Jun 2008, *M. Nobis* (KRA); Fan Mts, on left slope of Iskanderkul Lake, ca. 500 m NNE of Varzob tourbase, rocky high mountain steppe, 39°05'56"N/68°20'54"E, alt. 2250 m, incl. S, 14 Jun 2007, *M. Nobis* (KRA); Fan Mts, near Serimadarun Lake, ca. 200 m N of Varzob tourbase (N of Iskanderkul Lake), rocky high mountain steppe, 39°05'06"N/68°22'25"E, alt. 2220 m, incl. S-SSE, 4 Jun 2009, *M. Nobis* (KRA); Zeravshan Mts, Fan River Valley, right slope of the Gushty Mts, ca. 0.5 km E of Zeravshan settlement, high mountain steppe, 39°13'14"N/68°32'51"E, alt. 2150 m, incl. W, slope 25°, 21 Jun 2009, *M. Nobis* (KRA) ×5; Zeravshan Mts, Fan River Valley, right slope of the Gushty Mts, E of Zeravshan settlement (S of Aini), high mountain steppe, 39°13'13"N/68°32'46"E, alt. 2150 m, incl. W, slope 25°, 19 Jun 2010, *M. Nobis* (KRA) ×2; Vashan River Valley, on the right slope of Vashan River Valley, in the area of Vashan settlement (near Urmetan), grassland, 39°24'01"N/68°17'02"E, alt. 1800 m, incl. W, slope 10°, 11 Jun 2012, *M. Nobis* (KRA) ×3; Vashan River Valley, on the E slope of Zeravshan Mts, (near Vashan and Urmetan settlement), grassland, 39°24'49"N/68°16'03"E, alt. 1750 m, incl. E-NE, slope 10°, 11 Jun 2012, *M. Nobis* & *A. Nowak* (KRA); Zeravshan Mts, Vashan River Valley, on the right slope of Vashan River Valley, near Vashan and Urmetan settlement, steppe grasslands, 39°24'10"N/68°17'02"E, alt. 1800 m, incl. W, slope 10°, 11 Jun 2012, *M. Nobis* (KRA) ×2; Zeravshan Mts, Vashan River Valley, left slope of Vashan River Valley, E of Vashan settlement (near Urmetan), steppe grasslands on the E slope of mountains, 39°24'49"N/68°16'03"E, alt. 1730 m, incl. E-NE, slope 40°, 10 Jun 2011, *M. Nobis* (KRA) ×2; Zeravshan Mts, Vashan River Valley, on the left slope of Vashan River Valley, N of Vashan settlement (near Urmetan), steppe grasslands, 39°25'34"N/68°17'02"E, alt. 1410 m, incl. NW, slope 45°, 21 Jun 2010, *M. Nobis* (KRA) ×3; Iskanderdarya River Valley, on the left slope of the Iskanderdarya River Valley, ca. 0.5 km E of Serimadarun Lake (near Iskanderkul Lake), high mountain steppe, between stones, 39°05'N/68°23'E, alt. 2340 m, incl. W, slope 5°, 15 Jun 2012, *M. Nobis* & *A. Nowak* (KRA) ×2; Iskanderdarya River Valley, on the left slope of the Iskanderdarya River Valley, ca. 0.5 km E of Serimadarun Lake (near Iskanderkul Lake), high mountain steppe, between stones, 39°05'N/68°23'E, alt. 2340 m, slope 5°, 15 Jun 2012, *M. Nobis* & *A. Nowak* (KRA); On the southern slope of mountain (left slope of the Iskanderdarya River Valley), ca. 0.6 km E of Serimadarun Lake (near Iskanderkul Lake), high mountain steppe, 39°05'N/68°23'E, alt. 2300 m, incl. SW, slope 5°, 15 Jun 2012, *M. Nobis* (KRA) ×2; Zeravshan Mts, Iskanderdarya River Valley, on the left slope of Iskanderdarya River Valley,

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high mountain steppe, among stones, ca. 0.5 km E of Serimadarun Lake (near Iskanderkul Lake), 39°05'04"N/68°22'53"E, alt. 2320 m, incl. SW, slope 5–10°, 14 Jun 2011, *M. Nobis* (KRA); Zeravshan Mts, Iskanderdaria River Valley, on the left slope of Iskanderdarya River Valley, ca. 0.5 km E of Serimadarun Lake (near Iskanderkul Lake), high mountain steppe, among stones, 39°05'04"N/68°22'46"E, alt. 2330 m, incl. SW-S, slope 20°, 14 Jun 2011, *M. Nobis* (KRA) ×3; Zeravshan Mts, on the left slope of Iskanderdarya River Valley, ca. 0.5 km E of Serimadarun Lake (near Iskanderkul Lake), high mountain steppe, among stones, 39°05'04"N/68°22'53"E, alt. 2320 m, incl. SW, slope 5–10°, 14 Jun 2011, *M. Nobis* (KRA); Zeravshan Mts, on the left slope of Iskanderdarya River Valley, ca. 0.5 km E of Serimadarun Lake (near Iskanderkul Lake), high mountain steppe, among stones, 39°05'04"N/68°22'52"E, alt. 2337 m, incl. SW, slope 5°, 14 Jun 2011, *M. Nobis* (KRA) ×5; Zeravshan Mts, on the right terrace of Mogendarya River Valley, ca. 5 km NEE of Khurmi settlement (near Mogien), grasslands on the hill slopes, 39°16'29"N/67°36'10"E, alt. 1520 m, incl. E, slope 30°, 10 Jun 2011, *M. Nobis* (KRA) ×5; Zeravshan Mts, Iskanderdaria River Valley, on the left slope of Iskanderdarya River Valley, ca. 0.5 km E of Serimadarun Lake (near Iskanderkul Lake), high mountain steppe, among stones, 39°05'04"N/68°22'47"E, alt. 2350 m, incl. S, slope 10°, 17 Jun 2010, *M. Nobis* (KRA) ×5; Zeravshan Mts, high mountain steppe grasslands on the W slope of mountains, right slope of Archamaidon River Valley, S of Gazza settlement (near Zimnut), 39°14'44"N/68°01'55"E, alt. 1740 m, incl. W, slope 45°, 16 Jun 2010, *M. Nobis* (KRA) ×2; **Zeravshan Mts, on the right slope of Archamaidon River Valley, S of Zimnut settlement, high mountain steppe grasslands, 39°19'01"N/68°02'12"E, alt. 1970 m, incl. S-SW, slope 35°, 15 Jun 2010, *M. Nobis* (KRA); Zeravshan Mts, Jagnob River Valley, on the right slope of nameless stream (left tributary of the Jagnob River), between Marzich and Anzob settlement, high mountain steppe, 39°10'54"N/68°43'49"E, alt. 2200–2300 m, incl. W, slope 40°, 22 Jun 2009, *M. Nobis* (KRA) ×2; Zeravshan Mts, Seven Lakes Valley, on left slope of Nofin Lake (near Nofin settlement), high mountain steppe, 39°11'02"N/67°50'09"E, alt. 1850 m, incl. W, slope 30–50°, 18 Jun 2008, *M. Nobis* & A. Nowak (KRA); KYRGYZSTAN: Nelda River Valley, on the Nelda River Valley (right tributary of the Talas River), S of Nelda settlement near Talas, steppe grasslands, 42°36'10"N/72°04'56"E, alt. 1300 m, incl. SE, slope 10°, 13 May 2011, *M. Nobis* (KRA); West Kyrgyzstan, on the slopes, near NE part of Toktogul Lake, ca. 9 km E of Sargata settlement, steppe grasslands, 41°45'41"N/73°03'45"E, alt. 1110 m, incl. NW, slope 40°, 11 May 2011, *M. Nobis* (KRA) ×3; KAZAKHSTAN: Chuiskii distr., Chu-Iliiskie Mts, Sunkar, 13 Jun 1926, V. Drobov, P. Gomolitskii 626 (LE); Pribalkhashe, middle part of the Ili River, 12 klower from Ilinsk, 3 Jun 1956, V.P. Goloskokov (LE) ×2; **Taldy-Kurg vellae, Aina-Bulak, 10 Jun 1928, N.V. Pavlov 79 (LE).

Stipa macroglossa subsp. *kazachstanica*: KYRGYZSTAN: Kyrgyz Ala-Too, roadside steppe, E mountain slope, left slope of Czu River Valley, near Krasnyi Mast settlement (ca. 14 km SE of Drzel-Aryk), 42°37'14"N/75°49'42"E, alt. 1440 m, incl. E, slope 20°, 14 May 2011, *M. Nobis* (KRA) ×5; Kyrgyz Ala-Too, roadside steppe, NE mountain slope, ca. 7.5 km SE of Drzel-Aryk, 42°41'27"N/75°52'36"E, alt. 1345 m, incl. NE-N, slope 30°, 15 May 2011, *M. Nobis* (KRA) ×2; Kyrgyz Ala-Too, roadside steppe, NE slope of mountains, ca. 6–7 km SE of Drzel-Aryk, 42°41'44"N/75°51'58"E, alt. 1320 m, incl. NE, slope 30–50°, 15 May 2011, *M. Nobis* (KRA) ×5; Issyk-Kul prov., Kseken-Bel, 30 Jun 1970, leg. ? (FRU); Issyk-Kul Lake, Kara-Bulun, 18 Jun 1981, V.P.

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Bochantsev et al. (FRU); Przhevalsk distr., near monument of Przhevalskiy, 10 Jun 1910, *A.N. Kasatkin* 225 (LE); Issyk-Kul basin, 24 Jun 1961, *Nikitina et al.* (FRU); Central Tian-Shan, southern slope of Kungei Alatau, 28 Jun 1935, *P. Gomolitskii & G. Semenikhina* 82 (LE); Dzhety-Orenburg distr., N slope of Tereskei Alatau, 15 km of Pokrovka settlement, Chon-kyzyl-su River Valley, 22 Jun 1935, *N. Savich & I. Sokolova* 214 (LE); KAZAKHSTAN: Syr-dariinskii prov., Aule-ata distr., Aleksandr. Mts, 9 Aug 1903, *Ailchinov* (LE); Alma-Ata prov., SW slopes of Sogeti Mts, Bortogoi setl., alt. 1200 m, 8 Jul 1978, *L.I. Ivanina et al.* 446 (KRA); Alma-Ata prov., Kengenskii distr., Chulyadsir pass, 22 Jul 1935, *B. Shishkin* (LE); Eastern Kazakhstan, Manrak Mts, Sary-Bulak, 12 Jun 1992, *Yu.A. Kotukhov* 10 (LE); Eastern Kazakhstan, Saur Mts, in the Karaungur and Ak-Kolka Rivers vicinity, 14 Jun 1992, *Yu.A. Kotukhov* 1 (LE); Zailiiskii Alatau, Syugatin Valley, 17 Jun 1952, *V. Goloskokov* (KRA); Kungei-Alatau, Kara-bulak Valley, alt. 2000 m, 3 Jul 1952, *V. Goloskokov* (LE); Transiliisk Alatau, eastern part of Turaigyr Mts, 12 Jun 1953, *V. Goloskokov* (LE); CHINA: Xinjiang Uygur Autonomous Region, W Tian-Shan, Muzart River Valley, (NE of Aksu town), subalpine belt, steep southern slope of the Valley, Vzlobok steppe, 12 Sep 1958, *A.A. Yunatov & I.F. Yuan* 1019 (LE); N slope of Tian-Shan, Kuitun River Valley, S of Tushantszy, 29 Jun 1957, *A.A. Yunatov, S.I. Li & I.F. Yuan* 505a (LE).

***Stipa kirghisorum*:** TAJIKISTAN: Gabierud River Valley, on the left rocky slope of Gabierud River Valley, herb community, 39°07'12"N/68°35'20"E, alt. 2600 m, incl. NE, slope 35°, 24 Jun 2008, *M. Nobis* (KRA); Gabierud River Valley, grasslands and herb communities on the left slope of Gabierud River Valley, ca. 2 km SE of Shurpast settlement (S of Jagnob River), 39°07'12"N/68°35'20"E, alt. 2600 m, incl. NE, slope 30°, 24 Jun 2009, *M. Nobis* (KRA) ×2; Seven Lakes Valley, rocky high mountain steppe, on the N mountain slope, left slope of Rashnadologoi River Valley (right tributary of Nofin Lake), ca. 2 km SE of Nofin settlement, 39°10'27"N/67°51'08"E, alt. 2300 m, incl. N-NE, slope 40–50°, 14 Jun 2009, *M. Nobis & A. Nowak* (KRA) ×5; Zeravshan Mts, brushwood on left slope Rivat River Valley, near Revat settlement (SW of Urmetan settlement), 39°22'16"N/68°11'48"E, alt. 1710 m, incl. E, slope 35°, 22 Jun 2010, *M. Nobis & A. Nowak* (KRA) ×2; Darwaz, high mountain grassland near road M41, near Haburabot mountain pass, ca. 5 km NE of Safiedoron settlement, 38°38'52.2"N/70°43'46.3"E, alt. 2000 m, incl. S, slope 20°, 6 Jul 2008, *M. Nobis* (KRA); Zeravshan Mts, on the right slope of Pastruddarya River Valley, ca. 5 km NE of Allovodii tourbase (ca. 10 km NWW of Marguzor settlement), high mountain steppe, 39°15'21"N/68°19'04"E, alt. 2550 m, incl. NE, slope 30°, 20 Jun 2008, *M. Nobis* (KRA); Zeravshan Mts, on the left slope of Pastruddarya River Valley, ca. 3 km NE of Allovodii tourbase (ca. 10 km NWW of Marguzor settlement), high mountain steppe, 39°15'24"N/68°18'53"E, alt. 2550 m, incl. S, slope 30°, 20 Jun 2008, *M. Nobis* (KRA) ×5; Zeravshan Mts, Chimtarga massif near Allovodii tourbase (ca. 12 km NWW of Marguzor settlement), alt. 3200 m, incl. NNE, slope 30°, 20 Jun 2008, *A. Nowak* (KRA); Zeravshan Mts, on the left slope of nameless tributary of Arch River, ca. 5 km N of Sarytag settlement, high mountain steppe, 39°05'38.5"N/68°16'38.2"E, alt. 2600 m, incl. NW, slope 20°, 16 Jun 2008, *M. Nobis, M. Kozak & A. Nowak* (KRA) ×5; Zeravshan Mts, rocky high mountain steppe, near nameless tributary, on the left slope of Imat River Valley (tributary of Pastruddarya River), ca. 10 km SW of Marguzor settlement, 39°12'29"N/68°21'24"E, alt. 2680 m, incl. E, slope 15°, 22 Jun 2008, *M. Nobis* (KRA) ×7; Zeravshan Mts, rocky steppe, on the left slope of Imat River Valley (tributary of Pastruddarya River), ca. 9 km SW of Marguzor settlement,

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39°12'52"N/68°21'20"E, alt. 2700 m, incl. SE, slope 35°, 22 Jun 2008, *M. Nobis* (KRA) ×2; Zeravshan Mts, high mountain steppe, on calcareous rock, on the W slope of mountains, ca. 0,6 km N of Mazori-Sharif (near Panjikent), 39°22'45"N/67°50'44"E, alt. 1800 m, incl. NW, slope 50°, 31 Jun 2012, *M. Nobis* & *A. Nowak* (KRA) ×3; Zeravshan Mts, high mountain steppe, near Remon settlement, 39°05'17.3"N/68°22'31.8"E, alt. 3200 m, 18 Aug 2012, *A. Nowak* & *M. Nobis* (KRA); Fan Mts, mountain steppe, alt. 2450 m, 15 Jun 2008, *M. Kozak*, *M. Nobis* & *A. Nowak* (KRA); Fan Mts, steppe grassland, on the steep slope of right tributary of Sarima River (left tributary of Iskanderkul Lake), N of Varzob tourbase (N of Iskanderkul Lake), 39°05'56"N/68°20'55"E, alt. 2650 m, incl. N, 14 Jun 2007, *M. Nobis*, *M. Kozak* & *A. Nowak* (KRA); Fan Mts, high mountain grassland, on the left slope of Mura River Valley, ca. 10 km SW of Sarytag settlement, 39°00'24"N/68°15'30"E, alt. 2770 m, incl. E, slope 30°, 17 Jun 2008, *M. Nobis*, *M. Kozak* & *A. Nowak* (KRA) ×3; Fan Mts, steppe grassland, near Mura River (right tributary of Karakul River) ca. 10 km SE of Sarytag settlement, 39°01'17"N/68°16'17"E, alt. 2500 m, incl. W, slope 5°, 17 Jun 2008, *M. Nobis*, *M. Kozak* & *A. Nowak* (KRA); Fan Mts, steppe grassland, E slope of Valley, on left slope of Mura River Valley, ca. 10 km SW of Sarytag settlement, 39°00'24"N/68°15'30"E, alt. 2900 m, incl. SE, slope 30°, 17 Jun 2008, *M. Nobis*, *M. Kozak* & *A. Nowak* (KRA); Fan Mts, high mountain steppe grassland, on the rock outcrop, steep right slope of Zambar River Valley, ca. 11 km SW of Sarytag settlement, 39°00'16.1"N/68°14'57.7"E, alt. 2960 m, incl. E, slope 30°, 17 Jun 2008, *M. Nobis*, *M. Kozak* & *A. Nowak* (KRA) ×2; Fan Mts, high mountain steppe grassland, E steep slope of Valley, on left slope of Zambar River Valley, ca. 10 km SW of Sarytag settlement, 39°00'16"N/68°14'57"E, alt. 2960 m, incl. W, slope 40°, 17 Jun 2008, *M. Nobis*, *M. Kozak* & *A. Nowak* (KRA); Fan Mts, on the right slope of Karakul River Valley, ca. 3–4 km SW of Sarytag settlement, steppe grassland, 39°02'09.7"N/68°16'45.9"E, alt. 2460 m, incl. NW, slope 15°, 17 Jun 2008, *M. Nobis* (KRA); Fan Mts, right slope of tributary of Sarima River (tributary of Iskanderkul Lake), N of Varzob tourbase (N of Iskanderkul Lake), on the slope of Mt Bolshaya Ganza, steppe grassland, 39°05'56"N/68°20'55"E, alt. 2750 m, incl. NE, slope 35°, 18 Jun 2008, *M. Nobis*, *M. Kozak* & *A. Nowak* (KRA); Fan Mts, on right slope of Sarytag River Valley, ca. 1 km SE of Sarytag settlement, high mountain steppe grassland, 39°02'38.6"N/68°19'34.1"E, alt. 2460 m, incl. NNE, slope 30°, 15 Jun 2007, *M. Nobis*, *M. Kozak* & *A. Nowak* (KRA) ×6; Badakhshan, Kaindy River Valley, Suyak-Mazar, alt. 3650 m, incl. S, 17 Aug 1958, *G. Ladygina* (LE) ×2; Badakhshan, Andarob, Garm-Chashma River Valley, alt. 3800 m, 25 Jul 1971, *Sultanov 1026* (LE); Badakhshan, Garm-Chashma River Valley, 4 km of Devlok settlement, alt. 3400 m, 12 Jul 1971, *S. Sultanov 432* (LE); Badakhshan, Garm-Chashma River Valley, 4 km of Devlok settlement, alt. 3140 m, 15 Jul 1971, *S. Sultanov 592* (LE); Badakhshan, Andarob, Garm Chashma River Valley, 4 km from the Pyandz River, alt. 3220 m, 2 Jul 1971, *S. Sultanov 364* (LE); The northern slope of the Gissar Mts, Ariship River Valley near Iskanderkul Lake, alt. 3100 m, 8 Aug 1938, *Grigoriev 82* (LE); Western Pamirs, Vakhn Mts, alt. 3800 m, 27 Jul 1962, *Kurbanbaliev 452* (LE); KYRGYZSTAN: Chichkan River Valley, grassland on the slope of Chichkan River Valley, ca. 20 km N of Toktogul, 42°01'57"N/75°50'17"E, alt. 1380 m, incl. SW, slope 30°, 12 May 2011, *M. Nobis* (KRA) ×3; Karasu River Valley, on the mountain slope, in Chichkan River Valley (left tributary of Karasu River), between Chat and Aleza settlement, steppe grassland on calcareous rock outcrop, 41°30'32"N/72°14'33"E, alt. 1170 m, incl. SE, slope 30°, 10 May 2011, *M. Nobis* (KRA);

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Talas Mts, steppe grasslands on the roadside between Chatbazar and Sasykbulak settlements, 42°28'52"N/72°52'17"E, alt. 1550 m, incl. NNE, slope 30°, 12 May 2011, *M. Nobis* (KRA) ×5; Tian-Schan centr., Jugum Kungei-Alatau, Fauces Utasch prope pag. Tschoktal, Steppum festucosum subalpinum in declivitate orientali, alt. ca. 2500 m, 27 Jul 1931, *P. Smirnow* (KRAM); Talass Mts, upper part of Susamyr River, alt. 2900 m, 26 Jul 1971, *S.S. Ikonnikov et al.* 7583 (LE); Kirghiz SSR, northern slope Terskey Alatau near the Pokrovka village and Chichikan Dzhety-Oguz district., 5–15 Jul 1932, *G. Sumnevich & G. Neuimina* (TK); Kirghiz SSR, Central Tan-Shan, System of Naryn River, At-Bashy, 26–29 Jul 1935, *M.F. Elizareva* (TK); KAZAKHSTAN: Semipalatinsk prov., Semipalatinsk distr., Chingiz, western part of Karagian-khoi-tas, 1 Jul 1914, *C. Kossinsky* 607 (LE); Semipalatinsk prov., Semipalatinsk distr., S slope of Akchio-Dzhaly (12 ch. NE of Togai Lake), 16 May 1914, *C. Kossinsky* 215 (LE); Semipalatinsk prov., Semipalatinsk distr., S slope of Ak-Dzhal Mts (NE of Togai Lake), 16 May 1914, *C. Kossinsky* 215 (TK); Kora-biak Mts, Turgai, Ber-Chgur, mountain slopes, 15 May 1910, *N. Androssow* (LE); Semipalatinsk prov., Kora-biak Mts, 20 May 1914, *C. Kossinsky* 280 (LE); W Kazakhstan, Aktyubinsk distr., near Uil town at Uil River, 29 May 1998, *A.K. Sytin* (KRA); Kazakh SSR, Semipalatinsk region, Altyn-Emel Mts, 8 km west of the village on the road to the railway station in Agadir, 6 Oct 1964, *V.I. Vasilevich et al.* 72 (LE); Kazakh SSR, Karagand region, Koksengir town, 1 Jul 1958, *Z.V. Karanig* 5533 (LE); ca. 90 km SE of Karaganda (Nurtikonv), 17 Jul 1965, *Z.V. Karamysheva et al.* 2260 (LE); Altai, between Bolshe-Narymsk and Krasnoyarskim on the Irtysh, 1 May 1901, *P.N. Krylov* (TK); RUSSIA: Orenburg distr., Kiryasovo settlement, Guberlinskie Mts, 25 May 1998, *A.K. Sytin* (KRA); Tuva ASSR, Ulug-Hemskiy distr., Western Sayan, Uyuksky Mts, Erbek village, alt. 900 m, 21 Jul 1975, *M. Lomonosova & T. Grushevskaya* 581 (TK); MONGOLIA: Gobi Altai, 60 km SW of Bugat, Mt Erdene-Gulut, alt. 2300 m, steppe, 16 Aug 1977, *E.A. Volkova et al.* 7503 (LE); Mongolian Altai, Elt-log Valley (upper Chernyi Irtash), 30 km S of Altai Bayan-Ulegeisk aimak, 22 Aug 1988, *R. Kamelin et al.* 1972 (LE); Ubsunur aimak, 26 km SSE of Sagil, Khairkhan-Ul Mts, alt. 1900 m, 28 Jun 1978, *Z.V. Karamysheva et al.* 480 (LE); INDIA: Jammu and Kashmir State, Ladakh, Zaskar, Tsarap, Kenlung River, Sarchu, a right side Valley of the Yunnan River Valley, alt. 4600–4800 m, 9 Aug 2004, *L. Klimeš* 3947 (Třeboň).

***Stipa turkestanica* subsp. *turkestanica*:** TAJIKISTAN: Pamir, left slope of Vanch River Valley (Sungat Mts), ca. 2 km SW of Daraieungat River estuary, near Sungat settlement (ca. 60 km NE of Vanch River estuary), 38°37'25"N/71°54'19"E, alt. 2400–2650 m, incl. NNW, slope 30–60°, 1 Jul 2009, *M. Nobis* (KRA) ×4; left slope of Vanch River Valley, roadside brushwood between Chikhokh and Rangada settlements (ca. 42 km NE of Vanch River estuary), 38°31'45"N/71°42'53"E, alt. 2100 m, incl. NW, slope 45°, 1 Jul 2009, *M. Nobis* (KRA); left slope of Vanch River Valley (near Daraigumast River estuary), on the slope near Gumas settlement (ca. 55 km NE of Vanch River estuary), grassland, 38°35'18"N/71°50'10"E, alt. 2250 m, incl. NW, slope 30°, 1 Jul 2009, *M. Nobis* (KRA); left slope of Vanch River Valley, on the slope near the road, ca. 500 m SW of Daraisitbarg River estuary, S of Sitbarg settlement (ca. 30 km NE of Vanch River estuary), steppe 38°26'58.5"N/71°35'58.4"E, alt. 1850–1900 m, incl. NWW, slope 45°, 1 Jul 2009, *M. Nobis* (KRA) ×12; Pamir Mts, rocky high mountain steppe on the roadside, W of Koj-Tiezen Pass, S slope of Toguzbulok River Valley, ca. 15 km SE of Drzelondii settlement, 37°29'406"N/72°42'14.8"E, alt. 3900 m, incl. S, 4 Jul 2008, *M. Nobis & M. Kozak* (KRA); Pamir Mts, rocky high mountain steppe, Toguzbulok River Valley, ca. 4 km

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NW of Drzelondii settlement, 37°37'53.0"N/72°33'19.5"E, alt. 3530 m, incl. SWW, 4 Jul 2008, *M. Nobis* (KRA) ×4; Pamir Mts, steppe grassland on the slope of Gnut River Valley, near the road M41 ca. 8 km NNW of Czrsiem settlement, 37°44'30.0"N/72°06'08.9"E, alt. 2930 m, incl. NWW, slope 30°, 4 Jul 2008, *M. Nobis* (KRA) ×3; Pamir Mts, high mountain steppe near Botanical Garden in Khorog, 37°28'28"N/71°36'07"E, alt. 2230 m, incl. S, slope 30°, 1 Jul 2008, *M. Nobis* (KRA); Pamir Mts, steppe on the right slope of Szachdara River, near Raszkwada settlement (ca. 30 km SE of Horog), 37°14'11"N/71°49'35"E, alt. 2735 m, 1 Jul 2008, *M. Nobis* (KRA); Pamir Mts, high mountain steppe on the left slope of Szachdara River Valley, near Barodrz (ca. 40 km SE of Horog), 38°11'31"N/71°52'00"E, alt. 4060 m, incl. NE, slope 30°, 1 Jul 2008, *M. Nobis* (KRA) ×7; Pamir Mts, steppe grassland among the rocks, on the N slope of Wakhan Massif, near S part of Horog (Tyrczit), 37°29'11"N/71°33'42"E, alt. 2150 m, incl. NNW, slope 20°, 30 Jun 2008, *M. Nobis* (KRA) ×5; Pamir Mts, Pyandz River Valley, on the rock near Shchozg settlement (ca. 2 km S of Darmorakh settlement), 37°18'21"N/71°30'10"E, alt. 2200 m, incl. SW, slope 40°, 4 Jun 2008, *M. Nobis* & *A. Nowak* (KRA) ×3; Pamir Mts, Pyandz River Valley, sandy grassland, near Shanbedekh settlement, S of Khorog, 37°07'37"N/71°26'34"E, alt. 2290 m, incl. SW, slope 20°, 4 Jun 2011, *M. Nobis* (KRA); Pamir Mts, Pyandz River Valley, ca. 15 km S of Khorog, on the rock, 37°24'N/71°30'E, alt. 2230 m, incl. SW, slope 40°, 4 Jun 2011, *M. Nobis* & *A. Nowak* (KRA); Pamir Mts, Bartang River Valley, near Chuksang settlement, S of Khorog, grassland, 37°15'N/71°29'E, alt. 2240 m, incl. SW, slope 20°, 4 Jun 2011, *M. Nobis* & *A. Nowak* (KRA); Pamir Mts, Bartang River Valley, grassland near Zarchavid settlement (ca. 10 km W of Sarezko Lake), 38°18'12"N/72°24'14"E, alt. 2780 m, incl. SE, slope 25°, 5 Jun 2011, *M. Nobis* (KRA); Pamir Mts, Shakh dara River Valley, ca. 20 km E of Khorog, on the rock, incl. S, slope 50°, 4 Jun 2011, *M. Nobis* & *A. Nowak* (KRA); Tajikistan, Vez-dara, brushwood, alt. 3700 m, 19 Jul 1979, *A. V. Dengubenko* (KRA); Badakhshan, Kaindy Valley, ca. 10 km upper from its estuary, alt. 3200 m, 18 Aug 1958, *N. Tzvelev* 1499 (LE); Western Pamir, Khorog, alt. 2320 m, 1 Jun 1943, *Ya.S. Grigorev* (LE); AFGHANISTAN: Hindu Kush, Mandaras Valley, on the slope of Valley, alt. 3400 m, 26 Jul 1973, *J. Wojtusiak* & *A. Pacyna* (KRA) ×2; Ghazni prov., Mts SE of Dasht-e Nawor, alt. 3300 m, 27 Jul 1967, *H. Freitag* 1514 (LE); Prov. Kabul: Eingang zur Tang-i-Gharu, 25 km von Kabul, Hänge nördlich des Flusses, alt. 1750–1850 m, 18 May 1977, *D. Podlech* 30256 (MSB 34462); Prov. Paktia: Umgebung von Urgun, 30 May 1971, *O.H. Volk* 71/211 (MSB 34460); Prov. Paktia: Umgebung von Urgun, 30 May 1971, *O.H. Volk* 71/203 (MSB); Prov. Paktia: am Weg von Kotkai nach Khost, 25 May 1971, *O.H. Volk* 71/80 (MSB 34466); Prov. Paktia: am Weg von Kotkai nach Khost, 25 May 1971, *O.H. Volk* 71/82 (MSB 34467); Prov. Kabul: Kabul-Abiabad, steppe, 24 May 1951, *O.H. Volk* 1535 (MSB); Prov. Badakhshan: Wakhan, zwischen Kota-e Qara Qabchal, 73°30'N /36°59'E und Zemestan-e Baharak, 73°36'N/37°00'E, alt. 3300–4050 m, 10 July 1971, *O. Anders* 7306 (MSB 34469); Prov. Badakhshan: Wakhan, zwischen Zemestan-e Baharan, 73°36'N /37°00'E und Langar, 73°47'N/37°02'E, alt. 3300–3800 m, 11 July 1971, *O. Anders* 7338 (MSB 34468); IRAN: prov. Kerman, montes Kuh-e Jebal Barez in vicinitate vici Deh Bakri, in declivibus montium saxosis, 29°03'N/57°56'E, alt. 1700–2700 m, 2 May 1973, *J. Soják* (PR) ×2; Teheran, in declivibus ad pedem montium Elburz supra vicum Darband et declivia montis Kuhha-ye Tu-Chal (=Touchal), locis montium saxosis siccis,

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alt. 2000–3800 m, 29 Jun 1973, *J. Soják* (PR) ×2; INDIA: Jammu and Kashmir State, Ladakh, Zaskar, S of Padum, Snertse to Oma Chu, alt. 3690 m, 27 Aug 2003, *L. Klimeš* 3275 (Třeboň).

***Stipa turkestanica* subsp. *trichoides*:** TAJIKISTAN: Zeravshan Mts, Iskanderdaria River Valley, high mountain steppe, among stones, on the left slope of Iskanderdarya River Valley, ca. 0.5 km E of Serimadarun Lake (near Iskanderkul Lake), 39°05'19"N/68°22'48"E, alt. 2390 m, incl. SW, slope 15°, 14 Jun 2011, *M. Nobis* (KRA) ×13; Zeravshan Mts, Iskanderdaria River Valley, high mountain steppe, between stones, on the left slope of the Iskanderdarya River Valley, ca. 0.5 km E of Serimadarun Lake (near Iskanderkul Lake), 39°05'N/68°23'E; alt. 2340 m, incl. W, slope 5°, 15 Jun 2012, *M. Nobis* & *A. Nowak* (KRA) ×2; Zeravshan Mts, rocky high mountain steppe, ca. 400 m NE of Varzob tourbase, near Iskanderkul Lake, 39°05'12"N/68°22'19"E, alt. 2210 m, incl. NE, slope 30°, 18 Jun 2007, *M. Nobis* (KRA); Fan Mts, rocky high mountain steppe, W mountain slope, on the right slope of Iskanderkul Lake, 39°04'28"N/68°22'55"E, alt. 2600 m, incl. W, 16 Jun 2007, *M. Nobis* (KRA); Fan Mts, rocky high mountain steppe, W slope of mountain, on the right slope of Iskanderkul Lake, 39°04'28"N/68°22'55"E, alt. 2700 m, incl. W, 16 Jun 2007, *M. Nobis* (KRA); Fan Mts, steppe grassland, on the slope of right tributary of Sarima River (left tributary of Iskanderkul Lake), N of Varzob tourbase, (N of Iskanderkul Lake), 39°05'56"N/68°20'55"E, alt. 2650 m, incl. N, 14 Jun 2007, *M. Nobis* (KRA); Fan Mts, on the left slope of Iskanderkul Lake, ca. 200–400 m NE of Varzob tourbase, rocky high mountain steppe, 39°05'08.5"N/68°22'19.7"E, alt. 2225 m, incl. SW, 14 Jun 2008, *M. Nobis* (KRA); Fan Mts, rocky grassland, on the left slope of Arkh River (left tributary of Karakul), NNW of Sarytag settlement (W of Iskanderkul Lake), 39°06'06"N/68°15'37"E, alt. 2670 m, 15 Jun 2007, *M. Nobis* (KRA) ×2; Zeravshan Mts, near Remon settlement, high mountain grassland, alt. 2600 m, 18 Aug 2012, *A. Nowak* & *M. Nobis* (KRA); Surkhob River Valley, grassland steppe on the left slope of Surkhob River Valley (on the roadside), ca. 6 km SE of Dzhirgatal, 39°11'18"N/71°16'01"E, alt. 1840 m, incl. NW, slope 50°, 28 Jun 2009, *M. Nobis* (KRA); Vanch River Valley, left slope Vanch River Valley (Sungat Mts), ca. 2 km SW of Daraieungat River estuary, near Sungat settlement (ca. 60 km NE of Vanch River estuary), 38°37'25"N/71°54'19"E, alt. 2650 m, incl. NNW, slope 30–60°, 1 Jul 2009, *M. Nobis*, *A. Nowak* & *T. Kowalczyk* (KRA); Vanch River Valley, Sungat Mts, ca. 2 km SW of Daraieungat River estuary, near Sungat settlement (ca. 60 km NE of Vanch River estuary), 38°37'25"N/71°54'19"E, alt. 2450 m, incl. NNW, slope 30–60°, 1 Jul 2009, *M. Nobis* (KRA) ×4; Zeravshan Mts, Jagnob River Valley, rocky grassland on the left slope of Musztif River Valley (left tributary of the Jagnob River Valley), ca. 10 km E of Khshirtab settlement, 39°11'34.2"N/68°05'15.0"E, alt. 2505 m, incl. E, slope 30°, 15 Jun 2011, *M. Nobis* & *A. Nowak* (KRA); Zeravshan Mts, Jagnob River Valley, rocky grassland on the left slope of Jagnob River Valley, ca. 3 km NNE of Margeb settlement, 39°12'26"N/68°54'41"E, alt. 2350 m, incl. W, slope 40°, 15 Jun 2011, *M. Nobis* & *A. Nowak* (KRA) ×10; Zeravshan Mts, Jagnob River Valley, high mountain steppe on the left slope of Jagnob River Valley, ca. 1.5 km NW of Margeb settlement near Anzob, 39°11'05"N/68°54'20.6"E, alt. 1950 m, incl. W, slope 20°, 8 Jun 2011, *M. Nobis* (KRA) ×2; Zeravshan Mts, Jagnob River Valley, high mountain steppe on the right slope of nameless River (left tributary of Jagnob River), W of Anzob settlement, 39°10'54"N/68°43'49"E, alt. 2200–2300 m, incl. W, slope 40°, 22 Jun 2009, *M. Nobis* (KRA); Zeravshan Mts, Karakul River Valley, high mountain steppe on the right slope of Karakul River Valley, SW of Sarytag settlement,

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Multivariate morphometric analysis of the *Stipa turkestanica* group (Poaceae: *Stipa* sect. *Stipa*)

Plant Systematics and Evolution

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39°02'N/68°17'E, alt. 2460 m, incl. NE, 18 Jun 2010, *M. Nobis* (KRA); Zeravshan Mts, steppe grassland, along the rock, Karakul River Valley, near Sarytag settlement, 39°11'32"N/69°06'45"E, alt. 2500 m, 2012, *M. Nobis* (KRA); Zeravshan Mts, rocky steppe, on the left slope of nameless tributary of Imat River (tributary of Pastruddarya River), ca. 9 km SW of Marguzor settlement, 39°12'52"N/68°21'20"E, alt. 2700 m, incl. SE, slope 35°, 22 Jun 2008, *M. Nobis* (KRA) ×2; Zeravshan Mts, rocky steppe, on the right slope of Pastruddarya River Valley, ca. 6 km NWW of Marguzor settlement, 39°14'57.9"N/68°22'15.3"E, alt. 2350 m, incl. N, slope 15–20°, 4 Jul 2008, *M. Nobis* (KRA); KYRGYZSTAN: Trans-Alai Mts, Altyn-Dara River, 3 Jul 2004, *G. Lazkov* (FRU); Alai Mts, ca. 50 km S of Tylya settlement, 39°52'N/73°21'E, 23 Aug 1998, *Lazkov* (FRU); Alai Valley, Sary-Tash, 2 Aug 1935, *Velichko* (LE); Alai, 5 km E of Saryk-Mogol, alt. 2900 m, 15 Aug 1961, *S. Ikonnikov 12499* (LE).

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