



## A new species and a new combination of *Iris* subgenus *Scorpiris* (Iridaceae) from Central Asia (Hissar Range, Pamir-Alai)

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During floristic surveys in the southwestern borders of the Hissar Mountains (Pamir-Alai system, Central Asia), 2011–2013, we collected one unidentified species from genus *Iris* Linnaeus (1753: 38) subgenus *Scorpiris*, section *Juno* (Trattinnick 1817: 135) Bentham ex Bentham & Hooker (1883: 687). These plants were introduced into the Tashkent Botanical Garden, where we carefully studied them in the *Iris* living collection. We conclude that the new species is related to an alliance that contains *Iris parvula* (Vvedensky 1963: 425) Hall & Seisums (2011: 300). This group consists primarily of high-mountain species, the distribution of which is limited to the ridges of the Pamir-Alai and western Tien-Shan (Central Asia)—*Iris parvula*, *I. linifolia* (Regel 1935: 152) Fedtschenko (1905: 159), *I. tadshikorum* (Vvedensky 1935: 152) Vvedensky (1935: 563) and *I. narynensis* Fedtschenko (1905: 159; İkinci *et al.*, 2011). According to our studies, this group could be extended by the inclusion of *Iris vvedenskyi* Nevski (1932: 323) and *Juno linifoliiformis* Khalkuziev (1985: 1663), here transferred to *Iris*. *Iris vvedenskyi* is primarily documented for the Kugi-Tang Range (western Pamir-Alai), and its main distribution is in Turkmenistan. The lesser-known *I. linifoliiformis* grows on northern slopes of the Turkestan and Alai Ridges (Khalkuziev, 1985). *The world checklist of selected plant families* (2013) placed *J. linifoliiformis* in synonymy with *I. linifolia*. Vvedensky (1971), in the note to *Iris linifolia*, wrote that plants from the Alai Ridge differ from *I. linifolia* and should be recognized as a new species, between typical *I. linifolia* and northern forms of *I. tadshikorum* Vved. Later, a researcher of the flora of Alai Ridge, Khalkuziev (1985), described these plants as *Juno linifoliiformis* Khalkuziev (1985: 1663) and distinguished them from *I. linifolia* by their deeply dissected (1.5–2.0 mm long) crests and narrower leaves not exceeding flowers.

The study of İkinci *et al.* (2011) included a new species referred to as *Iris* aff. *parvula* (Tadjikistan: Hissar Range, near the village of Takob), which is close to where our material was collected in the Uzbekistan part of the Hissar Range, and its diagnostic characters also are similar to those of our new species.

### *Iris khassanovii* Tojibaev & Turginov, *sp. nov.* (Fig. 2)

*Diagnosis:* The new species differs from *I. parvula* in falcate leaf blade gradually narrowing apically (not straight with parallel margins and suddenly narrowing apically), white, not green, flowers, entire (not dissected) crest. From *I. tadshikorum*, it differs in white, not violet, flowers and entire (not dissected) crest; from *I. linifolia*, in white, not yellow, flowers.

*Type:*—UZBEKISTAN. Pamir-Alai: border of the Hissar Range, Baisuntau, near the village of Gumatag, Parakhnaursaj, stony slopes, 2123 m, N 38.35696 E 067.33598, 4 May 2013. *Turginov 1421* (TASH!).

Perennial bulbous herb. Bulb ovoid, 1.0–1.5 cm in diameter, tunics papery, brownish. Stem 5–10 cm high. Leaves with internodes inconspicuous at anthesis but elongating later, falcate, linear-lanceolate, acuminate, with white margins; lowest leaf 4–10 mm wide. Flowers 1 (2), whitish with violet veins (in herbarium specimens, flowers are whitish-yellowish-green and the violet veining is no longer visible); perianth tube 4 cm long, yellowish-green; claw (haft) of outer tepals (falls) 4–5 mm wide, with parallel margins and parallel violet veining; blade of outer tepals 6–7 × 10–12 mm, wider than the claw, with violet veining and a violet patch. Raised crest white, denticulate, with a yellowish zone either side. Inner tepals (standards) 6–7 mm long, acute, trilobed, with central lobe 2–3 times or more longer than lateral ones, with violet veining. Petaloid style branches each with two symmetrical broad violet stripes.

Geographically, these species are primarily from the Pamir-Alai, although some do extend into the Tien-Shan. The study of living plants in nature and herbarium specimens in TASH, LE and MW shows that this group consists of about seven species: *I. parvula* s.s., *I. tadshikorum*, *I. khassanovii*, *I. vvedenskyi*, *I. linifolia*, *I. linifoliiformis* and *I. narynensis*. Some other species in the D2 clade (Ikinci *et al.* 2011), such as divergent *Iris magnifica* (Vvedensky 1941: 518) Khassanov & Rakhimova (2012: 178), are more distantly related to this group and can be differentiated by their expanded (winged) claws of the outer tepals and stems with more obvious internodes at or after anthesis, characters that can also be observed in three closely related species: *I. hippolyti* (Vvedensky 1941: 519) Kamelin (1981: 102), *I. svetlanae* (Vvedensky 1971: 322) Hall & Seisums (2011: 300) and *I. maracandica* (Vvedensky 1963: 426) Wendelbo (1975: 216), which may have winged claws to their outer tepals up to 2.5 cm wide. However, in the *locus classicus* of *Iris hippolyti* in the southeastern part of the Kyzyl-Kum Desert, Mt. Koktscha, we collected some plants without winged claws, which were close to *I. narbutii* Fedtschenko (1941: 515). *Iris narbutii* and its relative *I. warleyensis* Foster (1902: 386) also occupy a more distant position in clade D2, despite both species having outer tepals without expanded claws; they do not belong to the *Iris parvula* group (Ikinci *et al.*, 2011).

A combination in *Iris* is made here for *Juno linifoliiformis* Khalkuziev

*Iris linifoliiformis* (Khalk.) Tojibaev & Turginov, *comb. nov.*; basionym: *Juno linifoliiformis* Khalkuziev, *Bot. Journ. Acad. Sci. URSS*, 70, 12: 1693–1695 (1985).

**Distribution:**—Turkestan, Alai ranges. Tadjikistan, Uzbekistan.

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## References

- Bentham, G. & Hooker, J.D. (1883) *Iris*. In: *Genera plantarum*, III. Black, London, pp. 681–702.
- Fedtschenko, O. (1905) *I. narynensis*. *Izvestia Imperatorskogo St.-Peterburgskogo Botanicheskogo Sada* 5: 159.
- Foster, M. (1902) *Iris warleyensis* Foster. In: *Gardeners Chronicle* (1902) III, 31: 386–387.
- Hall, T. & Seisums, A. (2011) *Iris parvula* (Vvedensky) Hall & Seisums. In: Ikinci & al. (2011) Molecular phylogenetics of the *juno* irises, *Iris* subgenus *Scorpiris* (Iridaceae), based on six plastid markers. *Botanical Journal of the Linnean Society* 167: 281–300. <http://dx.doi.org/10.1111/j.1095-8339.2011.01176.x>
- Ikinci, N., Hall, T., Lledo, M. D., Clarkson, J., Tillie, N., Seisums, A., Saito, T., Harley, M. & Chase, M. W. (2011) Molecular phylogenetics of the *juno* irises, *Iris* subgenus *Scorpiris* (Iridaceae), based on six plastid markers. *Botanical Journal of the Linnean Society* 167: 281–300. <http://dx.doi.org/10.1111/j.1095-8339.2011.01176.x>
- Kamelin, R.V. (1981) *Iris hippolyti* (Vved.) Kamelin. In: Takhtajan A.L. (ed.), *Redkie Izchezayushie vidi flori SSSR* 2, p. 102.
- Khalkuziev, P. (1985) A new species of the genus *Juno* (Iridaceae) from northern Pamir-Alai. *Botanical Journal* 70: 1663–1665.
- Khassanov, F.O. & Rakhimova, N. (2012) Taxonomical revision of genus *Iris* L. (Iridaceae Juss.) in the flora of Central Asia. *Stapfia* 97: 121–126.
- Linnaeus, C. (1753) *Species plantarum*. Salvii, Stockholm, 560 pp.
- Mathew, B. (1997) Subgenus *Scorpiris*. In: Species Group of the British *Iris* Society (ed.). *A guide to species irises: their identification and cultivation*. Cambridge University Press, Cambridge, pp. 225–278.
- Nevski S.A. (1932) *Iris vvedenskyi* Nevski. In: B.A. Fedtschenko & M.G. Popov (eds.) *Flora Turkmenia* 1: 323.
- Tillie, N., Chase, M.W. & Hall, T. (2000) Molecular studies in the genus *Iris* L.: a preliminary study. *Annali di Botanica (Roma) n.s.* 1: 105–112.
- Vvedensky, A.I. (1935) *Iris* L. sect. *Juno*. In: Komarov V.L. (ed.) *Flora SSSR*. Akademiya Nauk, Leningrad, pp 424–439.
- Vvedensky, A.I. (1935) *Iris tadshikorum* (Vved.) Vvedensky. *Bulletin de l'Universite de l'Asie Centrale* 21:152.
- Vvedensky, A.I. (1971) *Juno* Tratt. In: Vvedensky A.I. & Kovalevskaya S.S. (eds.) *Opredelitel rastenij Srednej Azii*. Tashkent: FAN, 2: 132–139, incl. Appendix: 321–322.
- Wendelbo, P. (1975) *Iris maracandica* (Vvedensky) Wendelbo. *Botaniska Notiser* 128: 216.
- Wendelbo, P. & Mathew M. (1975) *Iris* L. In: Rechinger K.H. (ed.) *Flora Iranica*. Akademische Druck und Verlagsanstalt, Graz, 112: 13–68.