

Taxonomic corrections and new records in vascular plants of Kyrgyzstan, 3

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A series of notes on distribution, taxonomy, morphology and nomenclature of some vascular plants in Kyrgyzstan is presented. The presence of *Scutellaria popovii* Vved. in Talas Range is confirmed and documented with herbarium specimens, and this species is mapped. The known distributions of *Galinsoga parviflora* Cav. and *Reseda lutea* L., established invasive aliens, are documented with many new records and mapped. *Eminium alberti* (Regel) Engl. ex B. Fedtsch., *Iris inconspicua* (Vved.) T. Hall & Seisums, *I. khassanovii* Tojibaev et Turginov and *Lagopsis flava* Kar. et Kir. are reported as new to Kyrgyzstan. *Astragalus testiculatus* Pall., *Corydalis glaucescens* Regel, *Morina parviflora* Kar. et Kir., *Pedicularis karatavica* Pavlov, *Tulipa turkestanica* (Regel) Regel are reported as new to Talas Range, and *Iris narbutii* O. Fedtsch. as new to Alay Range. The distributions of *Iris linifolia* (Regel) O. Fedtsch. and *I. narynensis* O. Fedtsch. in Kyrgyzstan are verified and mapped. *Iris zenaidae* (Vved.) F.O. Khass. & Rakhimova is reduced to the synonymy of *I. graeberiana* Sealy; this species is reported as new to many territories of Western Tian-Shan. A new combination, *Iris rodionenkoi* (Lazkov & Naumenko) Lazkov & Sennikov is provided for *Juno rodionenkoi* Lazkov & Naumenko. The species known as *Cephalorrhynchus polycladus* (Boiss.) Kirp. is transferred to *Lactuca* as *L. piestocarpa* (Boiss.) Sennikov, comb. nov. with a new section, *L. sect. Zollikoferiastrum* (Kirp.) Sennikov, comb. nov.; this species is new to Kyrgyzstan.

Introduction

The present series of notes is the third to complement the checklist of the flora of vascular plants of Kyrgyzstan (Lazkov & Sultanova 2011, 2014). The circumscription of families follows APG III (Chase & Reveal 2009).

Most of these additions and corrections resulted from extensive field work that has been undertaken recently by G.A. Lazkov. Some species

new to Talas Range were discovered during the inventory of the flora of Besh-Tash National Park by G.A. Koichubekova in 2013 and 2014. A few additions appear from the fieldwork done by A.N. Naumenko in continuation of the illustrated guide to the flora of Kyrgyzstan (Naumenko & Lazkov 2012). The specimens kept in FRU were screened to trace earlier collections and to compile complete distributions maps.

Materials and methods

Records of vascular plants from Kyrgyzstan were screened and checked against published information. The collections of the Institute of Biology and Soil Science, Kyrgyz Academy of Sciences, Bishkek (FRU), authors' collections and field observations were taken into account. The collection location of specimens obtained by G.L. & A.N. were recorded using a GPS navigator with WGS84 datum; others were determined using Russian printed maps with Pulkovo-1942 datum. Specimen information is deposited in the database of records in vascular plants of Kyrgyzstan (Sennikov and Lazkov 2012, continuously updated) and is also available through the Global Biodiversity Information Facility (GBIF).

The BGN (United States Board on Geographic Names) / PCGN (Permanent Committee on Geographical Names for British Official Use) romanisation of the Kyrgyz and Kazakh language is employed to transliterate collection labels originally in Cyrillic. The romanisation of toponyms in Kyrgyzstan is based on the official standard of the Cyrillic spelling (Ömürzakov et al. 1988). The toponyms expressed by composite words are hyphenized according to the new edition of the orthography of the Kyrgyz language (approved 27.06.2008). Delimitation of mountain ranges and depressions is given according to Ömürzakov et al. (1988).

Araceae

Eminium alberti (Regel) Engl. ex B. Fedtsch.

Turkestan Range: 5 km E of Kosh-Bulak village, Shyrykty, SE-exposed slope, 09.05.2007, *M. Ganybaeva* (FRU).

This species is easily distinguished from all other species of *Eminium* in Central Asia by its hastate leaves with lateral lobes at the base (Pazij 1971).

Previously *Eminium alberti* was known from Uzbekistan, Tajikistan, Turkmenistan (Pazij 1971) and Afghanistan (Riedl 1963). Our specimen makes the first record of this species from Kyrgyzstan.

In addition to typical specimens, plants with triangular leaves without clearly expressed later-

al lobes are known from the same area. They may also belong to the same species but they are also similar to *E. regelii* Vved., although that species usually has leaves with a longer lamina that is cuculate at the base.

Asteraceae

Galinsoga parviflora Cav.

Kyrgyzstan. Talas Depression: Jon-Aryk village, 1100–1300 m a.s.l., 30.07.2013, *G.A. Koichubekova* (FRU). Chüy Depression, Bishkek: Krasnoarmeyskaya [A. Sydykov] str. between Sverdlov [T. Ömötaliev] str. and Zavodskaya [Beyshenaliev] str., 25.09.1966, *N. Gorbunova* (FRU); Botanical Garden of the Academy of Sciences, 02.06.1968, *A. Ubukeeva* & *R. Sultanova* (FRU) & 08.07.1969, *Z. Arbaeva* (FRU); Lenin [Chüy] avenue, flower beds by the city administration, 30.10.1989, *B. Sultanova* (FRU); intersection of Molodaya Gvardiya boulevard and Lenin [Chüy] avenue, 06.06.1990, *B. Sultanova* (FRU); Molodaya Gvardiya boulevard, Avenue of Heroes, on a lawn, 13.08.1990, *N. Gorbunova* (FRU). Ysyk-Köl Depression: private garden in Pokrovka [Kyzyl-Suu] village, 25.07.1991, *B. Sultanova* (FRU). Küngöy Alatau: Chong-Ak-Suu River, Bel-Bulak, 26.07.1988, *N. Kenjebaeva* (FRU). Turkestan Range: Ak-Suu village, NW-exposed slope, 10.06.2007, *M. Ganybaeva* (FRU). Osh Town, 2008, *G. Lazkov* (observation); Jalal-Abad Town, 2005, *G. Lazkov* (observation); Özgön Town, 2003, *G. Lazkov* (observation); Kara-Kulja village, 2011, *G. Lazkov* (observation); Tash-Kömür Town, 2013, *G. Lazkov* (observation); Sarkent National Park, 2013, *G. Lazkov* (observation).

The invasion of this alien species to Kyrgyzstan apparently started from the Botanical Garden in Bishkek, where it was recorded as scattered individuals in 1954 and as abundant in 1962. Originally the species was known only from the Chüy Depression (Nikitina 1965). We provide the first inventory of this alien species in Kyrgyzstan, with new records from many areas. At present the species is well established in Kyrgyzstan (Fig. 1), as a weed of flower beds mostly within highly urbanized areas, but with a few records from small villages. Its further expansion in Kyrgyzstan is expected.

In Central Asia *Galinsoga parviflora* was previously reported from 10 localities (mostly cities and large towns) in Kazakhstan, Uzbekistan and Tajikistan (Nabiev 1993). This distribution is apparently incomplete because there has been very little effort to trace alien plants in Central Asia.

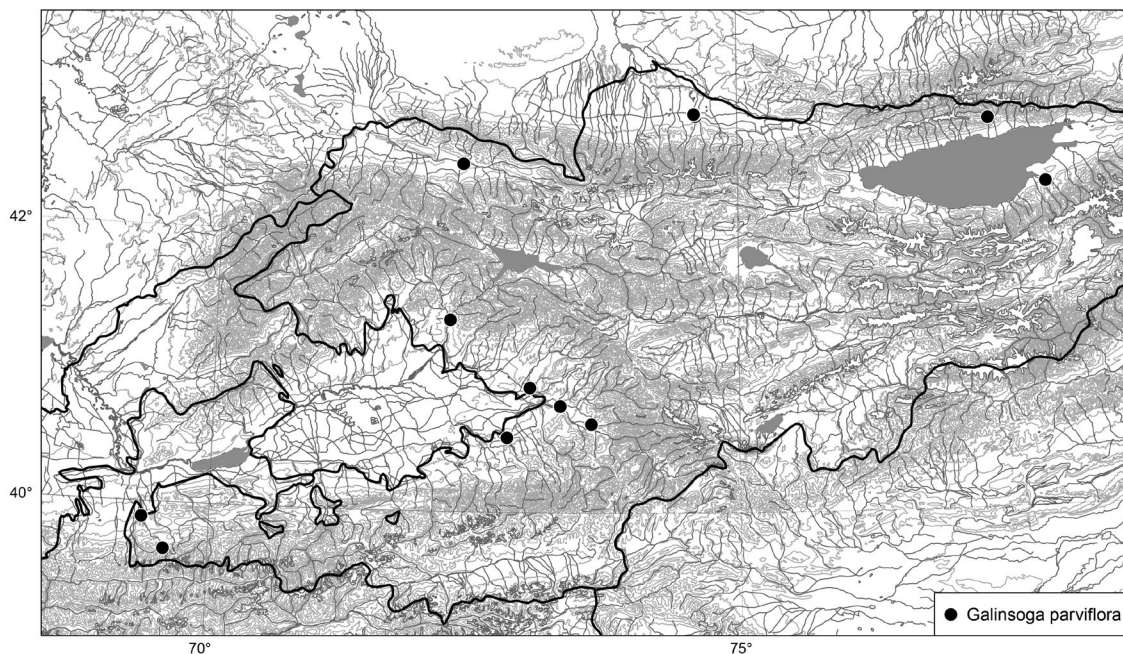


Fig. 1. Distribution of *Galinsoga parviflora* in Kyrgyzstan.

***Lactuca* L.** (syn. *Cephalorrhynchus* Boiss.,
Zollikoferiastrum (Kirp.) Kamelin)

Recently the classification of the subtribe Lactucinae has seen many attempts at major changes based on extensive sampling and molecular phylogenies. Kilian et al. (2009) provisionally concluded that the subtribe included only three large genera: *Lactuca* L., *Cicerbita* Wallr. and *Notoseris* C. Shih. Later Kilian & Shih (2009) revised these views and accepted two additional genera for the flora of China, *Melanoseris* Decaisne and *Paraprenanthes* C. Shih, but they continued to place in synonymy many generic segregates formerly accepted by Russian and Chinese authors. A more comprehensive molecular phylogeny of Lactucinae (Wang et al. 2013) demonstrated that major lineages found on the phylogenetic trees largely correspond to these genera and one more clade of Central Asian distribution.

Using the identification keys provided for the Chinese species of Lactucinae (Kilian & Shih 2009), one can see that the morphological differences between the phylogenetic lineages and accepted genera are very slender and impractical in use, and the diversity of character states in the plant habit, leaf shape, involucre, flower col-

our, fruit shape and pappus within the lineages is great. Some species of the same lineage may be similar to unrelated taxa of another lineage but be highly dissimilar from the closer relatives. The absence of synapomorphies for the major phylogenetic clades of Lactucinae may be explained by the rapid diversification of this group in its evolutionary history, similarly to what had been concluded for the subdivision of the Cichorieae at the level of subtribe (Tremetsberger et al. 2013).

As there are no obvious morphological characters to support the separation of larger genera in Lactucinae, we prefer to treat the whole subtribe (as defined in Wang et al. 2013) as the single genus *Lactuca* with approximately 230 species (Kilian et al. 2009). An alternative to this lumping approach might have been acceptance of many segregate genera corresponding to sections or closely related groups of sections. We consider this alternative impractical because it would have required creation of a number of new genera with very narrow circumscriptions. The broad and polymorphic *Lactuca* is not unique in the Cichorieae; the same level of morphological heterogeneity is exhibited also by *Crepis*, a genus of approximately 200 species that are classified in 18 sections (Enke 2009).

***Lactuca* sect. *Zollikoferiastrum* (Kirp.) Sennikov, comb. nov.**

Cephalorrhynchus sect. *Zollikoferiastrum* Kirp. in Bobrov & Tzvelev, Fl. URSS 29: 725. 1964 — *Zollikoferiastrum* (Kirp.) Kamelin in Adylov & Zuckerwanik, Opred. Rast. Sred. Azii 10: 628. 1993. — Type: *Zollikoferia polyclada* Boiss.

Cephalorrhynchus sect. *Quasibrassica* Sennikov in Bot. Zhurn. (St. Petersburg) 82(2): 110. 1997, **syn. nov.** — Type: *Lactuca brassicifolia* Boiss.

This section includes three species (*Lactuca brassicifolia* Boiss., *L. takhtadzhianii* Sosn. and *L. piestocarpa* (Boiss.) Sennikov) and is equivalent to "Cephalorrhynchus brassicifolius-Gruppe" of Tuisl (1968). It is characterised by the following features: basal leaves rosulate, lyrate or obovate; cauline leaves much reduced from the stem base; stems divaricately branched from the base, lignified; phyllaries imbricate, linear-lanceolate, acute; achenes 3–3.5 (5) mm long, with the body shortly fusiform, slightly compressed in section, narrowed and slightly constricted in the apical part, with many narrow ribs that are not fused at the base, and with a short white beak that is not lignified and is clearly distinct from the achene body; pappus biseriate, fragile; flowers pinkish.

The section is distributed in the arid mountains of the South Caucasus (southern part), Turkmen-Khorasan, Pamir-Alay and Badakhshan mountain regions, at elevations of 1600–3300 m a.s.l.

***Lactuca piestocarpa* (Boiss.) Sennikov, comb. nov.**

Chondrilla piestocarpa Boiss., Fl. Orient. 3: 793. 1875. — Type: Iran. "Prov. Khorasan inter Nischapur et Mesched", Bunge 258 (G, lectotype, designated by Rechinger 1977a: 152, not seen).

Zollikoferia polyclada Boiss., Fl. Orient. 3: 827. 1875 — *Cephalorrhynchus polycladus* (Boiss.) Kirp. in Bobrov & Tzvelev, Fl. URSS 29: 350. 1964 — *Zollikoferiastrum polycladum* (Boiss.) Kamelin in Adylov & Zuckerwanik, Opred. Rast. Sred. Azii 10: 126. 1993 — *Melanoseris polyclada* (Boiss.) Akhiani, N. Kilian & Sennikov in PloS One 8(12), e82692: 17. 2013. — Type: Iran. "Prov. Khorasan inter Nischapur et Mesched", Bunge 258 (G, lectotype, designated by Tuisl 1968: 620, not seen).

Cicerbita lipskyi Krasch. in Trudy Bot. Inst. Akad. Nauk SSSR, ser. 1, 3: 353. 1937 — Type: Tajikistan.

Darvaz Range: at Sytarg glaciers, 3300 m a.s.l., 1899, V.H. Lipsky 3800 (LE, holotype, not seen).

Lactuca intricatissima Rech. f. in Dan. Biol. Skr. 8(2): 207. 1955. — Type: Afghanistan. Lorinj Pass, 10000 ft., 27.08.1939, Koelz 13740 (W, holotype, not seen).

Kyrgyzstan. Batken Region, Kadamjay District. Alay Range (N side): Sürmö-Tash Nature Reserve, near Langar Village, gravelly slopes, 17.07.2012, G.A. Lazkov (H 1762206, H 1762207, H 1762208, FRU, LE).

This species was described by Boissier (1875) twice in the same work, under *Chondrilla* L. and *Zollikoferia* DC. In both genera this species was abnormal, probably classified because of its aphyllous habit. The material cited under both species is duplicates of the same gatherings, and the two names are thus clearly conspecific. The identity of *Chondrilla piestocarpa* was established by Iljin (Iljin 1930; Kilian 1997).

Krascheninnikov (1937) described *Lactuca lipskyi* on the grounds that it differs from *Cicerbita polyclada* (Boiss.) Beauv. (= *Lactuca polyclada* Boiss.) in its less thickened (and not inflated) stems and branches, the characters that distinguished *Zollikoferia polyclada* from *L. polyclada*. Krascheninnikov's indication that *C. polyclada* has the achenes with one lateral rib is probably a confusion with *Lactuca rosulata* Boiss. that has such fruits (Tuisl 1968; Kilian et al. 2012).

When originally described (Rechinger 1955), *Lactuca intricatissima* was compared with *Chondrilla piestocarpa*, at that time known to Rechinger only from its description. *Lactuca lipskyi* and *L. intricatissima* were synonymised with *Cephalorrhynchus polycladus* by Kirpicznikov (1964).

The earliest legitimate name *Zollikoferia polyclada* cannot be used in *Lactuca* because of the existence of the earlier name *L. polyclada* Boiss. *Chondrilla piestocarpa* is the earliest name with an epithet that can be transferred to *Lactuca*, and this new combination is proposed here.

When this species was discovered for the first time in Langar, Kyrgyzstan, we were puzzled with its identity because the plants were in flower and the nearest localities of this species (Chevtava 1991) were situated about 200 km from Langar. The identity of the plants collected in Kyrgyzstan and Tajikistan was confirmed by ITS sequencing (Kilian, pers. comm.).

In the beginning of its development, the species has a rosette of lyrate leaves (Fig. 2). The

stems are branching early and abundantly from the base (Fig. 3); the branches are subtended by the cauline leaves that have small lyrate laminas at two lowermost nodes, and are reduced to scales at the upper nodes. Its involucre is narrowly cylindrical, and its phyllaries imbricate and pale green with deeply pink apices. The flowers are pinkish (Fig. 4).

The distribution of this species includes Xorasan-e Razavi province in Iran (Rechinger 1977b), south-western Kopet-Dagh in Turkmenistan (Kirpicznikov 1964), Darvaz Range and Badakhshan in Tajikistan (Kirpicznikov 1964; Chevtaeva 1991), a number of provinces in Afghanistan (Rechinger 1977b; Breckle et al. 2013), and Chitral in Pakistan (Rechinger 1977b).



◀ Fig. 2. Young plant of *Lactuca piestocarpa* (Alay Range). Photo: Georgy Lazkov



◀ Fig. 3. Plant of *Lactuca piestocarpa* (Alay Range). Photo: Georgy Lazkov

▼ Fig. 4. Flowering head of *Lactuca piestocarpa* (Alay Range). Photo: Georgy Lazkov

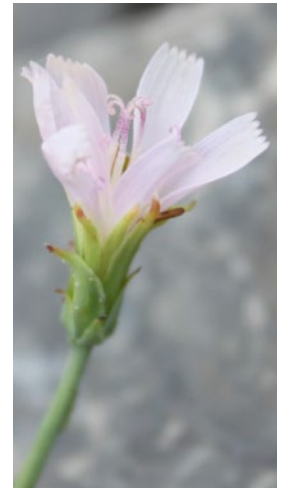




Fig. 5. Plant of *Morina parviflora* (Talas Alatau). Photo: Georgy Lazkov

Caprifoliaceae

Morina parviflora Kar. et Kir.

Kyrgyzstan. Talas Range (N side): ravine of Besh-Tash River, N-exposed rocks, cemetery Besh-Karakchy, along the river, 2600–3500 m a.s.l., 02.06.2014, G.A. Koichubekova (FRU).

This is the first report of *Morina parviflora* for Talas Alatau in particular as well as the Western Tian-Shan. In Kyrgyzstan it had been previously known from eastern and central parts of Tian-Shan (Teskey Alatau and mountains along Naryn River) (Nabiev 1987).

This species has its corolla brick-red, ca 1 cm long, hardly exerted from the calyx (Figs. 5–6). Its cauline leaves are in whorls of 4–5.

Nabiev (1987) reported this species from eastern Kazakhstan and Kyrgyzstan; it has also long been known from China (Xinjiang, at the border with Kazakhstan) (Bobrov 1957; Cannon & Cannon 1984; Grubov 2006) but this record was erroneously rejected in the English edition of the *Flo-*



Fig. 6. Flowers of *Morina parviflora* (Talas Alatau). Photo: Georgy Lazkov

ra of China (Hong & Barrie 2011), apparently because the only two specimens documenting this record were collected in the 19th century and kept at LE (Grubov 2006), thus escaping attention of these authors.

Fabaceae

Astragalus testiculatus Pall.

Kyrgyzstan. Talas Range (N side): ravine of Besh-Tash River, at the entrance to the National Park 'Besh-Tash', gravelly slopes, 1560 m a.s.l., 09.05.2013, G.A. Koichubekova (FRU).

This species has a wide distribution in Central Asia, ranging from the hills of Kazakhstan to the Kopet-Dagh Mts. of Turkmenistan. In Tian-Shan it was recorded from Kyrgyz Alatau, Kurama and Chatkal Ranges (Abdullaeva 1981).

The present record is a novelty for Talas Range, filling the gap between the Kyrgyz Alatau and Chatkal Ranges.

Iridaceae

The latest phylogeny of *Iris* L. s.l. (Wilson 2011) has demonstrated that this genus should be treated in its broader sense, including the Central Asian generic segregates *Iridodictyum* Rodion. and *Juno* Tratt. Rodionenko (1961) argued that these genera may be separated from *Iris* because, among other evidence, they differ in having bulbous versus rhizomatous life form. He circumscribed *Iris* s.str. as strictly rhizomatous, and this treatment was followed also by Lazkov & Sultanova (2011, 2014). Mathew (1989) hypothesized that rhizomes were ancestral for *Iris* and that bulbs originated several times in the evolutionary history, and these conclusions were confirmed by Wilson (2006).

Wilson (2011) demonstrated that the segregate genera or subgenera of *Iris*, proposed in earlier classifications, are not monophyletic and some species change their position and should be assigned to the groups with different combinations of floral and vegetative characters. These results led Mavrodiev et al. (2014) to re-examine the phylogeny of *Iris* and to conclude that at least 23 genera may be recognized instead of the single broad *Iris*. They provisionally proposed to establish a few new, monotypic or oligotypic genera to accommodate deviating species that were previously misplaced in other groups because their similarity was caused by parallel evolution.

Considering the conflicting conclusions of Wilson (2011) and Mavrodiev et al. (2014), we

prefer a lumping approach because the broad genus *Iris*, although comprising approximately 260 species worldwide (Wilson 2011), is usually easily recognized by its floral characters. The very few species that deviate from the common floral pattern in their fused filaments, or lack of fusion of their perianth parts, or undifferentiated tepals and slender style branches, or highly branched inflorescence, are deeply nested within *Iris* on the phylogenetic trees and are closely related to morphologically typical species (Wilson 2011). For this reason we agree that the lumping approach is more practical and more in line with treatments of similarly large and diverse groups of monocots as e.g. *Allium* L. (Friesen et al. 2006).

Iris sect. *Juno* (Tratt.) Benth.

Lectotype (Rodionenko 1961): *I. persica* L.

Rodionenko (1994) classified the species of *Juno* in four sections, of which only one was supported in phylogenetic studies (Ikinci et al. 2011; Mavrodiev et al. 2014). All the species of *Juno* occurring in Kyrgyzstan were classified in *J.* sect. *Juno* (Rodionenko 1994); that section appeared to consist of six major clades on phylogenetic trees (Ikinci et al. 2011). The significance of these clades cannot be assessed in the absence of detailed comparative studies of floral and seed characters of the group (Rodionenko 1994).

Distributions and diagnostic characters of the *Juno* species occurring in Kyrgyzstan are rather poorly known. Here we provide distribution maps and discussions for selected species as a contribution to the future revision of the genus *Iris* in Kyrgyzstan.

Iris graeberiana Sealy

in Curtis's Bot. Mag. (new ser.) 167(4): ad tab. 126. 1950 — *Juno graeberiana* (Sealy) Soják in Čas. Nár. Muz. (Prague) 150(3–4): 138. 1982. — Type: Collected from cultivation (K, holotype, not seen).

Juno zenaidae Vved. in Vvedensky, Opred. Rast. Sred. Azii 2: 322. 1971, **syn. nov.** — *Iris zenaidae* (Vved.) F.O. Khass. & Rakhimova in Stapfia 97: 178. 2012. — Type: Fergana Range. Cultivated from bulbs collected along Aube River in 1933 by Z. Botschantzeva, 07.04.1934, *A. Vvedensky* 581 (TASH, holotype, not seen).

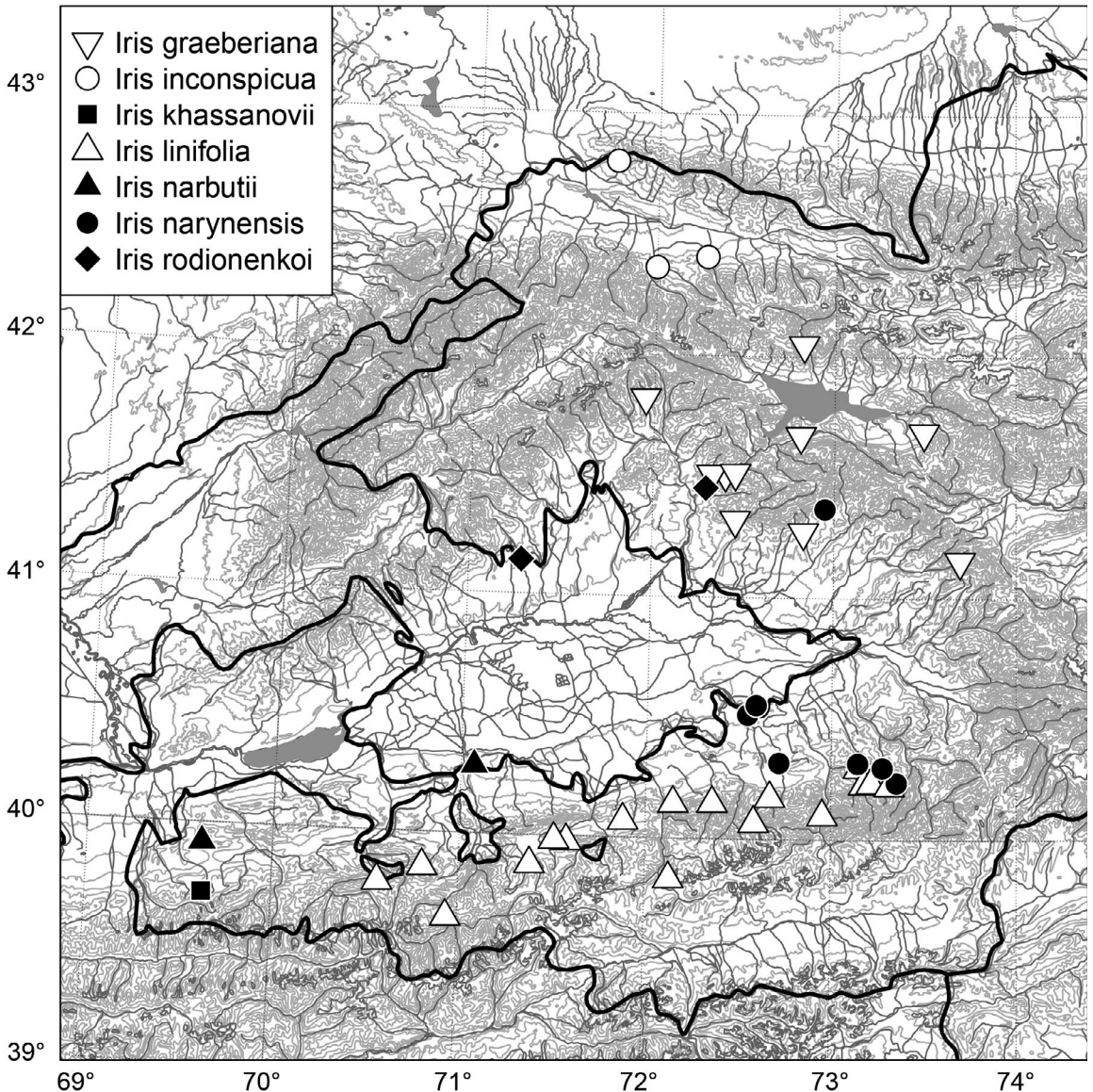
Kyrgyzstan. Talas Range: Kara-Köl in the middle course of Chychkan River, 19.04.1966, *I. Sudnitsy-*

na (FRU). Chatkal Range: Sary-Chelek Nature Reserve, 07.04.1990, G. Lazkov (FRU). At-Oinok Mts.: left side of Kürp-Say River, 12.04.1976, R. Aidarova, A. Ubukeeva & R. Sultanova (FRU); Kyzyl-Moynok, 13.04.1976, R. Aidarova, A. Ubukeeva & R. Sultanova (FRU). Babash-Ata Mts.: Kara-Suu River, Sary-Bulak, 15.04.1976, R. Aidarova, A. Ubukeeva & R. Sultanova (FRU); upstream Mayly-Suu Town, 14.04.1977, I. Sudnitsyna, Batalov & Ledovskaya (FRU); along Naryn River 5 km downstream the mouth of Bekechal River, left side, 05.04.1990, G. Lazkov & S. Sheremetova (FRU); left side of Naryn River opposite to its tributary It-Say River, 12.04.2012, A.N. Naumenko (photo). Mountains along Naryn River: left side of Nichke River, Kosh-Tektir, 21.04.1976, R. Aidarova, A. Ubukeeva & R. Sultanova (FRU). Fergana Range. Ak-

Terek village, 25.04.1956, Lebedeva (FRU) & 29.04.1964, V. Tkachenko (FRU).

Iris graeberiana was described on the basis of living plants (type reportedly preserved in K) cultivated in 1940s in The Old Gardens, Tunbridge Wells, England, of which the stock was obtained from the nursery Van Tubergen (Sealy 1950). The original bulbs were collected for Van Tubergen by Paul Graeber in the very beginning of the 20th century in "Turkestan".

▼ Fig. 7. Distribution of selected species of *Iris* sect. *Juno* in Kyrgyzstan.



In the apparent absence of data about the original locality of *I. graeberiana* this name was not accepted by botanists working with Central Asian plants in their native distribution area, although it was widely accepted by horticulturists (Khassanov & Rakhimova 2012).

Vvedensky (1971) described *Juno zenaidae* Vved. (= *I. zenaidae*) which was said to differ from *I. magnifica* Vved. in the blue or blue-violet (vs. pale violet or almost white in *I. magnifica*) background colour of flowers, and in the white (vs. yellow) patch on the blade of the falls. Khassanov & Rakhimova (2012) provided a good photograph of that species that is virtually identical with the colour drawing presented in the protologue of *I. graeberiana*. On the basis of original descriptions and these illustrations we decide that these two names are applicable to the same taxon, thus reducing *I. zenaidae* to a synonym of *I. graeberiana*. Most likely, Graeber collected the species in the northernmost part of Fer-

gana Range or adjacent Babash-Ata Mts. because many botanists and horticulturists had visited this famous territory by the end of the 19th century. This means that the type collections of the two names may have originated from the same area.

Iris graeberiana is endemic to Kyrgyzstan, but it is not restricted to Fergana Range as stated by Vvedensky (1971). Our inventory of collections kept in FRU has revealed that this species is found in a number of localities in Western Tian-Shan, and the northernmost part of Fergana Range with its neighbouring mountains is only the southern limit of the distribution of *I. graeberiana* (Fig. 7). Among the other species of *I. sect. Juno* in Kyrgyzstan, *I. graeberiana* is conspicuous because of its tall and robust stature and large blue flowers (Fig. 8).

▼ Fig. 8. Plant of *Iris graeberiana* (Naryn River). Photo: Alexander Naumenko



***Iris inconspicua* (Vved.) T. Hall & Seisums**

Kyrgyzstan. Talas Range: Kara-Kayng, 2100 m a.s.l., 20.05.1959, *Korneva & Zaikin* (FRU); ravine of Besh-Tash River, at the entrance to the National Park 'Besh-Tash', low hills, NE-exposed slopes, 1560–1600 m a.s.l., 20.04.2014, *G.A. Koichubekova* (FRU). Kyrgyz Range: Jol-Say, 14.04.1964, *I. Sudnitsyna* (FRU).

This species is new to Kyrgyzstan. It is known from a few localities in the western part of Kyrgyz and Talas Ranges (Fig. 7). A record of *Iris narynensis* O. Fedtsch. from Kalba River on Talas Range (Moldoyarov 1964) may also belong to this species (no relevant specimens have been traced).

This species belongs to the unresolved group of species closely related to *I. kuschakewiczii* B. Fedtsch. (Vvedensky 1971; Ikinici et al. 2011). It is described from Kurama Range opposite to Angren Town (Vvedensky 1971) and was keyed out from *I. kuschakewiczii* by its greenish (vs. intensively blue in *I. kuschakewiczii*) patch on the blade of the falls (Fig. 9).



Fig. 9. Plant of *Iris inconspicua* (Besh-Tash). Photo: Göljamila Koichubekova

Its closest relative, *I. subdecolorata* Vved. is described from the vicinity of Tashkent and reportedly differs in having greenish to slightly bluish (vs. pale violet in *I. inconspicua*) background colour of its flowers (Vvedensky 1971). The background colour of flowers in *Juno* exhibits much variation within a single species (e.g., Hall 2007), so the significance of this difference needs to be evaluated in further studies.

***Iris khassanovii* Tojibaev & Turginov**

Kyrgyzstan. Turkestan Range: N side, in *Juniperus* belt, 18.05.1952, *L.I. Popova & E.I. Spota* (FRU); Töö-Jayloo, 14.05.1962, *R. Aidarova & A. Ubukeeva* (FRU); Isfana river basin, among *Juniperus*, 18.06.1968, *A. Ubukeeva, B. Sultanova etc.* (FRU); Töö-Jayloo, 11.05.2005, *G.A. Lazkov* (FRU).

This recently described species (Tojibaev & Turginov 2014) differs from *Iris linifolia* (Regel) O. Fedtsch. in its flower colour: standards whitish with violet veins (vs. yellowish in *I. linifolia*), falls whitish with violet veins and a yellow spot along the crest (vs. whitish with a bright-yellow spot), and styles with a violet tint (vs. yellowish) (Fig. 10). Among the species occurring in Kyrgyzstan, *I. khassanovii* is also closely related to *I. narynensis* O. Fedtsch. (Ikinici et al. 2011), the latter being clearly different in the dark blotch on the blade of the falls (Hall 2007).

Iris khassanovii was described from Hissar Range in Uzbekistan, in about 200 km from the south-western border of Kyrgyzstan. Its brief protologue does not state a distribution area; from the discussions and the type locality we deduce that the species was known to the authors from Hissar Range only, both from Uzbekistan and Tajikistan.

In the last 50 years, plants identical to the just-described *I. khassanovii* have been repeatedly collected from a forested area (*Juniperus* forest) on Turkestan Range immediately south of the Töö-Jayloo pasture area (Fig. 7). One of the present authors (G. L.) collected the species in that locality and observed the flower colour in the living state. The plants from Kyrgyzstan seem to be nearly identical to those from Hissar Range, and we so report this as an extension of the species' distribution. Most likely, one more collection belongs here, a specimen from Töö-Jayloo



Fig. 10. Flower of *Iris khassanovii* (Töö-Jayloo). Photo: Georgy Lazkov

collected in 29.05.1954 by Alexandrova (TASH) that was cited as a paratype of *I. linifoliiformis* by Chalkuziev (1985).

The only difference between the typical *I. khassanovii* and the plants from Turkestan Range is the crest being dissected (vs. denticulate). We believe that such forms should be placed in the same species, like *I. linifolia* and *I. linifoliiformis* Chalkuziev which are discussed below.

Iris linifolia (Regel) O. Fedtsch. (syn. *Iris linifoliiformis* Chalkuziev)

Kyrgyzstan. Alay Range (N side): "Ish", 01.07.1934, *I.V. Vykhodtsev* (FRU); Nookat District, "Jum-Bashy" mountains, 13.06.1937, *V.I. Vandysheva* [expedition of *I.V. Vykhodtsev*] (FRU); watersheds between "Tash-Konush" and "Kary-Kichak", 14.06.1937, *V.I. Vandysheva* [expedition of *I.V. Vykhodtsev*] (FRU); Kyrgyz-Ata river basin, "Karagoy", 21.05.1957 & 17.05.1958, *V. Janaeva* (FRU); Chauvay, *Juniperus* forest belt, 11.05.1963, *A. Ubukeeva* & *N. Gorbunova* (FRU) & 12.05.1964, *V. Ja-*

naeva (FRU) & 19.05.1964, *R. Aidarova* & *N. Gorbunova* (FRU); Peshkaut, 17.05.1963, *G. Tambovtseva* (FRU); Shibeli, 29.05.1963, *G. Tambovtseva* (FRU); Ak-Tash, 09.06.1963, *R. Aidarova* & *A. Ubukeeva* (FRU); "Kuk-Chasbek", upper limit of *Juniperus* forest, 14.06.1963, *R. Aidarova* & *A. Ubukeeva* (FRU); Gülchö River, Archa-Ata, 2700 m, alpine steppe-like meadow, 08.06.1966, *I. Sudnitsyna* & *N. Gorbunova* (FRU); Kum-Bel in 7 km S of Aidarken village, *Juniperus* forest, 23.06.1968, *A. Ubukeeva*, *B. Sultanova* etc. (FRU); Sary-Tash, "Kaltasovet", 16.05.1979, *R. Aidarova*, *I. Sudnitsyna*, *Amankanova*, *Mamataliev* (FRU); middle course of Isfayram-Say River, 3400 m a.s.l., 04.07.2011, *A.N. Naumenko* (observation). Turkestan Range: Kichik, 3000 m, 08.06.1960, *I. Sudnitsyna* (FRU); Kyk near Tüz-Bel Pass at Vorokh village, 14.06.1960, *I. Sudnitsyna* (FRU); Zardaly, 09.06.2012, *G.A. Lazkov* (observation).

Iris linifolia was described from Kendyr-Daban Pass in Kurama Range at the border between Uzbekistan and Tajikistan (Vvedensky 1935). Other reports of this species include Kurama Range (Vvedensky 1941, 1963, 1971) and Alay Range (Vvedensky 1941; Nikitina 1951).



Fig. 11. Flower of *Iris linifolia* with deeply dissected crest (Gülchö). Photo: Alexander Zhdanko



Fig. 12. Flower of *Iris linifolia* with entire crest (Isfayram-Say). Photo: Alexander Naumenko

Vvedensky (1971) stated that the crest in *Iris linifolia* is "mostly undivided". He commented that the plants from Alay Range may be separated into a species of its own that is intermediate between *I. linifolia* s.str. and *I. tadshikorum* Vved., probably because some specimens from that area had the crest dissected.

Iris linifoliiformis was described from Kum-Bel Pass in Alay Range, Kyrgyzstan (Khalkuziev 1985). The protologue reported this taxon from many localities situated in Turkestan and Alay Ranges within Kyrgyzstan, Uzbekistan and Tajikistan. It was stated to differ from *I. linifolia* in its dissected (vs. undissected) crest and shorter leaves that hardly reach the flower (the state of the latter character in *I. linifolia* had not been described in the other works). In Kyrgyzstan we observed plants of *I. linifolia* s.l. with either dissected (Fig. 11) or entire (Fig. 12) crest, contrary to the assumption of Khalkuziev (1985) and Tojibaev & Turginov (2014) that the plants from Kurama Range and Pamir–Alay are distinct geographic races that are different in this particular character. In particular, many specimens from Alay Range (13.06.1937, *V.I. Vandysheva*; 21.05.1957 & 17.05.1958, *V. Janaeva*; 11.05.1963, *A. Ubukeeva* & *N. Gorbunova*; 14.06.1963, *R. Aidarova* & *A. Ubukeeva*; 19.05.1964, *R. Aidarova* & *N. Gorbunova*; 08.06.1966, *I. Sudnitsyna* & *N. Gorbunova*; 23.06.1968, *A. Ubukeeva*, *B. Sultanova* etc.) have the crest dissected, whereas a few others (17.05.1963, *G. Tambovtseva*; 29.05.1963, *G. Tambovtseva*) have the crest dentate or even (04.07.2011, *A.N. Naumenko*) completely entire.

For this reason, and in agreement with *The World Checklist of Selected Plant Families* (Barker & Govaerts 2013), we treat *I. linifolia* and *I. linifoliiformis* as forms of the same species.

Our distribution map (Fig. 7) is based on the specimens kept in FRU and cited above, and also on the specimens kept in LE and TASH and cited by Khalkuziev (1985) as *I. linifoliiformis*.

Iris narbutii O. Fedtsch.

Kyrgyzstan. Alay Range: right side of Sokh River, small hills 10 km north of Ak-Turpak village, 04.04.2014, *G.A. Lazkov* & *U.A. Neveraev* (FRU). Turkestan Range: near Kosh-Bulak village, foothills Toity, 20.03.2007, *M.R. Ganybaeva* (FRU).



Fig. 13. Plant of *Iris narbutii* (Sokh River). Photo: Georgy Lazkov

This species is new to Alay Range (Fig. 7). This is the second confirmed record of *Iris narbutii* from Kyrgyzstan after its first report from Turkestan Range (Lazkov & Ganybaeva 2008). Otherwise its distribution area covers largely Pamir–Alay mountain system and a small part of the adjacent Tian-Shan (Mogoltau and hills north of Tashkent) (Vvedensky 1971).

The flowers of *I. narbutii* have the standards pale-violet and the falls dark-violet in the apical part and the yellow blotch along the middle part of the crest. Its leaves are narrow and curved, with conspicuous white margins (Fig. 13).

The record of "*Juno narbutii*" from Moldo-Too Mts. (Gubanov 1970) had not been evaluated; we were not able to see the relevant specimen (25.04.1958, *I.A. Gubanov* 487 (MW)). Judging from its distribution range, the presence of *I. narbutii* in Central Tian-Shan is unlikely.

Iris narynensis O. Fedtsch.

Kyrgyzstan. Babash-Ata Mts.: at Terek-Say Pass, riverbed, meadow, 08.04.1977, *I. Sudnitsyna & Batalov* (FRU). Alay Range: Kyyan-Köl in 15 km SE of Katta-Taldyk, 19.03.1947, *L. Kaschenko* (FRU); Duano in 5 km of Katta-Taldyk, 22.03.1947, *L. Kaschenko & Yu. Shakhvorostova* (FRU); 7 km W of Katta-Taldyk, 30.03.1947, *L. Kaschenko & L.I. Popova* (FRU); Beles Pass between Osh Town and Nookat village, 08.04.2014, *A.N. Naumenko* (photo).

Iris narynensis was described from some place along Naryn River: "in the valley of Naryn River (A. Regel 1880)" (Fedtschenko & Fedtschenko 1905). The exact locality has not been determined as yet. In April of 1880, during the flowering time of *I. narynensis*, Albert Regel travelled along Naryn River on his way from Kulja (now Yining in Xinjiang, China) to Tashkent (Lipsky 1905), and the plant may have been collect-



Fig. 14. Plant of *Iris narynensis* (Beles Pass). Photo: Alexander Naumenko

ed almost anywhere from the confluence of Naryn with K ok meren River up to the present-day Tash-K m r Town (although we expect that it was collected upstream Kara-K l Town because of the presence of another related species, *I. rodionenkoi*, in the lower course of Naryn River).

The flowers of *I. narynensis* are similar to those of *I. narbutii*; but their standards are very short and pinkish, and their falls have the blade purple but narrowly white-margined (Fig. 14).

Its distribution area covers the mountains east of Fergana Depression (Vvedensky 1971). In Kyrgyzstan *I. narynensis* is known in the mountains adjacent to Naryn River (Babash-Ata Mts.) and in Alay Range (Nikitina 1951). The record from Kalba River on Talas Range (Moldoyarov 1964; Lazkov & Sultanova 2011) is not confirmed by herbarium specimens and is treated as erroneous; apparently it belongs to *I. inconspicua*. The re-

cord from the Central Tian-Shan (Nikitina 1951) is not confirmed by specimens and may be speculative. The record from Padsha-Ata River, Uzbekistan (Tojibaev & Karimov 2012) most likely belongs to *I. rodionenkoi*. Two other records from northern foothills of Alay Range in Uzbekistan, however, may belong to this species: Chil-Ustun Mts. west of Tashata village, north-east of Aravan village (Hall 2007) and Vuadil village (Tojibaev & Karimov 2012). The presence of *I. narynensis* in Uzbekistan, already reported by Vvedensky (1941), was disregarded by Khassanov & Rakhimova (2012) who listed the species as endemic to Kyrgyzstan.

This species is very rare in collections, and we make the first attempt to present a map of its distribution area (the type locality being excluded). This map (Fig. 7) is based on the specimens kept in FRU and the localities cited in Hall (2007).

Iris rodionenkoi (Lazkov & Naumenko) Lazkov & Sennikov, **comb. nov.**

Juno rodionenkoi Lazkov & Naumenko in Turczaninowia 17(2): 32. 2014. — Type: Kyrgyzstan. Babash-Ata Mts.: along Naryn River between its tributaries Uuru-Say and Sary-Bel, 04.04.2014, *A.N. Naumenko* (LE, holotype; isotypes FRU, MW). Paratype: Kyrgyzstan. Chatkal Range: downstream the confluence of Sumsar River and its tributary Abichek-Say, 20.03.2014, *D.A. Milko* (FRU).

Iris rodionenkoi was recently described as endemic to Kyrgyzstan (Lazkov & Naumenko 2014) but it may also grow in Uzbekistan because it was collected less than 500 m from the border with that country (Fig. 7). The record of *I. narynensis* from Padsha-Ata River, Uzbekistan (Tojibaev & Karimov 2012) may belong to this species.

It differs from *I. narbutii*, which grows in the westernmost parts of Western Tian-Shan, in the length of the standards (1–2 cm vs. 2.5–3.5 cm in *I. narbutii*) and their shape (long-apiculate vs. spatulate and entire at the apex in *I. narbutii*).

Lamiaceae

Lagopsis flava Kar. et Kir.

Kyrgyzstan. K ng y Alatau (S side): N of Balykchy vilage, 3300 m a.s.l., 15.08.2013, *A.N. Naumenko* (photo).

This species (and genus) is new to Kyrgyzstan. Previously *Lagopsis flava* was known from Kazakhstan (Saur, Tarbagatay and Dzhungarian Alatau) (Kovalevskaya 1987) and China (Xinjiang) (Li & Hedge 1994). Our record is also new to K ng y Alatau.

Lagopsis flava is similar to *L. marrubiastrum* (Steph.) Ik.-Gal., the type species of *Lagopsis* (Benth.) Bunge, from which it differs in its yellow flowers (Fig. 15).

Scutellaria popovii Vved.

Kyrgyzstan. Kyrgyz Range (N side): upper reaches of Chaldovar [Chaldybar] River, alpine zone, 30.07.1924, *M.G. Popov* & *E.A. Mokeeva* 1225 & 1226 (TASH); mountains along Ak-Suu river, 06.08.1924, *M.G. Popov* & *E.A. Mokeeva* 1346 (TASH); Jaman-Echki, alpine zone, 07.08.1924, *M.G. Popov* & *E.A. Mokeeva* HFAM 202 (TASH, holotype; LE, isotype). Talas Range (N side): northern side of Jargart Pass, alpine zone, 12.07.1925, *R. Abolin s* 675 (TASH); ravine of Kalba River, Chong-



Fig. 15. Plant of *Lagopsis flava* (K ng y Alatau). Photo: Alexander Naumenko

D b y (upper part), 25.07.1953, *A. Moldoyarov* (FRU); Besh-Tash, SW-exposed slope, 12.07.1965, *I. Sudnitsyna* & *N. Gorbunova* (FRU).

This species is endemic to Kyrgyzstan, described from the northern side of Kyrgyz Range. In the protologue Vvedensky (1954) reported it also from Talas Range; this fact was overlooked by other authors (Juzepczuk 1954; Spota 1960; Abdullaeva 1987) who reported that it occurred only on the Kyrgyz Range. Here we confirm the presence of the species on Talas Range and provide the map (Fig. 16) and documentation for its known records.

Scutellaria popovii differs from the similar species *S. talassica* Juz. in having leaves covered with mostly rigid glandular hairs and some simple hairs. *Scutellaria talassica* has the leaves cov-

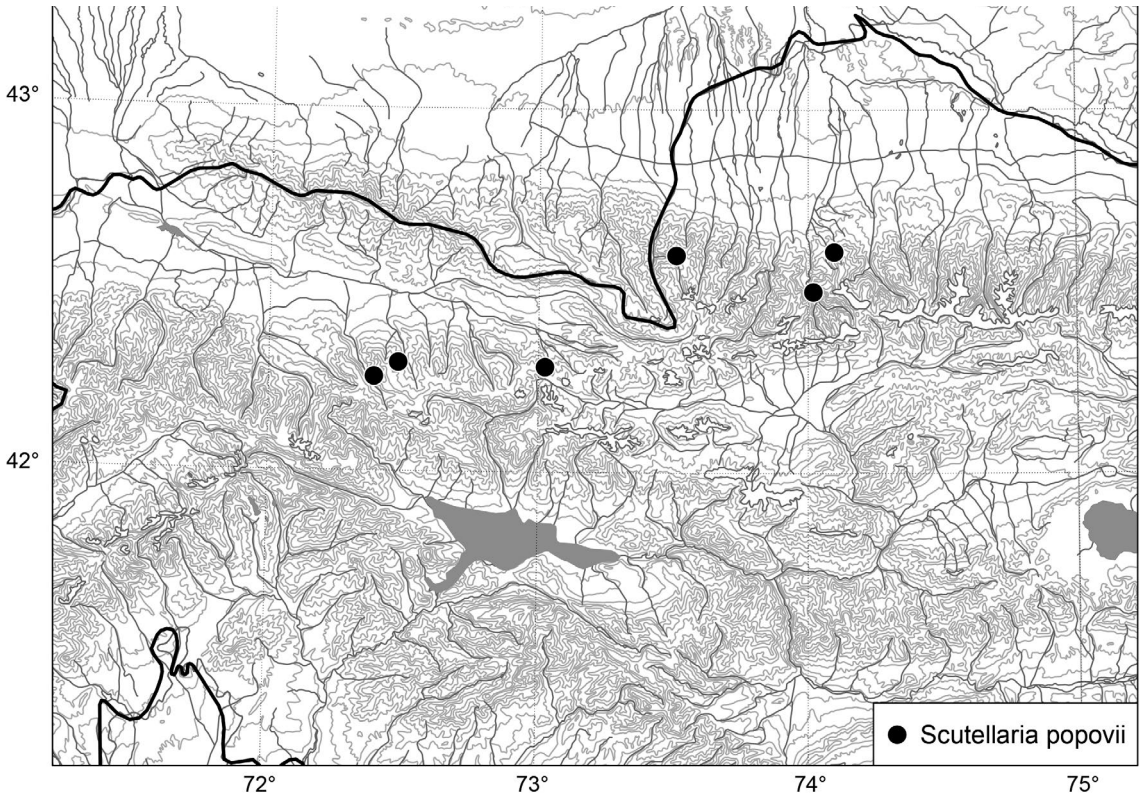


Fig. 16. Distribution of *Scutellaria popovii*, endemic to Kyrgyzstan.

ered only with villous simple hairs. The specimens of *S. popovii* from Talas Range slightly differ from those of Kyrgyz Range in having denser leaf indumentum.

Scutellaria popovii is a species of alpine zone, growing at altitudes of about 2500–3000 m.

Liliaceae

Tulipa turkestanica (Regel) Regel

Kyrgyzstan. Talas Range (N side): ravine of Besh-Tash River, at the entrance to the National Park 'Besh-Tash', low hills of red sandstone, S-exposed slopes, 1560–1600 m a.s.l., 21.04.2014, G.A. Koichubekova (FRU).

This species is endemic to Central Asia (Uzbekistan, Tajikistan, Kyrgyzstan), with the main distribution in Pamir–Alay mountain region and very few records in Tian-Shan (Mogol-Tau and Chatkal Range) (Vvedensky & Kovalevskaya 1971). Its record from Kazakhstan (Abdulina 1999) is erroneously derived from Vvedensky & Kovalevskaya (1971). The species is not known



Fig. 17. Plant of *Tulipa turkestanica* (Besh-Tash). Photo: Gūljamila Koichubekova

from Turkmenistan but was recorded from many localities right on the border between this country and Uzbekistan (Tojibaev & Beshko 2015), so its presence in Turkmenistan is expected.

Vvedensky & Kovalevskaya (1971) reported that *Tulipa turkestanica* is present on Chatkal Range. This record is based on a specimen collected at Kugay [Qo‘g‘ay] village in Uchqo‘rg‘on District of Namangan Region in Uzbekistan, on the lower foothills of Chatkal Range, close to the border with Kyrgyzstan (Tojibaev, pers. comm.).

The present record of *T. turkestanica* (Fig. 17) is the first from Western Tian-Shan within Kyrgyzstan; it makes a significant extension of its distribution area northwards.

Orobanchaceae

Pedicularis karatavica Pavlov

Kyrgyzstan. Talas Range (N side): ravine of Besh-Tash River, Koroo-Kayyngdy, S-exposed gravelly slopes, 1900–2200 m a.s.l., 08.05.2014, *G.A. Koichubekova* (FRU).

In Kyrgyzstan this species had been previously reported from Echkili-Too and the western part of Kyrgyz Alatau (Li 1987). Now it was found in Talas-Alatau, on the opposite side of the Talas Depression. Other localities of the species are situated in the neighbouring territories of southern Kazakhstan (Li 1987).

Papaveraceae

Corydalis glaucescens Regel

Kyrgyzstan. Talas Range (N side): ravine of Besh-Tash River, Kayyngdy, along the river, 2240 m a.s.l., 22.06.2013, *G.A. Koichubekova* (FRU).

This species is distributed in Uzbekistan, Kyrgyzstan, Kazakhstan, Tajikistan and north-western China (Xinjiang) (Pazij 1974; Zhang et al. 2008). In Kyrgyzstan it was known from northern and northwestern parts of the country (Kyrgyz and Küngöy Alatau), Central Tian-Shan and Fergana Range (Aidarova 1955; Pazij 1974).

Our record is new to Talas Alatau. This is the first discovery of the species in western Kyrgyzstan. It seems to have been poorly collect-

ed because it is widespread in Uzbekistan (Pazij 1955).

Resedaceae

Reseda lutea L.

Kyrgyzstan. Talas Range (N side): foothills at Kök-Say village, at the road, 15.06.1969, *R. Aidarova* (FRU); ravine of Besh-Tash River, at the entrance to the National Park ‘Besh-Tash’, gravelly slopes, 1550 m a.s.l., 30.06.2013, *G.A. Koichubekova* (FRU). Chatkal Range: Terek-Say, 08.07.1976, *K. Koshoev* (FRU); Örüktü village, 23.05.1977, *B. Sultanova, Batalov & Ledovskaya* (FRU). At-Oinok Mts.: versicolour denudations along Kara-Suu River, 19.09.1953, *V.I. Tkachenko* (FRU); left side of Kara-Suu River opposite to Kara-Jygach village, 04.05.1962, *R. Aidarova & A. Ubukeeva* (FRU); south of Jangy-Jol village, 23.05.1977, *B. Sultanova, Batalov & Ledovskaya* (FRU). Babash-Ata Mts.: 10 km from Tash-Kömür Town towards Jangy-Jol village, 23.06.1992, *G. Lazkov & J. Ömüralieva* (FRU). Kyrgyz Range: Paspeldek [Baböltök] Mts., 29.07.1986, *N. Gorbunova* (FRU); side of Alamüdün River opposite to Kök-Jar village, riverbed gravel, 16.05.1992, *G. Lazkov* (FRU). Chüy Depression: at the Chumysh dam, 30.05.1948, *E.I. Spota* (FRU); 10 km upstream Tokmak Town, along the road, 09.05.1990, *S. Sheremetova & G. Lazkov* (FRU). Teskey Alatau: Kajy-Say, foothills, bottom of a ravine, 14.08.1986, *R. Aidarova & B. Sultanova* (FRU). Alay Range (N side): foothills, at Kadamjay village, 18.05.1963, *A. Ubukeeva & N. Gorbunova* (FRU); foothills, east of Aidarken village, gravelly slopes, semidesert with *Artemisia* and ephemeral plants, 29.06.1979, *R. Sultanova & B. Sultanova* (FRU). Turkestan Range (N side): foothills, bed of Leylek River, 04.05.1978, *R. Aidarova & A. Ubukeeva* (FRU).

In Kyrgyzstan this alien species was known from two localities in eastern Fergana Depression and Ysyk-Köl Depression (Lazkov & Sultanova 2011). It was missing in Nikitina (1957) because of misidentifications with another but rare alien, *R. luteola* L. The records reported here show that its distribution completely covers the north-western and partly south-eastern parts of the country (Fig. 18). Elsewhere in Central Asia it is also found as an introduction in Uzbekistan and Kazakhstan. Its native distribution includes Turkmenistan (Sarkisova 1974).

The species occurs in human-disturbed habitats, usually on gravelly slopes close to roadsides and inhabited places. In Kyrgyzstan it is alien but completely naturalized on riverbed gravels, roadsides, lowermost parts of slopes (Lazkov, observations).

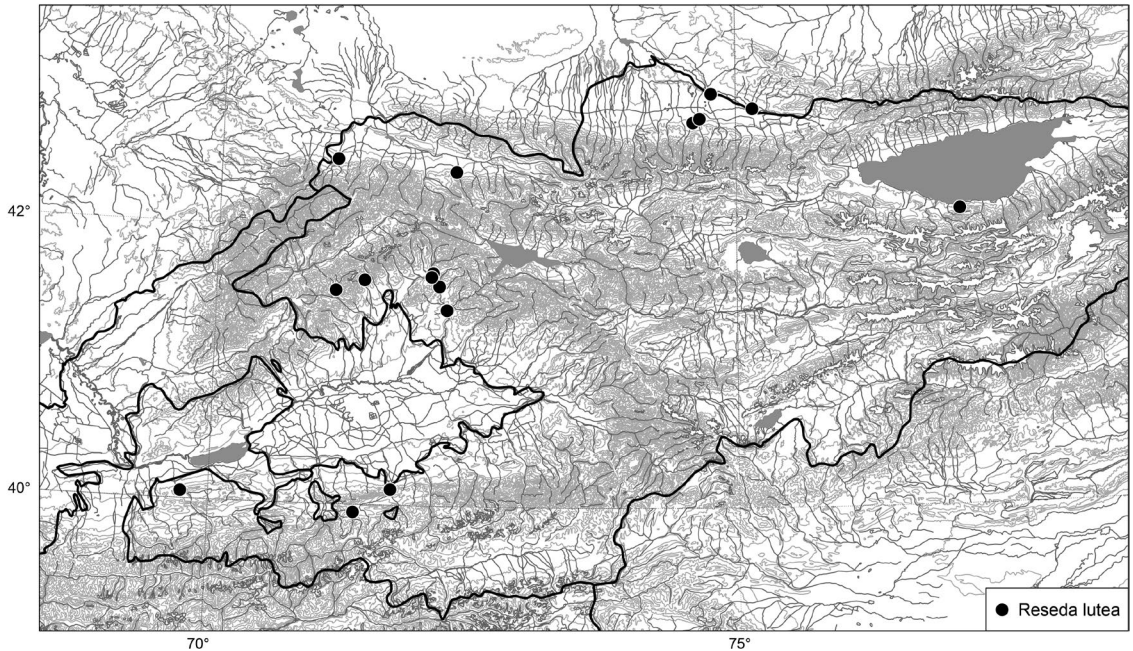


Fig. 18. Distribution of *Reseda lutea* in Kyrgyzstan.

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