

Taxonomic corrections and new records in vascular plants of Kyrgyzstan, 4

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A new series of notes on distribution, taxonomy, morphology and nomenclature of some vascular plants in Kyrgyzstan is presented. *Carex subphysodes* Popov ex V.Krecz., *Astragalus sogdianus* Bunge, *Oxytropis ferganensis* Vass. and *Iris maracandica* (Vved.) Wendelbo (all native), and also *Delphinium orientalis* J.Gay (alien) are reported as new to Kyrgyzstan. *Sedum tetramerum* Trautv. is new to Northern Tian-Shan, and *Scirpoides holoschoenus* (L.) Soják is new to Chatkal Range and Western Tian-Shan within Kyrgyzstan. The distribution area of *Torilis arvensis* (Huds.) Link is revised and expanded, and the distribution of *Eremurus zoeae* Vved. (endemic to Kyrgyzstan) is verified and mapped. New names and combinations, *Betonica* sect. *Foliosae* (Krestovsk. & Lazkov) Lazkov, *Eriophyton anomalum* (Juz.) Lazkov & Sennikov, *Kudrjaschevia* sect. *Jacubianae* Lazkov, *Lagochilus* sect. *Chlainanthus* (Briq.) Lazkov, *Leonurus* sect. *Panzerioidei* (Krestovsk.) Lazkov, *Phlomoideis* sect. *Pseuderemostachys* (Popov) Lazkov, and *Scutellaria* sect. *Ramosissimae* Lazkov, are provided as a result of the forthcoming monographic revision of Lamiaceae. Two hybrids are described in *Eremurus*, *E. fuscus* × *E. cristatus* = *E. ×nikitinae* Lazkov and *E. cristatus* × *E. zoeae* = *E. ×gypsaceus* Lazkov. Places of valid publication and the authorship of *Iris svetlanae* (Vved.) T.Hall & Seisums and *Erianthera anomala* Juz. are corrected. *Iris svetlanae* is synonymized with *I. maracandica*. A new colour form (with pinkish flowers) of *Betonica betonici-flora* (Rupr. ex O.Fedtsch. & B.Fedtsch.) Sennikov is described. English-language designations are provided for the map of biogeographic provinces of Kyrgyzstan.

Introduction

The present series of notes is the fourth 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 the extensive field work that has been un-

dertaken recently by G.A. Lazkov. The specimens kept in FRU and LE were screened to trace earlier collections and to compile distribution maps.

New infrageneric names in Lamiaceae are proposed as a result of the monographic revision of this family (Lazkov, in prep.).

Materials and methods

Records of vascular plants from Kyrgyzstan were screened and checked against the 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 locations of specimens were determined using printed Russian maps with the Pulkovo-1942 datum, except for the collections of A.S. where a GPS navigator with WGS84 datum was used. The specimens' data were deposited in the database of records in vascular plants of Kyrgyzstan (Sennikov & Lazkov 2012, continuously updated), which 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). The delimitation of mountain ranges and depressions is given according to Ömürzakov *et al.* (1988).

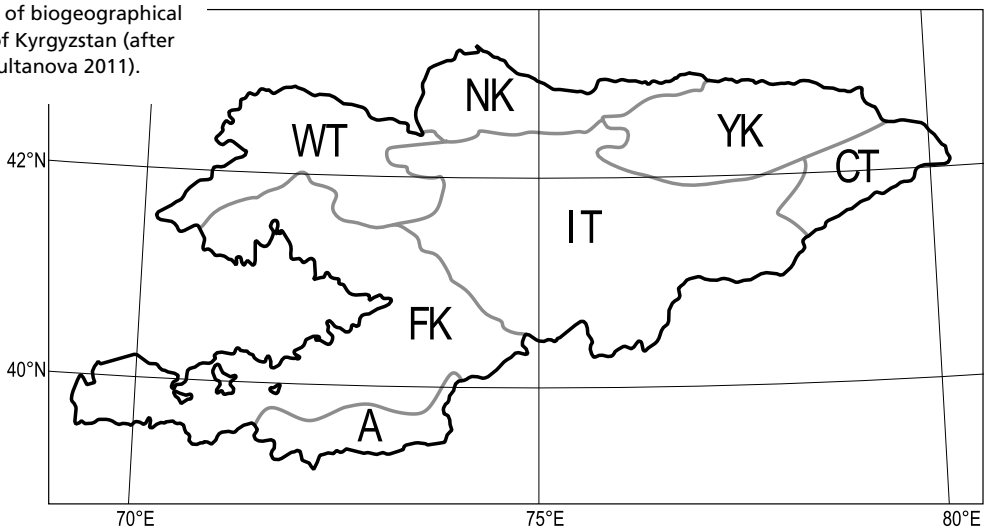
References to protologues and citations of type specimens are provided when taxonomically relevant. References to the International Code of Nomenclature for algae, fungi and plants are provided according to its Melbourne edition (McNeill *et al.* 2012).

Biogeographical provinces of Kyrgyzstan

For convenience of readers the map of biogeographical provinces of Kyrgyzstan (Lazkov & Sultanova 2011) is supplied with the English text now (Fig. 1). The provinces and their abbreviations are as follows.

- NK — Northern Kyrgyzstan (including Chüy Depression, and Chong-Kemin river valley with the northern sides of Kyrgyz Alatau and Kungöy Alatau mountain ranges)
- YK — Ysyk-Köl Depression (including the northern side of Teskey Alatau and the southern side of Kungöy Alatau, and also Tüp river valley)
- CT — Central Tian-Shan (Sary-Jaz river basin)
- WT — Western Tian-Shan (including Toktogul Depression, Talas and Chatkal river valleys)
- FK — Fergana part of Kyrgyzstan (including the southern sides of Chatkal and Fergana mountain ranges, and the northern sides of Alay and Turkestan mountain ranges)
- IT — Inner Tian-Shan (delimited by Kyrgyz mountain range on the north, Fergana mountain range on the southwest, and Kakshaal-Too mountain range on the south-east)
- A — Alay Valley (including the southern side of Alay mountain range and the northern side of Transalay mountain range)

Fig. 1. Map of biogeographical provinces of Kyrgyzstan (after Lazkov & Sultanova 2011).



Apiaceae

Torilis arvensis (Huds.) Link

Specimens examined: Kyrgyzstan. Chüy Depression, Bishkek: Akiev Str. between Kiev Str. and Toktogul Str., 18.06.2015, *G.A. Lazkov* (FRU); Chüy Av. between Akiev Str. and Sverdlov [T. Ömötaliev] Str., 14.06.2015, *D.A. Milko* (FRU). Kyrgyz Range: Kara-Archa, above the forester's house, along the road, 27.07.1968, *E. Nikitina* & *I. Sudnitsyna* (FRU). Kök-Suu Range: Chatkal river valley above Ak-Bulak river, 24.07.1986, *M.G. Pimenov*, *E.V. Kluykov*, *M.G. Vasilieva*, *T.A. Ostroumova* 349 (MW). Pskem Range: Chatkal river valley between the mouth of Khargush river and Chöp-Kamysh village, 28.07.1986, *M.G. Pimenov*, *E.V. Kluykov*, *M.G. Vasilieva*, *T.A. Ostroumova* 378 (MW). Fergana Ala-Too: [Isfän-Jayloo Mts.,] ascent from Kök-Bel Pass towards Kara-Köl town, 07.2010, *G.A. Lazkov* (observation). Alay Range: "Stalin collective farm", 19.06.1954, [illegible] (FRU); E of Shakhimardan town, Arpalyk Mts., 12.07.1987, *M.G. Pimenov*, *E.V. Kluykov*, *M.G. Vasilieva*, *T.V. Lavrova*, *I. Mukumov* 252 (MW); Isfairam river valley, Maydan village, 12.07.1987, *M.G. Pimenov*, *E.V. Kluykov*, *M.G. Vasilieva*, *T.V. Lavrova*, *I. Mukumov* 284 (MW). Turkestan Range: Beles-Mazar, 8.08.1956, *R. Aidarova* & *N. Faleeva* (FRU).

In Kyrgyzstan *Torilis arvensis* was originally known from the Turkestan Range (Nikitina 1959), and subsequently reported from the western part of the Kyrgyz Range surrounding the Talas Depression (Nikitina 1970). The latter locality was neglected by Pimenov & Kluykov (2002) who, however, reported this species from a number of localities in Kök-Suu, Pskem, Chatkal, Alay and Turkestan Ranges around the Fergana Depression. Recent specimens and observations demonstrated that this species occurs also in the Chüy Depression (Bishkek City) and in the easternmost territories surrounding the Fergana Depression.

This zoochorous species is widely distributed as presumably native in Europe, the Caucasus, Western and Central Asia, and also in northern and tropical Africa (Pimenov & Kluykov 2002); however, it is apparently alien in East Europe and absent in Siberia (Pimenov & Ostroumova 2012). In the neighbouring Kazakhstan *T. arvensis* is a weed, which was reported from the southwestern (mountainous) territories only (Korovin 1963)



Fig. 2. Plants of *Torilis arvensis* (Bishkek). Photo: Georgy Lazkov

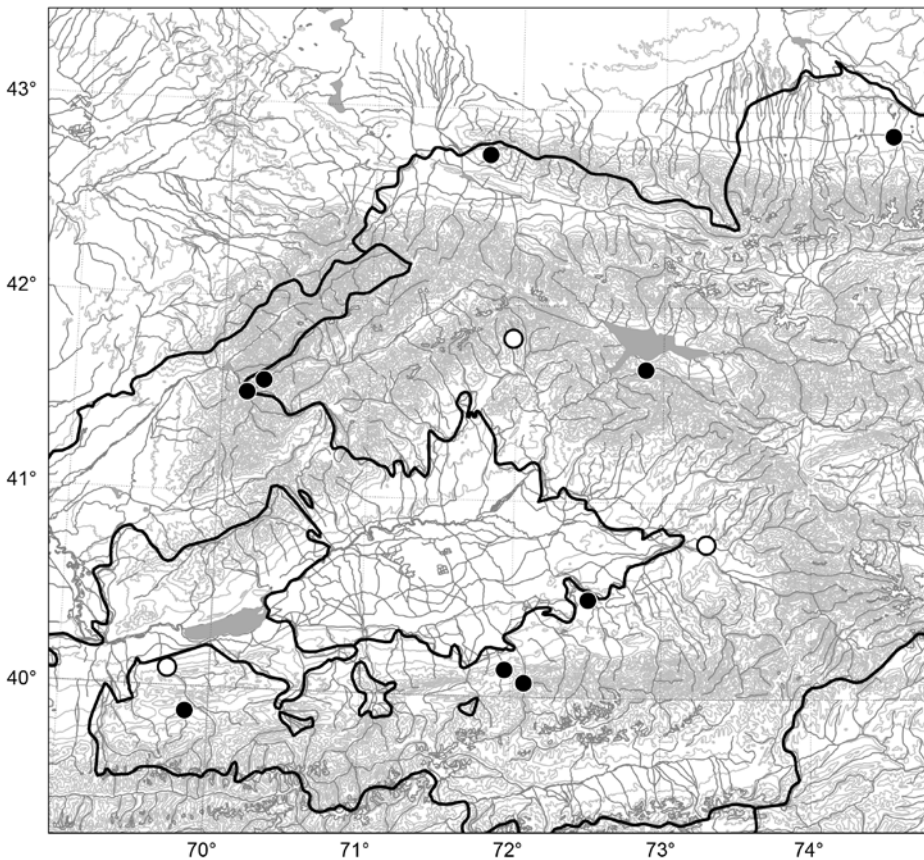


Fig. 3. Distribution of *Torilis arvensis* in Kyrgyzstan.

Solid circles: verified records according to the specimens examined;

white circles: after Pimenov & Kluykov (2002).

but was known from an old unpublished collection also from the Chüy Depression, very close to the border with Kyrgyzstan and to Bishkek in particular (Jambyl Region, Korday District, along irrigation channel near "Karakunguz" [Masanchi] village, 06.08.1916, *M. Sovetkina & N. Chausova 3057* (LE)). In Kyrgyzstan it is presumably native in the western mountainous parts of the country (Western Tian-Shan and Pamir-Alay) but is alien in the lowlands. Since the first observations in Bishkek (Fig. 2) are very recent, we assume that this weedy apophyte is very mobile and capable of changing its localities rapidly.

Our map (Fig. 3) is based on the specimens examined but also includes three extra localities mapped in Pimenov & Kluykov (2002). These localities are situated approximately at Kayragach (foothills of Turkestan Range), Özgön Town, and Arkyt (Sary-Chelek Nature Reserve, Chatkal Range).

Crassulaceae

Sedum tetramerum Trautv.

Specimen examined: Kyrgyzstan. Chüy Depression: SE of Bishkek City, between Norus river and Tüz village, dams of a pond, gravelly side, 30.04.2015, *G.A. Lazkov* (FRU).

This is a rare native species, which had been recorded from the Western Tian-Shan only (Pratov 1974; Lazkov & Sultanova 2011, 2014). Our specimen (Fig. 4) makes a record new to the northern part of Tian-Shan.

Cyperaceae

Carex subphysodes Popov ex V.Krecz.

Specimen examined: Kyrgyzstan. Chüy Depression: approx. 30 km NW of Bishkek City, between Manas airport and Mramornoe village, sandy grounds, 19.04.2015, *G.A. Lazkov* (FRU).



Fig. 4. Plants of *Sedum tetramerum* (SE of Bishkek). Photo: Georgy Lazkov



Fig. 5. Inflorescence of *Carex subphysodes* (NW of Bishkek). Photo: Georgy Lazkov

This species is new to Kyrgyzstan. Previously Egorova (1999) recorded it from the Balkhash floristic region, which included the basins of Chüy, Ak-Suu and Ili Rivers (partly situated within Kyrgyzstan). However, she made no indication that the species actually occurs in Kyrgyzstan;

for this reason it was not included into Lazkov & Sultanova (2011, 2014). Earlier sources (Popova 1950) do not list this species as occurring in Kyrgyzstan, either.

Carex subphysodes differs from *C. physodes* Bieb. in less inflated utricles (Fig. 5). It prefers sandy habitats, similarly to *C. subphysodes*.

***Scirpoides holoschoenus* (L.) Soják**
(*Holoschoenus vulgaris* Link)

Specimens examined: Kyrgyzstan. Chatkal Range (S side): lower course of Kasan-Say River, along a small brook, 11.08.2013, A. Sennikov & G. Lazkov 237 (H 1763187, FRU).

This widespread species has been recorded from the northern and central parts of Kyrgyzstan (Popova 1950; Lazkov & Sultanova 2011, 2014) but not from the Western Tian-Shan (Egorova 1976). Our record is new to Chatkal Range and the Western Tian-Shan within Kyrgyzstan. In Kyrgyzstan *Scirpoides holoschoenus* occurs along rivers, brooks and irrigation channels, mostly in depressions and within foothills.

Fabaceae

***Astragalus sogdianus* Bunge**

Specimens examined: Kyrgyzstan. Turkestan Range: northern foothills within Batken and Leylek districts, 1941, M. Pryakhin (LE); Shaldy-Baldy [Samat] village, 30.05.1960, I. Sudnitsyna (FRU); 5 km S of Arka village, 08.05.2005, G.A. Lazkov (FRU); watershed of Isfana and Leylek rivers, 15 km E of Kosh-Bulak village, Shyrykty ravine, 19.04.2007, M.R. Ganybaeva (FRU); 12 km E of Kosh-Bulak village, Aktook-Ata, 09.05.2007, M.R. Ganybaeva (FRU); near Kosh-Bulak village, Orto-Tüz, 09.05.2007, M.R. Ganybaeva (FRU); Ming-Jygach village, 25.04.2007, M.R. Ganybaeva (FRU).

This species is new to Kyrgyzstan, where it occurs in the Turkestan Range only. According to Sarkisova (1981), *A. sogdianus* belongs to *A. sect. Paracraccina* Kamelin; however, it has been frequently misidentified as *A. macrotropis* Bunge which was placed to *A. sect. Xiphidium* Bunge in Vinogradova (1981). According to the modern classification (Podlech & Zarre 2013), both species belong to *A. sect. Dissitiflora* DC.

***Oxytropis ferganensis* Vass.**

Specimen examined: Kyrgyzstan. Kyrgyz Range (N side): Oktorkoy Mts., SE of Orlovka village, between Oktorkoy River and its tributary Kuran-Jayloo, 2000 m a.s.l., 07.06.2013, G.A. Lazkov (FRU).

Oxytropis ferganensis Vass. was described on the basis of a single specimen collected in "Berek-Tash" [Beriktas] Mt. (Vassilczenko 1960). This locality was believed to be situated in the Fergana Range (Vassilczenko & Fedtschenko 1948), which lies entirely in Kyrgyzstan. For this reason this species was treated as endemic to Kyrgyzstan (Popova 1957).

Subsequently Filimonova (1983) realized that the type locality is actually situated in the Ili Alatau (Kastek Mts.) in Kazakhstan, and she reported the species as an endemic of Kazakhstan occurring in the Ili Alatau, Kyrgyz Range, and Karatau Mts. Most probably the species was originally collected in the ravine of Beriktas (ca. 42.867° N, 75.525° E). Because of Vassilczenko's mistake, *O. ferganensis* was excluded from the flora of Kyrgyzstan (Lazkov & Sultanova 2011).

The localities of this species in Kazakhstan are situated very closely to the border with Kyrgyzstan, and its presence in Kyrgyzstan was expected. One locality of *O. ferganensis* was subsequently discovered in the northern side of the Kyrgyz Range within Kyrgyzstan (Fig. 6), in some 25 km from its type locality in Kazakhstan, which formally makes a new country record of this species.

Iridaceae***Iris maracandica* (Vved.) Wendelbo**

in Bot. Not. 128: 216. 1975 — *Iris maracandica* Vved. in Komarov, Fl. USSR 4: 573. 1935, nom. inval. (Art. 39.1) — *Juno maracandica* Vved. in Ovchinnikov, Fl. Tajik SSR 2: 426. 1963 — Type: Uzbekistan. (TASH, holotype, not located).

Juno svetlanæ Vved. in Kovalevskaya, Cons. Fl. As. Med. 2: 322. 1971, **syn. nov.** — *Iris svetlanæ* (Vved.) [F.O.Khass. in Prатов & Khassanov, Red Data Book Rep. Uzbekistan 1: 100. 2009, comb. inval. (Art. 41.5)] T.Hall & Seisums in Bot. J. Linn. Soc. 167: 300. 2011. — Type: Uzbekistan. "E bulbis a Kovalevskaja, Tscherneva et Vvedensky in collibus gypsaceis inter p.p. To-



Fig. 6. Plant of *Oxytropis ferganensis* (Oktorkoy Mts.). Photo: Georgy Lazkov

jtschi et Kzyltscha in valle fl. Kaschka-Darja a. 1958 lectis in Horto Botanico Academiae Scientiarum UzSSR enatus", 12.03.1962, Kovalevskaya & Vvedensky (TASH, holotype).



Fig. 7. Flower of *Iris maracandica* (Sarkat). Photo: Sergei Zenin



Fig. 8. Flower of *Iris maracandica* (Sogment, Nuratau Mts., Uzbekistan). Photo: Georgy Lazkov

Specimens examined: Kyrgyzstan. Turkestan Range (N side): foothills, versicolour denudations, right side of Leylek River, near Korgon Village, ephemeroïd vegetation, 05.05.1964, R. Aidarova & N. Gorbunova (FRU); Sarkat National Park, upper course of Ak-Suu River, 09.2012, G. Lazkov (bulbs).

Iris maracandica (Vved.) Wendelbo differs from *I. orchioïdes* Carrière mainly in the entire crest and considerably thick, fleshy roots. It was described from the vicinities of Samarqand and Jizzax in Uzbekistan, and was supposed to occur also in Tajikistan (Vvedensky 1963). Our records are new to Kyrgyzstan and extend the known distribution area of the species nearly twice westwards, making it at least 200 km in diameter. Both localities are situated close to or on the very border with Tajikistan, so that the presence of *I. maracandica* in this country seems to be certain but is still to be confirmed.

Iris svetlanae (Vved.) T.Hall & Seisums was described from a single locality in the northwestern Pamir-Alay (north of Shahrissabz) and was said to differ from *I. maracandica* in the flowers intensely yellow with darker spots around the crest, not pale yellow with light-coloured spots (Vvedensky 1971). According to our observations, a very similar variability, with pale or intensely yellow flowers, also occurs in *I. orchioïdes*. For this reason, we treat *I. svetlanae* as a colour form of *I. maracandica*. Among our own records, plants with darker flowers are known from Sarkat, Turkestan Range, Kyrgyzstan (Fig. 7), whereas plants with pale flowers were noticed in Sogment, Nuratau Mts., Uzbekistan (Fig. 8).

The name *Iris svetlanae* was validly published not by Khassanov (2009) but by Hall & Seisums in Ikinici *et al.* (2011), who were the first to provide a full and direct reference to the basionym. Khassanov & Rakhimova (2012: 178) published an isonym.

Lamiaceae

Betonica sect. *Foliosae* (Krestovsk. & Lazkov) Lazkov, **comb. nov.**

Betonica subsect. *Foliosae* Krestovsk. & Lazkov, Novosti Sist. Vyssh. Rast. 45: 100. 2014. — Type: *Betonica betoniciflora* (Rupr. ex O. Fedtsch. & B. Fedtsch.) Sennikov.

***Betonica betoniciflora* f. *rosea* Lazkov, f. nov.**

Floribus roseis a forma typica differt.

Type: Kyrgyzstan. Ili Alatau: along Kichi-Kemin River, ca 3km upstream Ilyichevskoe village, 1720 m a.s.l., 42.8142° N, 76.01° E, 28.06.2015, G.A. Lazkov (LE, holotype, isotypes to be deposited in FRU, H, MW).

This species is rather common in Western and Northern Tian-Shan, and eastern Pamir-Alay. It can be found in numerous individuals, which are represented by different colour forms in a single population. We consider such forms as of potential horticultural interest. The type form of *B. betoniciflora* is purple-flowered; an albino form with whitish flowers, *Betonica betoniciflora* f. *albiflora* Sennikov & Lazkov, was described in Sennikov & Lazkov (2013). Another colour form, with pinkish flowers (Fig. 9), was noticed in northeastern Kyrgyzstan and is named here.

***Eriophyton* Benth.**

in Wallich, Pl. Asiat. Rar. 1[4]: 63. 1830. — Type: *Eriophyton wallichii* Benth.

Erianthera Benth. in Hooker, Bot. Misc. 3: 880. 1833, nom. illeg., non Nees 1832 — *Alajja* Ikonn. in Novosti Sist. Vyssh. Rast. 8: 274. 1971 — *Susilkumara* Bennet in Indian Forester 107: 432. 1981, nom. illeg. superfl. — Type: *Erianthera rhomboidea* Benth.

Bendiksby *et al.* (2011) demonstrated that the genus *Stachyopsis* Popov & Vved. belongs to the tribe Lamieae and has no close relation to *Stachys* L. of Stachydeae. According to the phylogenetic data, the closest relative of *Stachyopsis* is *Eriophyton* Benth. (Bendiksby *et al.* 2014). In spite of the incomplete sampling, Bendiksby *et al.* (2014) went further to merge *Stachyopsis* with *Eriophyton* "due to difficulties in distinguishing" and "the possible embedding of the former in the latter genus", mostly because of the morphologically intermediate position of the monotypic genus *Mentiskia* (Krestovsk.) Krestovsk. (= *Stachys tibetica* Vatke) between *Stachyopsis* and *Eriophyton*.

The genus *Stachyopsis* is very close to *Eriophyton* but differs in the habit and shape of leaves (oblong-ovate vs. broadly rhomboid-ovate). Except for *Stachys tibetica*, which apparently forms a separate section in *Stachyopsis* (Bendiksby *et al.* 2014), the species of *Stachyopsis* differ from those of *Eriophyton* also in a shorter flower tube that is enclosed in the calyx.



Fig. 9. Inflorescence of *Betonica betoniciflora* f. *rosea* (Kichi-Kemin). Photo: Georgy Lazkov

The expanded *Stachyopsis* and *Eriophyton* are sister groups in the phylogeny (Bendiksby *et al.* 2014). For this reason, and with certain differences in morphology, these groups can retain a generic status.

***Eriophyton rhomboideum* (Benth.) Ryding**

in Taxon 60: 482. 2011 — *Erianthera rhomboidea* Benth. in Hooker, Bot. Misc. 3: 380. 1833 — *Lamium rhomboideum* (Benth.) Benth., Labiat. Gen. Spec.: 509. 1834 — *Alajja rhomboidea* (Benth.) Ikonn. in Novosti Sist. Vyssh. Rast. 8: 274. 1971 — *Susilkumara rhomboidea* (Benth.) Bennet in Indian Forester 107: 433. 1981. — Type: India. Himachal Pradesh: Kinnaur district ("Kanaour"), Royle (K, holotype; isotype LE!).

***Eriophyton anomalum* (Juz.) Lazkov & Sennikov, comb. nov.**

Erianthera anomala Juz. [in Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 15: 269. 1953, nom. inval. (Art. 36.2)] in Schischkin, Fl. URSS 21: 140. 1954 — *Lamium anomalum* Juz. in Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 15: 269. 1953, nom. inval. (Art. 36.2) — *Alajja anomala* (Juz.) Ikonn. in Novosti Sist. Vyssh. Rast. 8: 274. 1971 — *Susilkumara anomala* (Juz.) Bennet in Indian Forester 107: 433. 1981. — Type: Kyrgyzstan. Alay Range: Saryk-Mogol River, N side, among *Juniperus* forest, 02.07.1913, N.A. Desiatova 1557 (LE!, holotype; isotype LE!).

Eriophyton afghanicum Rech. f. in Biol. Skr. 8(1): 58. 1955 — *Erianthera afghanica* (Rech. f.) Kamelin in Izv. Akad. Nauk Tadzhiksk. S.S.R., Otd. Biol. Nauk 2: 31. 1966 — *Alajja afghanica* (Rech. f.) Ikonn. in Novosti Sist. Vyssh. Rast. 8: 274. 1971. — Type: Afghanistan. Badakhshan province: "Magnaul, 11000 ft., clumps", 29.07.1939, Koelz 12782 (W, holotype; isotypes US barcode US00121349, E barcode E00319569).

The location of the type locality of *Eriophyton afghanicum* Rech. f. was traced in Alam (2009).

Erianthera rhomboidea Benth. (Bentham 1830) was described from the Himalayas as a plant with relatively large teeth on rhomboid

leaves; *Erianthera anomala* Juz. (Juzepczuk 1953) was described from Alay Range (Pamir-Alay mountain system) on the basis of more orbicular leaves with smaller teeth (Fig. 10), and also slightly different pubescence of anthers and the whole plant; *Eriophyton afghanicum* (Rechinger 1955) was originally compared with *E. wallichii* Benth. but synonymized with *Alajja rhomboidea* when the actual affinity was discovered (Rechinger 1982). Rechinger (1982) and Hedge (1990) synonymized all the three species in this group because the distinguishing characters were found continuously variable. Nevertheless, Tulaganova (1987) accepted the three species in Central Asia as distinct and circumscribed their distribution areas as non-overlapping; similarly, two of these species were reported from Tajikistan (Koczkareva 1986).

Koczkareva (1986) and Tulaganova (1987) stated that *Alajja afghanica* differs in the erems completely glabrous, whereas the other species were supposed to have the erems hairy at the apex. We have ascertained from the specimens kept at FRU and LE that in Kyrgyzstan this spe-



Fig. 10. Plants of *Eriophyton anomalum* (Kulun-Ata Nature Reserve, Fergana Range). Photo: Georgy Lazkov

cies may have erems with glabrous or variously hairy apices, and this character is not correlated with any geographical pattern. Besides, the erems of the isotype of *A. rhomboidea* (LE) are also glabrous.

Alajja rhomboidea and *A. anomala* were distinguished by the leaves "grossly serrate" vs. "grossly crenate or entire" (Tulaganova 1987). The plants from Kyrgyzstan have smaller teeth on their leaves; the uppermost leaves are typically more prominently dentate in this species. Such leaves are also in the type collection of *Eriophyton afghanicum*, and similar plants were treated as belonging to *A. rhomboidea* in the Badakhshan province of Tajikistan (Koczkaeva 1986). The plants from the Himalayas have regularly larger teeth on more rhombic leaves and constitute a distinct species, *E. rhomboideum* s. str.

The species name *Erianthera anomala* was not validly published by Juzepczuk (1953) because he simultaneously proposed an alternative name, *Lamium anomalum* (Art. 36.2). This name was validly published later, when Juzepczuk (1954c) accepted it and placed *L. anomalum* into its synonymy (Art. 36.2, Ex. 12). All the further transfers of *E. anomala* to *Alajja* Ikonn. (Ikonnikov 1971) and *Susilkumara* Bennet, nom. illeg. superfl. (Raizada & Bennet 1981) were validly published as new combinations under Art. 41.4.

***Kudrjaschevia* sect. *Jacubianae* Lazkov, sect. nov.**

Type: *Kudrjaschevia jacubii* (Lipsky) Pojark.

Plants annual.

Kudrjaschevia jacubii is the only annual species in this small Central Asian genus of 4 species (Pojarkova 1954), otherwise perennial (herbaceous or suffrutescent).

The traditional spelling of the species epithet ("jacubi") is corrected here.

***Lagochilus* sect. *Chlainanthus* (Briq.) Lazkov, comb. nov.**

Chlainanthus Briq. in Engler & Prantl, Nat. Pflanzenfam. 4, 3a: 257. 1895 — *Lagochilus* subsect. *Chlainanthus* (Briq.) Zuckerw. in Bot. Zhurn. 70(9): 1187. 1985. — Type: *Lagochilus platycalyx* Schrenk ex Fisch. & C.A. Mey.

This section clearly differs from the type section in the calyx with largely connate teeth.

***Leonurus* sect. *Panzerioidei* (Krestovsk.) Lazkov, comb. nov.**

Leonurus subsect. *Panzerioidei* Krestovsk. in Bot. Zhurn. 73(12): 1754. 1988. — Type: *Leonurus panzerioides* Popov ex Kuprian.

This group differs in lanate abbreviated inflorescences with soft filiform bracts.

The name *Leonurus panzerioides* is frequently cited (e.g. Czerepanov 1995) with the authority of Popov alone. However, there is no direct (and internal) evidence that Popov has contributed to the 21st volume of the *Flora of the USSR*, and the name should be cited with the authorship "Popov ex Kuprian." according to Art. 46.5.

***Phlomooides* sect. *Pseuderemostachys* (Popov) Lazkov, comb. nov.**

Pseuderemostachys Popov in Nov. Mem. Mosk. Obsch. Isp. Prir. 19: 148. 1940. — Type: *Phlomooides sewerzovii* (Herd.) Mathisen.

This monotypic group had been treated as a separate genus until Salmaki et al. (2012) provided evidence that it is nested in *Phlomooides* Moench. Juzepczuk (1954b) stated that *Pseuderemostachys* differs from *Eremostachys* Bunge (now also merged with *Phlomooides*) in shorter stamens, which are hardly exerted from the corolla (vs. prominently exerted from the corolla). This character is not valid at the generic level but can still be used to distinguish this group as a section of its own.

***Scutellaria* sect. *Ramosissimae* Lazkov, sect. nov.**

Scutellaria subsect. *Ramosissimae* Juz. in Schischkin & Juzepczuk, Fl. USSR 20: 122. 1954, nom. inval. (Art. 39.1). — Type: *Scutellaria ramosissima* Popov.

Semishrubs with sparsely dentate leaves and inflorescences situated on the top of long erect stems.

Scutellaria ramosissima Popov is alien in *Scutellaria* sect. *Lupulinaria* A.Hamilt., to which it was provisionally placed (Juzepczuk 1954a).

Ranunculaceae

Delphinium orientalis J.Gay

Specimens examined: Kyrgyzstan. Chüy Depression: Kara-Balta, 22.06. 2013, *G.A. Lazkov* (FRU); Bishkek City, Kalys-Ordo district, at a detour road, wheat fields, 13.05.2015, *M.R. Ganybaeva* (FRU).

This species is newly recorded from Kyrgyzstan as an alien. The nearest locality was known at the northern foothills of the Ili Range and Western Tian-Shan in Kazakhstan, apparently as alien (Pakhomova 1972). The native distribution area of this species covers the Mediterranean, the Crimea, the Caucasus, Asia Minor and Iran, and the Himalayas; in Central Asia it is native to Turkmenistan (Nevski 1937).

The status of this alien species (ephemeral vs. established) is uncertain. Further observations are required.

Xanthorrhoeaceae (incl. Asphodelaceae)

Eremurus fuscus (O.Fedtsch.) Vved.

[ex Kaschenko in Vvedensky, Fl. Kirg. SSR 3: 31. 1951, nom. inval. (Art. 41.1)] in Bot. Mater. Gerb. Inst. Bot. Akad. Nauk Uzbeksk. S.S.R. 13: 27. 1952 — *Eremurus altaicus* f. *fuscus* O.Fedtsch. in Mém. Acad. Imp. Sci. St.-Pétersbourg, sér. 8, 23(8): 44. 1909. — Type: Kyrgyzstan. Terek-Bel, 26.06.1905, *Abramov* (LE, holotype).

Specimens examined: Kyrgyzstan. Kyrgyz Range: along Ala-Archa river, among *Juniperus*, 14.06.2015, *G. Lazkov* (FRU). Suisamy Valley: along the main road in 8 km eastwards of the river, disturbed fragments of steppe vegetation with *Stipa capillata*, 05.08.2011, *A.N. Sennikov* & *G.A. Lazkov* 2 (H 1755538).

Fedtschenko (1909) described this taxon as a colour form of *Eremurus altaicus* (Pall.) Stev. ("perianthium ... plus minus fusco coloratum" in *E. altaicus* f. *fuscus* vs. "perianthium ... ochroleucum" in the type form), and this treatment is still occasionally followed (Chen & Turland 2000). These species differ in the flower colour only (whitish to slightly yellowish in *E. altaicus* vs. yellow but turning brown with time in *E. fuscus*, Fig. 11); nevertheless, they are completely parapatric. *Eremurus altaicus* occurs in the Targatai Mts., Dzhungarian Alatau and Altai Mts. (Vvedensky 1971) but probably not in the Northern Tian-Shan, whereas *E. fuscus* is distributed

in the Western and Central Tian-Shan and Alay Mts. (Vvedensky 1971). In Kyrgyzstan *E. altaicus* is absent, and *E. fuscus* is found in most of the country: from the Talas and Chatkal Ranges in the west to the Ili Range in the east, and from the Kyrgyz Range in the north to the Alay Mts. in the south (Kaschenko 1951).

Capsules of *E. fuscus* are globose and smooth (Fig. 12).

Eremurus fuscus can produce hybrids with other species of the genus, of which one is described here.



Fig. 11. Inflorescence of *Eremurus fuscus* (Ala-Archa). Photo: Georgy Lazkov



Fig. 12. Fruits of *Eremurus fuscus* (Ala-Archa). Photo: Georgy Lazkov



Fig. 13. *Eremurus* \times *nikitinae* (red scapes) with its parent species (Ala-Archa). Photo: Georgy Lazkov

***Eremurus fuscus* \times *Eremurus cristatus* =
Eremurus \times *nikitinae* Lazkov, hybr. nov.**

Type: Kyrgyzstan. Kyrgyz Range (N side): Ala-Archa river valley, among *Juniperus*, 14.06.2015, G.A. Lazkov (LE, holotype, isotypes to be distributed to FRU, H, MW).

Perennial, ephemeroid. Roots fusiform, thick. Scape up to 80 cm, glabrous, usually with a red tint. Leaves up to 1.0 cm wide, to 30 cm high, shorter than inflorescence, carinate, glaucous-green, glabrous on both sides, shortly ciliate or scabrous on margins. Inflorescence many-flowered, cylindrical. Flower bracts triangular or narrowly triangular, long attenuated at apex, membranous with a coloured median vein, ciliate on margins. Pedicels 1–1.5 mm long, thin, erect or pendent in flower, thick, arcuate and appressed in fruit. Perianth campanulate; segments pinkish (?), ca 1.0 cm long, obtuse, involute immediately after anthesis, outer oblong, 1.5–3 mm wide, inner oblong-ovate, broader at base. Stamens twice



Fig. 14. Fruits of *Eremurus* \times *nikitinae* (Ala-Archa). Photo: Georgy Lazkov



Fig. 15. Inflorescence of *Eremurus cristatus* (Ala-Archa). Photo: Georgy Lazkov



Fig. 16. Fruits of *Eremurus cristatus* (Ala-Archa). Photo: Georgy Lazkov

longer than perianth, brownish. Capsule up to 1 cm in diam., variably rugose.

The hybrid differs from *E. cristatus* in the perianth segments paler (vs. brown-purple in the middle, pale-pink on margins; Fig. 15), and capsules less rugose (vs. prominently rugose; Fig. 16). From *E. fuscus* it differs in the perianth segments darker, and capsules more or less rugose (vs. smooth).

The hybrid occurs in foothills in mixed populations of its parental species (Fig. 13), although usually *E. cristatus* prefers lower altitudes than *E. fuscus*. Fruits are well developed (Fig. 14); seed fertility is unknown.

Eremurus zoeae Vved. (*E. luteus* auct. non Baker)

Specimens examined: Kyrgyzstan. Kyrgyz Range: Solanaya schel', 06.05.1920, 10.05.1920, Titov (TASH) & 15.05.1965, Z. Filimonova (TASH, formerly TAK, holotype) & 30.04.2015, G. Lazkov (FRU); Besh-Küngöy, 26.04.1943, E. Nikitina (FRU); Paspeldek [Basböltök] Mts., 19.05.1943, Popova & Kaschenko (FRU); Alamüdün, red clays, 16.05.1946, Inchina (FRU); Shamshy, 25.05.1962, G. Tambovtseva (FRU). Oktorkoy Mts.: Boom Ravine, Semenov Bridge, left river side, 17.04.1916, V. Sukatshev 120 (LE) & M. Sovetkina & S. Chausova 215

(LE). Kemin Range: Kapchygay, 11.05.1954, 21.05.1954, Isakov (FRU) & 30.05.1956, Gamalitskaya (FRU); Tasa-Kemin, 09.06.1956, Isakov (FRU).

Fedtschenko (1921) noted that a few specimens of *Eremurus* from the "Central" Tian-Shan (Boom Ravine) have yellow flowers, and she identified those specimens as *Eremurus luteus* Baker because she noticed no apparent differences from the latter species. This locality was remotely isolated from the main distribution area of *E. luteus* (Fedtschenko 1921).

Kaschenko (1951) reported *E. luteus* auct. from the Central Tian-Shan (following Fedtschenko) and the Kyrgyz Range (on the basis of specimens at FRU). Isakov (1959) collected more material from the basin of Chong-Kemin river, close to the Boom Ravine. Finally Vvedensky (1971) described these populations as a new species with pale yellow flowers (Fig. 17), *E. zoeae* Vved., endemic to Kyrgyzstan, and reported it from two localities (Ysyk-Ata and Boom), whereas *E. luteus* was reported as occurring in Pamir-Alay and Kopet-Dagh. In the key to species, Vvedensky (1971) distinguished between these two species by the shape of capsules: *E. luteus* has an elon-



Fig. 17. Flowers of *Eremurus zoeae* (Solanaya schel'). Photo: Georgy Lazkov



Fig. 18. Fruits of *Eremurus zoeae* (Solanaya schel'). Photo: Georgy Lazkov

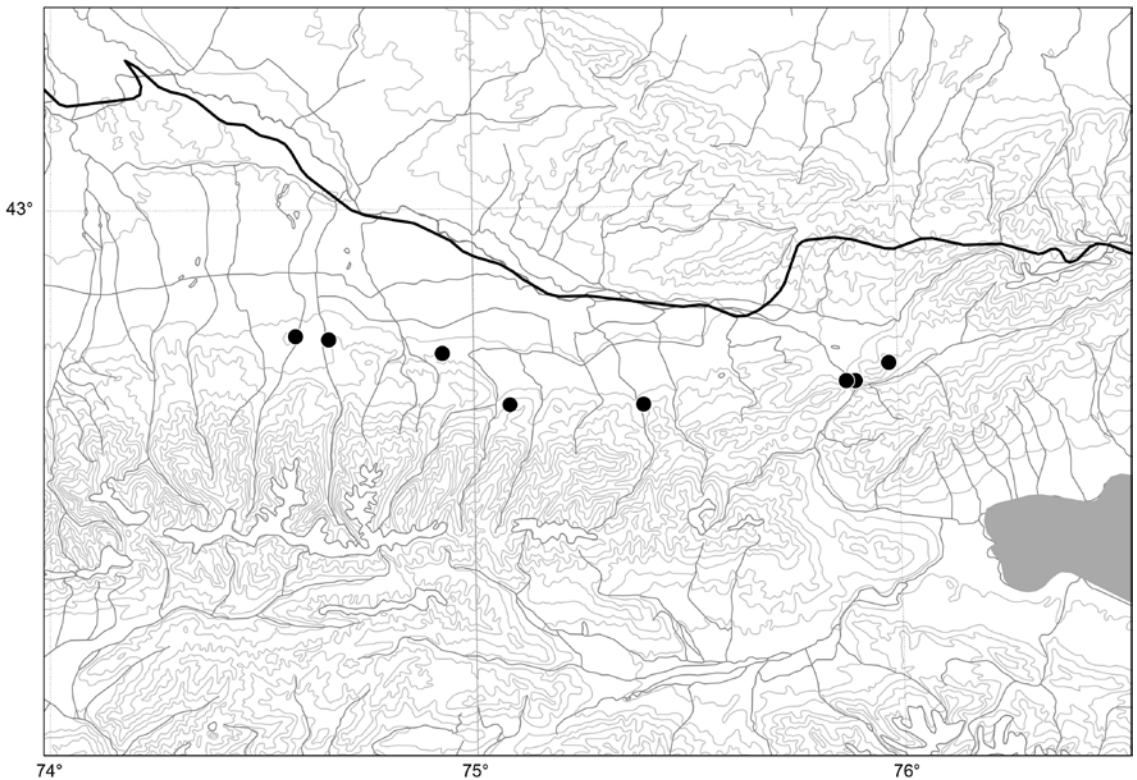


Fig. 19. Distribution of *Eremurus zoeae* (endemic to Kyrgyzstan).

gated capsule, whereas *E. zoeae* has a globose capsule (Fig. 18).

At present this species is known from several localities situated on the northern side of the Kyrgyz Range and in the Chong-Kemin river basin (Fig. 19).

Eremurus zoeae can produce hybrids with other species of the genus, of which one is described here.

***Eremurus cristatus* × *Eremurus zoeae* =
Eremurus × *gypsaceus* Lazkov, *hybr. nov.***

Type: Kyrgyzstan. Kyrgyz Range (N side): foothills, Solanaya schel', gypsaceous soils, 30.04.2015, G.A. Lazkov (LE, holotype, isotypes to be distributed to FRU, H, MW).

Perennial, ephemeroïd. Roots fusiform. Scape up to 60 cm, glabrous. Leaves up to 1.5 cm wide and 30 cm high, carinate, glaucous-green, shorter than inflorescence, glabrous on both sides, shortly ciliate or scabrous on margins. Inflorescence many-flowered, cylindrical. Flower bracts triangular or narrowly triangular, long attenuated at apex, membranous with a coloured median vein, ciliate on margins. Pedicels 1–1.5 mm long, thin, erect or pendent in flower, thick and arcuate in fruit. Perianth campanulate; segments brownish outside, yellowish inside, nearly equal, ca 1.5 cm long, 2–3(4) mm wide, obtuse, not involute after anthesis. Stamens equal to or 1.5 times longer than perianth, brownish-yellow, anthers yellowish. Capsule globose, about 1 cm in diam., slightly rugose.

The hybrid differs from *E. cristatus* in the perianth segments paler, not involute after anthesis (Fig. 20), and capsules only slightly rugose (vs. conspicuously rugose) (Fig. 21). From *E. zoeae* it differs in the perianth segments narrower, not arcuate at base (vs. inner segments arcuate at base), and a darker colour of flowers. The hybrid is intersectional.

The hybrid occurs in foothills in mixed populations of its parental species, although *E. zoeae* prefers gypsaceous soils and *E. cristatus* likes soils with a normal level of the calcium content. Fruits are well developed; seed fertility is unknown.

Both hybrids described here have already been reported but not formally named in Chubarova (1982).



Fig. 20. Flowers of *Eremurus* × *gypsaceus* (Solanaya schel'). Photo: Georgy Lazkov



Fig. 21. Fruits of *Eremurus* × *gypsaceus* (Solanaya schel'). Photo: Georgy Lazkov

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