Dandelions in Central Asia: A taxonomic revision of *Taraxacum* section *Leucantha*

Taxonomická revize *Taraxacum* sect. *Leucantha* v Centrální Asii

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A taxonomic revision of *Taraxacum* sect. *Leucantha* Soest is presented. Species in this section are mainly characterized by the pale bordered and appressed outer involucral bracts, achenes covered with subsparse coarse spinules, thick cylindrical cone and a relatively short, thicker rostrum, and often white or pale yellowish flowers. They occur in subsaline wet meadows and steppe depressions over a large area including Mongolia, South Siberia, NE, N and W China, Tibet, the Western Himalayas, Tadzhikistan, Kyrgyzstan and E and NE Kazakhstan. Eighteen species are recognized, seven of them described as new: *Taraxacum niveum* from the Altai and Dzhungaria, *T. candidatum* centred in Ladakh, Tadzhikistan and Kyrgyzstan, *T. album* from Kyrgyzstan, *T. flavidum* from Mongolia and Transbaikalia, *T. occultum* from East Mongolia, *T. virgineum* from Ladakh, India, and *T. inimitabile* from Gobi-Altai, Mongolia. An analysis of syntypes of the names *T. dealbatum* Hand.-Mazz. and *T. sinense* Dahlstedt is given. For the safe interpretation of the name *T. luridum*, epitype was designated. All the species are agamospermous but sexuality and diploidy is documented for a few Transbaikalian plants of the section *Leucantha.*

K e y w o r d s : Central Asia, *Compositae, Lactuceae,* Ladakh, *Taraxacum,* taxonomy

Introduction

Principles of *Taraxacum* taxonomy and evolution (see e.g. Richards 1973, Kirschner & Štěpánek 1996, Kirschner et al. 2003) reflect the peculiar features and processes known in dandelions: low level of structural morphological differentiation in the genus, coexistence of agamospermy and sexuality, complex hybridity and polyploidy. The high number of mostly hybridogenous and mutually similar species require the application of another taxonomic rank, placed between species and genus in the traditional hierarchy, to make the population and taxonomic structure more easily understandable for non-specialists. The rank of section is usually used in the majority of the literature on *Taraxacum* . The recognition and application of the above principles and taxonomic tools is needed to describe dandelion diversity in regional floras. However, there are large areas of the world where basic exploration is incomplete, and the above principles ignored, one of the most important being Central Asia, one of the centres of diversity of the genus.

The *Taraxacum* literature for the broad region of Central Asia is not rich. If the smaller floristic contributions are disregarded, there was a long gap after the first early publications of Ledebour (1830, 1833) and treatment of *Taraxacum* in De Candolle (1838). The

only monograph of the genus, with additions and corrections (Handel-Mazzetti 1907, 1923) was followed by an important study by Dahlstedt (1926). After another long gap, the important account of dandelions in the flora of the former USSR (Schischkin & Tzvelev 1964) appeared and almost at the same time key studies were published by van Soest (1961, 1963), which outline the sectional classification of Asiatic dandelions. Later, van Soest (1977) summarized his knowledge of Asiatic *Taraxacum* in Flora Iranica. Several species were described or treated in a series of smaller papers (Kirschner & Štěpánek 1996b, 1998; Hanelt & Davažamc 1965; Doll 1973, 1975). Tzvelev (1987) presents a checklist of the dandelion flora of what is here understood as Central Asia. The remaining studies of *Taraxacum* are in regional floras for regions wholly or marginally in Central Asia: Vainberg (1991, Tadzhikistan), Fu Hiang-Chian & Xu Zhu (1982, Inner Mongolia), Orazova (1975, the former Soviet Middle Asia), Dzhanaeva (1965, Kyrgyzstan), Ge Xuejun et al. (1999, China) and Krasnikov (1997, Siberia). In particular, the latter work is the result of a long-term study.

In a series of papers the enormous taxonomic diversity of the genus *Taraxacum* in Central Asia is evaluated with particular reference to steppe and saline dandelions in the territory from S Siberia, the Altai and Mongolia to Tibet and the marginal mountainous regions of W Tibet and NW China. After a discussion of sectional problems (Kirschner & Štěpánek 2004), the sections *Suavia* (Kirschner & Štěpánek 2005) and *Stenoloba* (unpublished) were revised. The present revision of the section *Leucantha* is based on the same type of material: collected in the field by the authors or their collaborators (S Siberia, Mongolia, the Altai, Kyrgyzstan, Tadzhikistan, Indian Ladakh). Most of the species were also repeatedly cultivated in the experimental gardens of the Institute of Botany in order to understand the limits of their phenotypic plasticity. The material was compared with the type specimens of described taxa belonging (or suspected of belonging) to the section *Leucantha*. Herbarium material in the most important relevant collections was then studied.

In the literature, flower colour of dandelions used to be accepted as a criterion for sectional classification. Although some flower colours seem to be almost confined to certain sections, such as brownish-reddish flowers in the section *Porphyrantha* (Kirschner & Štěpánek 1993), in most sections flower colour may be regarded only as an indicator. The epithet "leucanthus" points to white flower colour but there are several sections with some white- or whitish-flowered species: *T. albidum* of the section *Mongolica*, several species of the section *Arctica*, some representatives of the sections *Tibetana* and *Mongolica* etc. On the other hand, entirely or partially white-flowered taxa make up the majority of the diversity in the section *Leucantha*. For sectional classification, flower colour is not the main criterion; the decisive character combination are features of the outer bract and achene.

Material and methods

The herbarium PRA, Institute of Botany, Academy of Sciences, Průhonice, Czech Republic, has the largest collection of non-European dandelions in the world. Most of the material was collected during expeditions to many regions of the Mediterranean and Middle Asia (the former Soviet Middle Asia, i.e., Kazakhstan, Kyrgyzstan, Tadzhikistan, Turkmenistan, Uzbekistan) and Central Asia (mainly S Siberia, Mongolia and NW China); cultivation of seed obtained from other botanists and our expeditions, and the cul-

tivation of roots, were also sources of the herbarium material. Details of the cultivation methods are given in Kirschner & Štěpánek (1993). An extremely important source of material is the collection of L. Klimeš from Ladakh, India.

This study included the examination of numerous herbarium collections. Those most relevant to the present study are BM, E, GAT, GOET, HAL, K, LE, NS, S, UPS, W, WU. It should be added that most of our revision labels are numbered and refer to the specimen to which they are attached (not to the duplicates).

The taxonomic concept of sections and species is documented by a standard exsiccate series (*Taraxaca Exsiccata*) edited and distributed by the present authors (Kirschner & Štěpánek 1992, 1997b). The series reached 700 (which represents almost 20 000 specimens) and copies are deposited in major herbaria with important dandelion collections (e.g. H, L, M, PRA, S) and in the collections of leading specialists (H. Oellgaard, I. Uhlemann, P. Oosterveld, A. J. Richards).

The reproduction system (agamospermy versus sexuality) is easy to determine in living, cultivated plants (emasculation or observation of the variation in leaf rosettes of siblings in cultivation). In herbarium material, pollen presence/absence and variation in pollen size are studied (Nijs et al. 1990); a conspicuously variable pollen size is, with certain exceptions, a reliable indicator of dandelion agamospermy.

Plant nomenclature follows Kirschner & Štěpánek (1997a) and the principles of sectional taxonomy are outlined in Kirschner & Štěpánek (1996).

Achene length in the descriptions includes the cone. The identification of flower colour of dry herbarium material is not easy. For most species, flowering plants were seen in the field or in cultivation (11 species). A further three, *T. chitralense, T. pseudoleucanthum* and *T. ikonnikovii* have flower colours identified on the herbarium labels by the collectors and in some cases there are field notebook notes confirming the label data. One species was described by the collector of the type material (*T. aksaicum*). *Taraxacum dealbatum* material is discussed separately; there are notes, both in the literature and on the labels, indicating the flower colour of the material. In the remaining two cases, it was only possible to examine the type material and the data in the literature (*T. murgabicum* and *T. pojarkovae*).

Results

Taraxacum sect. *Leucantha* Soest, Wentia 10: 6 (1963).

T y p e : *Taraxacum leucanthum* (Ledeb.) Ledeb. (lecto: LE, see below)

S y n . : = *Taraxacum* sect. *Sinensia* Soest, Wentia 10: 9 (1963). – Type: *Taraxacum sinense* Dahlst. (lecto: S, see below, under *T. sinicum*) [For a detailed nomenclatural analysis of the name, see Kirschner & Štěpánek, 1997a: 96].

Description of the section Leucantha

Plants usually slender. Leaves usually subglabrous to sparsely aranose, narrow in outline, shallowly to deeply lobate to dissected with subpatent to downward-pointing lobes. Scapes ± glabrous to sparsely aranose. Outer involucral bracts usually tightly appressed, imbricate or sometimes not, not numerous, (9) 10–16 (19), greenish to dark green, usually

with a broad, less often narrow, distinct, paler or reddish margin, ovate to lanceolate, not corniculate (often ± callose) near apex. Flowers white, white-yellow, pale yellowish (more deeply in the centre of capitulum) or yellow, ligules flat, rarely cucullate. Pollen absent or if present of variable size (rarely of ± equal size). Achenes pale greyish or stramineous brownish, ± thick (usually 0.9–1.0 mm), subdensely coarsely spinulose with subacute stout spinules often slightly curved upwards, subabruptly narrowing in a thick (0.4–0.5 mm in diam.), subcylindrical cone usually 0.7–1.0 mm long; rostrum thick or ± thin, 5–7 mm long, pappus white or yellowish (dirty) white or pale yellowish-brownish or brownish, ca 5–7 mm long. Flowering time: late June and July.

Related or similar groups

The concept of the section *Leucantha* was extended to cover most of the yellow flowered plants of the former section *Sinensia* (e.g. *T. sinicum*). The section *Leucantha*, as circumscribed nowadays, is connected with other sections through seemingly intermediate species: *T. (Suavia) suasorium* Kirschner et Štěpánek and *T. inimitabile* represent a link between *Leucantha* and the section *Suavia*, plants known under the names *T. sherriffii* Soest and *T. glaucophyllum* Soest belong to the western group of the section *Tibetana* and are quite similar to the yellow-flowered *Leucantha* (but can be distinguished by the thin horns on narrow outer bracts and the peculiar leaf shapes). Two *Leucantha* species are quite marginal and link the section to *Macrocornuta* (within the latter section, to a group that occurs in humid saline habitats). Other groups to be mentioned of sections similar to *Leucantha* are the section *Stenoloba* (dry steppe habitats) and the section *Palustria* (similar in general habit, and with one diploid species characterized by a variable, sometimes pale, flower colour).

Sexuality in the section Leucantha

There is a proof of the existence of sexuality in the section *Leucantha*. Z. Kaplan collected several plants having 2n = 16 [Siberia, Buryatia, Lake Baikal region, Barguzin River valley, 3 km SW of Suvo, 5 Aug 1993, Z. Kaplan 93/597 (PRA)]. The plants have pale yellowish flowers, and their general appearance is close to the group of *T. sinicum, T. dealbatum* and *T. armeriifolium*. The unique occurrence of diploidy (and sexuality) in this section requires further field study, particularly the geographical range of diploids, population features of coexistence of diploids and polyploids in Buryato-Mongolia and the variation of diploids, in order to complete the taxonomic evaluation of the group.

In the absence of field and population data, the diploid plants were not evaluated taxonomically.

The species recognized in the present study are asexually reproducing agamosperms. The methods identifying agamospermy are summarized in Table 1. The agamospermy was determined by indirect methods (variation in siblings, absence of pollen or pollen of variable size, polyploidy).

Table 1. – Identification of agamospermy in *Taraxacum* species of the section *Leucantha*.

Species	Apolline	Polyploid (2n)	Irregular pollen size	Restricted variation of siblings in cultivation
T. leucanthum		2n = 24	●	●
T. niveum	●	2n = 32		●
T. candidatum	●			●
T. flavidum			●	●
T. armeriifolium		2n = 24	●	●
T. sinicum		2n = 24	●	●
T. ikonnikovii			●	
T. pseudoleucanthum			●	
T. luridum		2n = 24	●	●
T. murgabicum			●	
T. aksaicum			●	
T. chitralense	●			
T. pojarkovae	●			
T. album			●	●
T. occultum			●	●
T. inimitabile			●	●
T. dealbatum			●	
T. virgineum		2n = 24	●	●

Ecology

The ecological requirements are not given for each species separately unless substantially different from those described below. Most species grow in subsaline wet meadows, mostly in river valleys or along lake shores. Sometimes, not infrequently, several species may be found at one locality. For instance, on the halophilous wet meadows along the Chuya River in the vicinity of Aktash in the Altai, three species of the section grow side by side, accompanied by *Taraxacum bessarabicum, Hordeum brevisubulatum, Triglochin maritimum* and *Glaux maritima*. They are *Taraxacum leucanthum, T. sinicum* and *T. niveum*, each having its own flower colour pattern – white outer ligules with pale yellowish inner ones, mid-yellow and pure white, respectively. Other habitats of the section may include temporarily wet depressions in steppes, sandy gravels along mountain rivers etc., usually from 800 to 4500 m a. s. l., the highest record being ca 5300 m (*T. luridum* in Ladakh, India).

Geographical distribution

The section *Leucantha* is widely distributed in Central Asia. In the north, it reaches NE Kazakhstan, S Siberia and the Lake Baikal region, and extends to E Transbaikalia (Chita Region) and Inner Mongolia in the east. Mongolia seems to be the main centre of diversity of the section but the exploration of this area is incomplete. In the south, the section extends from NE Afghanistan and N Pakistan to the East Himalayas. It is also represented in Tibet and China, where it is quite common in Xinjiang and is known from N Gansu, N Shansi and adjacent regions. A high diversity of species is found in Tadzhikistan. Further exploration of the section is needed in NE Mongolia, Transbaikalia and Inner Mongolia.

Key to the species of the section *Leucantha*

1 Pollen absent 2
1* Pollen present 5
2 Flowers purely white, without yellowish hue 3
2* Flowers pale yellow 4
3 Scapes glabrous; cone 1.0–1.1 mm long; rostrum 5–6 mm long ..... **2. *T. niveum***
3* Scapes aranose; cone 0.7–1.0 mm long; rostrum 4–5 mm long ..... **3. *T. candidatum***
4 Achenes 3.5–4.2 mm long; cone conical, 0.5–0.8 mm long ..... **12. *T. chitralense***
4* Achenes 4.8–5.0 mm long; cone subcylindrical, 0.9–1.3 mm long ..... **13. *T. pojarkovae***
5 Pollen grains of ± equal size ..... [see chapter Sexuality in the section *Leucantha*]
5* Pollen grains of conspicuously variable size (pollen irregular) 6
6 Stigmas pure yellow or slightly pale greyish yellow 7
6* Stigmas yellowish green, green to blackish 9
7 Achenes 4.5–5.0 mm long; cone conical, 0.4–0.6 mm long ..... **10. *T. murgabicum***
7* Achenes to 4 mm long; cone cylindrical to subcylindrical; 0.5–0.8 mm long 8
8 Flowers whitish or pale yellowish; outer bracts slightly imbricate; pale border to the outer bracts 0.2–0.3 mm wide ..... **8. *T. pseudoleucanthum***
8* Flowers yellow; outer bracts distinctly imbricate; pale border to the outer bracts 0.5–1.0 mm wide ..... **5. *T. armeriifolium***
9 Scapes glabrous to glabrescent 10
9* Scapes aranose to sparsely aranose 12
10 Scapes glabrescent (initially sparsely aranose, later almost glabrous); pappus brownish-pinkish ..... **9. *T. luridum***
10* Scapes glabrous; pappus whitish-yellowish, rarely pale brownish 11
11 Cone 0.8–1.0 mm long; rostrum 5.5–7.0 mm long; leaf lobes linear to linear-triangular ... **1. *T. leucanthum***
11* Cone 0.6–0.8 mm long; rostrum 3–4 mm long; leaf lobes broadly triangular ..... **4. *T. flavidum***
12 Achenes paler brownish (greyish), 1.1–1.2 mm thick (rostrum 6–7 mm long); flowers yellow ..... **16. *T. inimitabile***
12* Achenes greyish straw-brown, without brownish hue, up to 1.0 mm wide (if wider, then rostrum longer than 7 mm); flowers white, pale yellowish or yellow 13
13 Involucre conical at the base; flowers pale yellowish or yellow 14
13* Involucre rounded at the base; flowers pure white, pale yellowish or yellow 15
14 Flowers yellow ..... **6. *T. sinicum***
14* Flowers with (probably) white outer ligules and probably pale whitish-yellowish inner ligules ..... **17. *T. dealbatum***
15 Cone 0.5–0.6 mm long ..... **11. *T. aksaicum***
15* Cone at least 0.7 mm long 16
16 Flowers pale or deep yellow, also outer ligules at least pale yellowish inside; outer bracts usually imbricate 17
16* Flowers white, at least outer ligules inside purely white, inner ligules either white or pale yellowish; outer bracts not or slightly imbricate 18
17 Outer bracts 10–13; bracts usually ± flat; leaf lateral lobes usually linear-triangular to narrowly triangular, conspicuously downward-pointing ..... **7. *T. ikonnikovii***
17* Outer bracts 13–17; bracts usually callose to corniculate; leaf lateral lobes usually linear, patent ..... **15. *T. occultum***
18 Achenes usually 5.7–6.2 mm long; at least some petioles broadly winged; cone 1.4–1.8 mm long ..... **18. *T. virgineum***
18* Achenes usually shorter than 4.3 mm; all petioles unwinged or narrowly winged; cone up to 1.1 mm long 19
19 Outermost outer bracts usually 6.0–7.5 mm long and 2.5–3.5 mm wide; inner bracts 12–14 mm long; flowers (with the exception of outer ligules beneath and ligule apical teeth) entirely white ..... **14. *T. album***
19* Outermost outer bracts usually 4–5 mm long and 1.4–2.9 mm wide; inner bracts 10–11 mm long; outer ligules purely white inside, inner florets white, pale yellowish at the base ..... **9. *T. luridum***

1. *Taraxacum leucanthum* (Ledeb.) Ledeb., Fl. Rossica 2: 815 (1846)

S y n . :

≡ *Leontodon leucanthus* Ledeb., Ic. Pl. Nov. Fl. Ross. Alt. 2: 12, tab. 132 (1830). – Type: „1344 Leontodon leucanthus m., Altai 1826" (lecto, *fide* Kirschner & Štěpánek 1997a: 93, LE, no. det. 6045) [probably collected by A. Bunge near the river Chuya (= Tschuja)]. The material of *T. leucanthum* from the famous Altai expedition of Ledebour (accompanied by A. Bunge and C. A. Meyer) was collected at two or three localities: near the river Kan, near Jabogan, and along the river Chuya (Tschuja). It is now difficult to separate the plants according to the original localities, and we suppose that the type plant comes from Chuya (collected by A. Bunge) because of a perfect morphological match between our plants gathered at that site and the type plant. The material was distributed to many herbaria; one of the potential isotypes very similar to the lectotype plant is deposited at K (no. det. 8792).

≡ *Taraxacum bicolor* DC., Prodr. 7: 148 (1838), *nom. illeg.* [the name distributed by Turczaninov on labels of his material, *Leontodon bicolor* has never been validly published; its epithet was used by De Candolle under *Taraxacum* but another, earlier epithet (*Leontodon leucanthus* Ledeb.) that ought to have been used instead was included in synonymy.]

D e s c r i p t i o n : Plants usually small, rarely medium-sized. Leaves narrow, linear to linear-lanceolate in outline, usually 7–10 cm long at the locality, often longer in cultivation, 6–10 (–12) mm wide, usually dull green to slightly bluish green, glabrous to subglabrous, rarely subentire to sinuate-dentate, usually dissected, with numerous (5–9) pairs of narrow, linear-triangular or narrowly triangular, usually patent or slightly downwards-pointing lobes (4–) 5–7 mm long, interlobes narrow, 1.5–2.0 mm wide, terminal lobe usually elongated, linear or linear-triangular, 1–2 cm long; lobes and interlobes entire. Petioles unwinged, narrow, usually pinkish or purplish. Scapes glabrous, rarely with very sparse aranose hairs. Involucre rounded to slightly subconical at the base, 5–7 (–8) mm in diameter, inner bracts dull green, darker at apex, bordered, flat (without corniculation), 8–12 mm long; outer bracts appressed (during anthesis), 12–16, imbricate, the outer ones ovate to broadly ovate, usually 3.5–4.0 mm long, 2.0–3.0 (rarely to 3.5) mm wide, middle ones ovate-lanceolate, 4.5–5.5 mm long, 1.8–2.0 mm wide, pale green (with reddish tips) to dark blackish green (with darker tips), not glaucous-green, glabrous (not ciliate), with distinct broad membranaceous to white borders 0.5–0.8 mm wide (at the widest dimension of bracts), flat to slightly callose. Flowers numerous, outer ligules flat, pure white inside in the upper 2/3, pale yellowish-whitish at the base, striped greyish-pinkish outside, inner ligules ± flat, pale whitish-yellowish; the capitulum centre and proximal part of outer ligules ± whitish yellow, outer part of capitulum white; stigma greenish to dark greenish, pollen present, irregular in size. Achenes greyish, usually 4.0–4.2 mm long, 0.9–1.0 mm wide, subabruptly narrowing in a 0.8–1.0 mm long, ca 0.4–0.5 mm thick cylindrical cone, achene body with numerous, medium dense, acute, thick, coarse spinules (achene "robust"), rostrum medium thick, 5.5–7.0 mm long, pappus white to pale yellowish (sometimes slightly pale yellowish-brownish), ca 7 mm long. Agamosperm. 2n = 24 (J. Kirschner, 8/93, sample T 703; 9/93, sample T 701). – Fig. 1, 13a.

The true *Taraxacum leucanthum* is characterized by outer ligules white and central flowers pale yellow, totally glabrous scape and a leaf shape ranging from almost entire to deeply dissected. The distribution of *Taraxacum leucanthum* is much narrower than what might be inferred from the literature records. It is centered in the Russian part of the Altai, and its distribution extends to Tuva, Mongolia and NE Kazakhstan.

Fig. 1. – *Taraxacum leucanthum*. General habit. Del. A. Skoumalová.

S p e c i m e n s s e e n : **Russia, The Altai:** Ulaganskiy r-n, okr. pos. Ak-Tash, 4 Jul 1988, I. M. Krasnoborov 212 (LE). – Tschuya, 1840 [?], A. Bunge (LE). – Kosh-Agach, protoki r. Tschuyi, 21 Jul 1937, B. A. Schtakelberg & I. G. Knorring (LE). – Kosh-Agach, 19 Jun 1907, V. I. Vereschagin (LE). – Kuraiskaya step, 30 Jun 1908, V. I. Vereschagin 960 (LE). – In humidis ad fl. Kan, A. Bunge [?] (LE). – Biyskiy uezd [Biisk District], Paragem, dolina Arguta, 1911, W. L. Nekrassowa (LE). – Tshuya, A. Bunge (LE). – In pratis altaicis ad flu. Kan lg Cls. Autor [transcribed label in herb. Zahlbruckner, 1826, C. F. Ledebour, possible original syntype] (PRC). – Distr. Ongudai, in pratis salsis ad pagum Aktash, ca 1800 m, 4–5 Jul 1988, J. Kirschner 80 (PRA, no. det. 16101), 81 (PRA, no. det. 16099), 82 (PRA, no. det. 16098), 83 (PRA, no. det. 16096), sine no. (PRA, no. det. 16087, and Taraxaca Exs., no. 703), cult. in Průhonice 1988–1992, no. JK 12 (PRA, no. det. 16103), JK 14 (PRA, no. det. 16102), JŠ 3389 (PRA, no. det. 16100), JŠ 3391 (PRA, no. det. 16097), JŠ 3392 (PRA, no. det. 16095), JŠ 3394 (PRA, no. det. 16094), JŠ 3396 (PRA, no. det. 16093), JŠ 3404 (PRA, no. det. 16092), JŠ 3406 (PRA, no. det. 16092B). – Distr. Ongudai, in pratis subsalsis in valle flum. Chuya ad pagum Aktash, ca 1800 m, Jul 1988, J. Kirschner, cult. in Průhonice, no. T 701 (PRA, no. det. 16090), T 703 (PRA, no. det. 16089), T 704 (PRA, no. det. 16091), T 705 (PRA, no. det. 16088), and Taraxaca Exs., no. 704. – **Russia, Tuva:** Erzinskiy r-n, Naryn, 1280 m, 10 Jul 1972, I. M. Krasnoborov & N. Bezjazykova 247 (LE). – Zap. Sayan, Uyukskiy khrebet [=range], Seserlig, 2 Aug 1974, M. Lomonosova & V. Utkin (LE). – **Mongolia**: Centralna Gobi, kljuch Dzhirgalaiz, na s. ot khrebta Noin-Bogdo, 24 Jul 1926, [coll. illegible] (LE). – Sev. Mongolia, bass. r. Khara-gol, r. Shadzyn-gol, 22 Jun 1903, Nolleson (LE). – Ulan-Bator, by railway, 5 Aug 1970, C. Jeffrey 1470 (LE). – Mongolskiy Altai, Bulugunskiy r-n, Tyuguryuk, dol. r. Tsinkir, 15 Aug 1930, V. I. Baranov (LE). – sev.-zap. Mongolia, r. Saksay, bl. fakt. Nikiforova, 1 Aug 1909, V. V. Sapozhnikov (LE). – Westliche Mongolei, Bajan-Ölgi Aimak, 28 Jul 1977, W. Hilbig (HAL, no. det. 16551). – West-Mongolei, Chovd Ajmag, 30 km W Darin, 26 Jun 1982, E. Jäger F194 (HAL, no. det. 16552). – **Kazakhstan**: Semipalatinsk. obl. Karakal. u., r. Dzharla [Zharly River, ca 75°00' E 49°40' N, ca SW of

Qarqaraly], 26 Jun 1890, S. Korzhinsky (LE). – An den Ufern des Dsharly, 1848, Meinshausen (LE). – yu. chast' Semipalat. uezda, g. Chingir, ust'e r. Mukhor, 26 May 1914, N. Shipchinskiy 340 (LE). – Semipalat. uezd, Chingir, 6 Jun 1914, C. Kossinsky 705 (LE). – An den Ufern des Dsharly in der Umgegend von Karakaly [Zharly River, ca 75°00' E 49°40' N, ca SW of Qarqaraly], 25 May 1847, A. Schrenk (LE).

2. ***Taraxacum niveum*** Kirschner et Štěpánek, **spec. nova**

Type: Rossia, montes Altaj [Altai], distr. Ongudaj [Ongudai], in pratis salsis ad pagum Aktash, alt. ca 1800, 4–5 Jul 1988, J. Kirschner, cultivated under no. 193 (holo: PRA, no. det. 16076; iso: PRA, no. det. 16077, K, S).

Descriptio: Plantae graciles foliis ambitu linearibus angustis glaberrimis saepe integerrimis usque remote dentatis sed plerumque breviter remote lobatis lobis numero 3–4 utrobique linearibus patentibus vel paulum assurgentibus interlobiis angustissimis integris lobo terminali lineari vel lineari-lingulato integro petiolis angustis inalatis roseolis. Scapus glaber. Involucrum ad basin rotundatum saepissime 6–7 mm in diametro squamis exterioribus adpressis numero 12–14 imbricatis ovatis usque ovato-lanceolatis 3.0–5.5 mm longis 2.0–2.5 mm latis saturate viridibus apice roseolis marginibus distinctis albido-membranaceis 0.3–0.4 mm latis. Flosculis numerosis ligulis exterioribus planis apice plusminusve cucullatis albis ligulis interioribus cucullatis albis dentibus apicalibus albidis stigmatibus viridibus antheris polline carentibus. Achenium griseo-stramineum plerumque 3.8–4.1 mm longum corpore superne mediocriter dense spinuloso (spinulis subrobustis) in pyramidem subcrassam subcylindricam usque cylindricam 1.0–1.1 mm longam gradatim vel subabrupte transiente rostro plusminusve tenui 5–6 mm longo pappo albido-lutescente 4.5–5.0 mm longo. Chromosomatum numerus somaticus 2n = 32.

Description: Plants small, delicate. Leaves narrow, linear in outline, 6–8 (–11) cm long, 0.4–0.8 (–1.0) cm wide, dull green, glabrous or with a few aranose hairs at the base, often subentire to remotely dentate, usually shortly remotely lobate, lobes 3–4 (pairs), linear, short, to 4 mm long, entire, patent to forward-pointing, interlobes very narrow, usually 5–8 (–10) mm long, 1 (–2) mm wide, entire, terminal lobe linear to linear-lingulate, (4–) 6–10 (–20) mm long, entire. Petiole long, narrow, unwinged, usually pinkish. Scapes glabrous, rarely with a few aranose hairs. Involucre ± rounded at the base, usually 6–7 mm in diameter; inner bracts dark green, with membranous borders and darker tips, flat, usually 9–10 mm long during anthesis; outer bracts appressed, 12–14, imbricate, the outermost ones ovate, 3.0–4.2 mm long, ca 2.2–2.5 mm wide, middle ones ovate-lanceolate, ca 5.0–5.5 mm long, 2.0–2.3 mm wide, usually deep green, often suffused pinkish in the upper part, not glaucous, erosae to sparsely ciliate above, flat, with ± distinct membranaceous to ± whitish borders (0.2–) 0.3–0.4 mm wide. Flowers numerous, outer ligules almost flat, ± cucullate only at the apex, pure white inside, striped grey-pink outside, inner ligules involute, pure white, rarely pale yellowish at the very base, ligule teeth white (in living plants the only visible yellow part of the capitulum are anthers); stigmas green, pollen absent (anther tubes empty). Achenes pale straw-greyish, usually 3.8–4.1 mm long, 0.9–1.0 mm wide, ± gradually to subabruptly narrowing in a thicker subcylindrical to cylindrical cone 1.0–1.1 mm long, achene body with medium dense long acute coarse spinules above, often ± papillose-tuberculate below, rostrum ± thin, 5–6 mm long, pappus yellowish-whitish, 4.5–5.0 mm long. Agamosperm. 2n = 32 (J. Kirschner, 28/93, sample T 193). – Fig. 2, 13b.

Taraxacum niveum is easily confused with *T. leucanthum* in the field. It often grows together with the latter (and with *T. sinicum*), and leaf shape is quite variable in all the three taxa. The most conspicuous feature is flower colour: while *T. niveum* has wholly snow-white florets (with the exception of yellow anther tubes), *T. leucanthum* has inner florets and lower parts of the exterior florets pale yellowish. Moreover, the leaf lobes of *T. niveum*

Fig. 2. – *Taraxacum niveum*. General habit. Del. A. Skoumalová.

often point forwards, a feature very rarely found in *T. leucanthum*. The absence of pollen is another good tool for determination of *T. niveum.*

Taraxacum niveum seems to be quite common in the Russian part of the Altai. The other region from where it has been recorded is NW Xinjiang, not far from the Kazakhstan border. Thus, it is likely that the species also occurs in the adjacent regions of Kazakhstan and Mongolia.

Specimens seen: **Russia, the Altai**: distr. Ongudaj [Ongudai], in pratis salsis ad pagum Aktash, alt. ca 1800 m, 4–5 Jul 1988, J. Kirschner, no. JŠ 3394 (PRA, no. det. 16078), no. JŠ 3404/32 (PRA, no. det. 16079). – Koshagachskiy aimak, Chuyskaya step, r. Aksai u vychoda v step, 23 Aug 1931, B. Schischkin (LE). – Altai, Oirotiya. Okr. Kosh-Agacha. Bolotistoe pastbishche s kustami ivy, 21 Jul 1937, B. A. Schtakelberg & I. G. Knorring (LE, no. det. 8160). – **China**: Dzhungaria, gory Kyr, khr. Dzhair, 8 km s.-z. ot Otu, 1200 m, cv. belye [mountains of the Kyr, Dzhair Range, 8 km NW of Otu, flowers white], 17 Jul 1953, V. S. Moiseenko 67 (LE).

3. ***Taraxacum candidatum*** Kirschner, Štěpánek et Klimeš, **spec. nova**

Type: NW India, Jammu & Kashmir State, Ladakh: Tso Kar: Thukje, 4600 m a.s.l., 4/5 Aug 2001, 33°20' N, 78°00' E, L. Klimeš 3694 (holo: PRA, no. det. 16969; iso: PRA, no. det. 16232, K, S, with dupl.).

Descriptio: Plantae agamospermae graciles foliis linearibus saepe integris vel remote denticulatis usque breviter lobulatis dentibus vel lobulis saepissime 4–7 utrobique brevissimis acutis anguste triangularibus patentibus. Involucrum ad basin rotundatum 5–7 mm in diametro squamis exterioribus arcte adpressis ecorniculatis imbricatis numero (10–) 14–17 ovatis usque ovato-lanceolatissquamulis extimis ca 3 mm longis, ceteris 4–5 mm longis, 2.0–2.7 mm latis viridibus stria mediana aterrima vel atro-viridi tenui interdum notatis apicibus obscurioribus

marginibus membranaceis 0.1–0.2 mm latis. Flosculi numerosi ligulis lateralibus intus candidis extus stria roseo-griseola notatis ligulis interioribus albis vel ad basin albidis ac paulum luteolis stigmatibus griseo-viridibus usque atro-viridibus antheris polline carentibus. Achenium griseo-stramineum plerumque (3.7–) 4.0–4.5 mm longum 0.9 mm latum corpore ad basin laevi superne subsparse spinuloso spinulis tenuibus erecto-patentubus instructo in pyramidem subcylindricam 0.7–1.0 (–1.1) mm longam mediocriter (ca 0.3 mm) latam sensim transiente rostro tenui ca (3.2–) 3.5–5.5 mm longo pappo albo-lutescente (5.0–) 5.5–6.3 mm longo.

D e s c r i p t i o n : Plants small, delicate. Leaves numerous, linear, usually 3–7 mm long, (2–) 3–5 (–7) mm wide, quite often completely entire, sometimes dentate to shallowly lobulate, teeth or lobules usually 4–7 (each side), short, to 1.0 (–1.5) mm long, usually acute, narrowly triangular, patent, interlobes broad, entire, terminal lobe not distinctly developed (leaves usually widest in the distal 1/4–1/5); petioles narrow to narrowly winged, purplish to greenish. Scapes ± sparsely aranose. Involucre ± rounded at the base, 5–7 mm wide; inner bracts 13–17, dark green, ± flat; outer bracts appressed, ± imbricate, (10–) 14–17, ± flat to callose, the outermost ones ca 3 mm long, the outer of them ovate, 4–5 mm long, 2.0–2–7 mm wide, middle ones to 5 mm long and ca 2 mm wide, deep to pale green, often with a narrow blackish middle strip (sometimes completely missing), darker to blackish green towards the apex, with a narrow membranaceous margin ca 0.1–0.2 mm wide. Flowers numerous, outer ligules pure white inside, striped pinkish to pinkish-greyish outside, inner ligules white, slightly yellowish at the very base, ligule teeth white or white-pinkish; fresh stigmas greyish pale green to grey-green, dry stigmas blackish green or dark green, pollen absent. Achenes greyish, (3.7–) 4.0–4.5 mm long, ca 0.9 mm wide, achene body almost smooth below, medium densely to sparsely spinulose above (spinules ± thin, erecto-patent), gradually narrowing in subcylindrical cone 0.7–1.0 (–1.1) mm long, medium thick (ca 0.3 mm), rostrum thin ca (3.2–) 3.5–5.5 mm long, pappus whitish-yellowish, (5.0–) 5.5–6.3 mm long. Agamosperm. – Fig. 4, 13c.

Taraxacum candidatum may well represent much of what used to be called *T. leucanthum* in the westernmost Himalayas and the Pamir, from Ladakh, Kashmir and Pakistan to Tadzhikistan and adjacent territories. The dark, sometimes almost black stigmas (in dry condition) and the absence of pollen are important for the identification, together with narrow, often entire or minutely lobulate leaves. It differs from the very similar *T. luridum* in flower colour (most florets pure white inside), absence of pollen, distinctly imbricate and numerous outer bracts, and dirty yellowish (not brownish) pappus.

S p e c i m e n s s e e n : **India:** NW India, Jammu & Kashmir State, Ladakh: below Narbu La to Tso Moriri, 4800 m a.s.l., 22 Aug 2001, 32°50' N, 78°20' E, L. Klimeš 3677 (PRA, no. det. 16237). – Chalung, E slopes, 4880–5300 m a.s.l., 12 Aug 2002, 33°7.7' N, 78°29.3' E, L. Klimeš 3708 (PRA). – Yaye Tso, 4700 m a.s.l., 18 Aug 2002, 33° 18.7' N, 78°28.4', L. Klimeš 3712 (PRA, no. det. 16236). – Muglib to Laga village, 3850–4100 m a.s.l., 11 Sep 2002, 34°2.4' N, 78°10.1' E, L. Klimeš 3754 (PRA, no. det. 16235). – Chumik Shiallile, 4500 m a.s.l., 22 Aug 2001, 32°40' N, 78°20' E, L. Klimeš (PRA, no. det. 16233). – Leh, 3600 m a.s.l., 30 Jul 2001, 34°10' N, 77°40' E, L. Klimeš 3833 (PRA). – Tso Kar, NW banks, 4610 m a.s.l., 11 Sep 1999, 32°59.3' N, 78°15.8' E, L. Klimeš, cultivated at Průhonice under no. JŠ7409 (PRA, no. det. 16401). – Tso Kar: Thukje, 4600 m a.s.l., 4/5 Aug 2001, 33°20' N, 78°00' E, L. Klimeš 3818 (PRA), 33°21' N, 78°01' E, L. Klimeš 5206 (PRA, no. det. 16206, with dupl.). – Khulmoche, 4700 m a.s.l., 23 Aug 2001, 32°50' N, 78°10' E, L. Klimeš 3697 (PRA, no. det. 16234, with dupl.), L. Klimeš 3826 (PRA). – Parma village to Sato village, 4560–4630 m a.s.l., 23 Sep 2003, 33°48' N, 78°22' E, L. Klimeš 5283 (PRA, no. det. 16208, with dupl.). – Sumdo Gonma to Kiagar Tso, 4615–4850 m a.s.l., 7 Sep 2003, 33°09' N, 78°21' E, L. Klimeš 5265 (PRA, no. det. 16207, with dupl.). – **Tadzhikistan:** Severnyy Pamir, ozero Kara-kul, okresnosti meteostancii, solonchakovye luga po beregu ozera, 30 Jun 1948, E. M. Lavrenko & L. E. Rodin 612 (LE). – Pamir, Murgab, mezhdu pritokami Yelli-su i Buz-Tere, 2 Jun 1913, D. D. Bukinitsch 130 (LE). – Pamir, Chatyr-Tash, 1901, M. I. Tulinow 13 (LE). – Berega ozera Karakulya, 5 Aug 1878, A. Kyshanin (LE). –

Pamir, ot Chatyr-Tasha do Sassyk-kulya, 17 Jul 1901, Fedtschenko (LE, and dupl.). – Vost. Pamir, urochishche Chechekty, dolina srednego techeniya r. Chechekty, 3900 m, 2 Jun 1942, G. Nepli 35 (LE, and dupl.). – Pamir, mezhdu Sassyk-kulem i Chatyr-tashom, 3 Aug 1901, Fedtschenko (LE). – Vostochnyy Pamir, bassein reki Alichur, Stacionar Bashgumbez, 19 Jul 1935, L. Nazarenko 157 (LE). – **China:** [Xinjiang, Uygur Region] Kashgaria, dol. Chicheklik [not located], 28 Jul 1909, D. A. Divnogorskaya (LE). – SW Xinjiang, Upper Ojtagh Valley, 38°54' N, 75°12' E, 2800 m, 27 Jun 1998, U. Wündisch 117 (herb. Dickoré in GOET). – **Tibet:** Tibet occ., regio temp. & alp., T. Thomson (M, no. det. 15390).

N o t e : In the Wakhan Province of Afghanistan, a narrow area intercalated between Tadzhikistan and Pakistan, plants having all the attributes of *T. candidatum* are found quite frequently. However, some, even the majority have polliniferous anthers. The apolline *T. candidatum*, in a mixture with polliniferous plants, is known from the following specimen: **Afghanistan,** Wakhan, Westufer des Kol-e Chaqmaqtin (74°08' – 37°13'), 4000 m, O. Anders 7417 (M, no. det. 15391). The nature of the variation remains to be studied.

4. ***Taraxacum flavidum*** Kirschner et Štěpánek, **spec. nova**

T y p e : Mongolia borealis, opp. Suche-Bator [Süchbátar, Süchbaatar], pagus Šamar [Shamar]: in alluvionibus fluminis Orchon [Orkhon gol], 6 Aug 1987, V. Petrovskij, culta sub no. JŠ 3145 (holo: PRA, no. det. 16714; iso: PRA, no. det. 16715).

D e s c r i p t i o : Plantae agamospermae foliis ambitu linearibus vulgo 6–10 cm longis 0.6–1.0 cm latis saturate viridibus glabris vel solum ad nervo mediano pilis araneosis sparsissimis praeditis, lobis lateralibus late triangularibus numerosis, numero (3) 4–6 utrobique, plerumque deorsum directis vel rarior ± patentibus marginibus distalibus saepe convexis interlobiis brevibus latis saepe dente solitario ad basin lobi praeditis lobo terminali folii conspicue angustior elongato. Involucrum basi rotundatum vel inconspicue subconicum squamis exterioribus adpressis imbricatis numero 10–12 (14) vulgo obscure viridibus apicibus purpureis glabris planis squamis extimis ovatis vel late ovatis 4.5–5.0 mm longis 2.5–3.5 mm latis omnibus distincte albo– vel membranaceo-marginatis marginibus ad normam 0.6–0.9 mm latis. Flores numerosi ligulis marginalibus planis albis intrinsecus perleviter flavidis extus in parte superiore stria pallide griseo-rosea notatis basi estriatis ligulis interioribus ± planis vel subcanaliculatis pallidissime flavis dentibus apicalibus saepissime roseolis. Stigmata viridia, antherae polliniferae granulis pollinum diametro variis. Achenium pallide griseum robustum, ad normam 3.7–4.0 mm longum (pyramide inclusa) ca 1 mm latum in pyramidem crassam subcylindricam 0.6–0.8 mm longam subsensim abiens corpore achenii porcato subsparse spinuloso spinulis robustis grossis rostro ± crassiusculo 3–4 mm longo pappo albido vel leviter flavescenti-albo 5.5–6.0 mm longo.

Description: Plants medium-sized to small. Leaves linear in outline, usually 6–10 cm long, 0.6–1.0 cm wide, usually deep green, glabrous or with rare aranose hairs on midrib, lobate, lobes numerous (3–6 on each side), usually downwards-pointing rarely ± patent, most often triangular with broad base and often convex distal margin, usually 2–4 mm wide at the base and up to 3 mm long, the inner leaves sometimes with ± linear lobes; interlobes short, often with a single tooth near the distal base of each lobe, ± broad, at least 2 mm wide, often broader; terminal lobe conspicuously narrower than leaf, elongated, 1.5–2.5 cm long, 2.0–2.5 mm wide, acute. Petiole unwinged, narrow, pale to deep purple. Scapes glabrous. Involucre ± rounded at the base or slightly subconical, 6–7 mm in diameter, inner bracts dark green, 8–10 mm long, ± flat; outer bracts appressed, 10–12 (14), ± imbricate, usually dark green with reddish tips, not glaucous, glabrous (not ciliate), flat, the outer of them ovate to broadly ovate, 4.5–5.0 mm long, 2.5–3.5 mm wide, middle ones ca 6 mm long and 1.5–2.0 mm wide, with distinct membranaceous to whitish borders usually 0.6–0.9 mm wide. Flowers numerous, outer ligules flat, ± white (very slightly yellowish) inside, striped greyish pink in the upper half outside, otherwise not striped, inner ligules ± flat to slightly involute, pale yellow, ligule teeth usually pinkish. Stigmas green, pollen present, irregular in size. Achenes pale greyish, robust, usually 3.7–4.0 mm long, ca 1

Fig. 3. – *Taraxacum flavidum*. General habit. Del A. Skoumalová.

mm thick, (sub)gradually narrowing in a thick, subcylindrical cone 0.6–0.8 mm long, achene body with numerous conspicuous ridges, on the distal part of ridges subsparse stout, coarse spinules, rostrum not thin (slightly thickened), 3–4 mm long, pappus ± white to yellowish, 5.5–6.0 mm long. Agamosperm. – Fig. 3, 13d.

S p e c i m e n s s e e n : **Russia:** [Transbaikalia] In salsuginosis vicinis Kiachtae, 1829, Turczaninov, under the name '*Leontodon bicolor mihi*' (LE, G-DC). – In salsis vicinis Kiachtae, 1829, Turczaninov, again under the name '*Leontodon bicolor mihi*', this time with an appropriate diagnostic statement 'Praeter flosculos exteriores albidis involucro exteriore late membranaceo adpresso insignis' (LE). – In salsis ad stationem Lipowskoe, 1829, Turczaninov, again under the name '*Leontodon bicolor mihi*' (LE). – **Mongolia:** Bezirk Changaj, kleine See ca 10 km ONO Chajrchandulaan, 23 Jun 1982, E. Jäger Fl47 (HAL, no. det. 16550).

Taraxacum flavidum is known to occur in Transbaikalia, Russia, and in the adjacent region of Mongolia.

Taraxacum flavidum is most closely related to *T. leucanthum*. The diagnostic characters of *T. flavidum* include leaf shape, ± evenly slightly yellowish (almost white) outer ligules and more deeply yellowish inner ligules, shorter cone and rostrum. The relatively broader outer bracts with distinct whitish borders and less conspicuously dissected leaves misled H. Handel-Mazzetti (1907, and herbarium LE) to identify plants of *T. flavidum* from Kiachta (see below) as *T. paludosum*.

It should be emphasized that the name *Leontodon bicolor* was never published validly by Turczaninov and the epithet was used in the name *Taraxacum bicolor* DC. but the latter name is illegitimate because of the inclusion of *Leontodon leucanthus* Ledeb. (see also the synonymy of the name *T. leucanthum*).

5. *Taraxacum armeriifolium* Soest, Feddes Repert. 70: 61 (1965)

Type: Mongolia, Bajanchongor-Aimak, NW-Ufer des Orog-nur. Solontschakwiese am Seeufer, 1300 m, 1 Jun 1962, Anonymous collector [Mongolisch-Deutsche Expedition] 2145, flower colour note: 'gelb' (holo: GAT, no. det. 11826; iso: GAT, no. det. 11859).

Description: Plants small to medium-sized. Leaves prostrate earlier in the season, later inner leaves erect; all leaves linear to narrowly oblanceolate in outline, usually 4–8 cm long, 5–9 mm wide, pale green to slightly greyish green, ± glabrous, sometimes (especially in early stages of plant development) not divided, entire, later usually deeply lobed to dissected, lateral lobes (3) 4–6 (each side), narrowly triangular to linear-triangular, slightly recurved, interlobes short, entire, terminal lobe narrow, elongated, apex ± acute; petiole narrow, often purplish. Scapes densely aranose below the capitulum, otherwise usually sparsely aranose. Involucre (sub)conical at the base, 5.5–7.5 mm in diameter, inner bracts green to pale green, 9–12 mm long, darker green at the apex, callose to flat; outer bracts appressed, usually 12–15, ± imbricate, paler green with darker green tips, not glaucous, not ciliate, ± flat, the outer of them ovate, 3.5–5.5 mm long, 1.7–3.0 mm wide, broadly bordered membranous to whitish, margins (0.5–) 0.6–0.8 (–1.0) mm wide in the widest part of the bracts, middle bracts up to 6.5 mm long and ca 2.5 mm wide. Early capitulum few-flowered, later capitula many-flowered. Flowers numerous, outer ligules canaliculate to involute (sometimes flat), yellow, faintly to distinctly striped grey-pink to grey-purplish outside, ligule teeth usually dirty yellow, inner ligules cucullate to usually ± tubular; stigmas usually not exserted or slightly so, usually pure yellow, sometimes to slightly greyish yellow, stigma hairs pale to rarely yellowish-greyish; pollen present, irregular in size. Achenes pale greyish, 4.0–4.7 mm long, achene body ca 1.0–1.1 mm thick, ± sparsely spinulose above (and on the lower part of cone), spinules mostly short, some of them coarse, body gradually and indistinctly narrowing in thick (0.5–0.6 mm) ± subconical, (0.8–) 1.0–1.3 mm long cone, rostrum thick (usually ca 0.25 mm), 2–3 mm long, pappus whitish, 5–6 mm long. Agamosperm. 2n = 24 (J. Štěpánek, collection L. Klimeš 5205). – Fig. 5.

In general appearance, *T. armeriifolium* is quite close to *T. sinicum*; judging from the locality information, the two species may even occur at the same sites. In particular, the leaf shape range, shape of involucre and the arrangement of outer bracts of the two species are almost identical. *Taraxacum armeriifolium* is easily distinguished by its short, thick rostrum, pure yellow stigmas, broader and more conspicuous whitish or membranous border to the outer bracts. The stigma and ligule teeth colour are diagnostic when comparing *T. armeriifolium* and *T. occultum*. Most species of the section differ from *T. armeriifolium* in achene characters: The thick short rostrum, relatively sparsely spinulose achene body and the very thick cone are quite unique. The original material of the name was collected early in the season and is characterized by almost entire leaves, a shape that can be seldom found in later or cultivated forms of the species. Most plants from the southern part of the range of *T. armeriifolium* (particularly those from Ladakh, India) have inner florets subtubular,

Fig. 4. – *Taraxacum candidatum*: top left, LK 3697; top right, LK 3708; bottom left, Baralacha La-dhaba to Kenlung, above a gorge, 4750 m, 8 Aug 2004 (photo from the field); bottom right, LK 3697.

whilst the type specimen and many plants from Tadzhikistan and China have flat to canaliculate outer florets and canaliculate to cucullate inner ones. The nature of floret variation requires further study.

The distribution of *T. armeriifolium* is quite extensive and the range includes W China, Mongolia, Ladakh in India, both the Tadzhik and Afghani parts of the Badakhshan Region. It is probable that the species also occurs in Tibet.

S p e c i m e n s s e e n : **China**: Kuen-Lun, 15 Jun 1894, W. J. Roborowski (LE). – Kuen-Lun, vost. Caidam [not indicated on the printed label, which of the two regions; the site not located], gory Saryn-ura, 5 May 1895, W. J. Roborowski (LE). – **Mongolia:** Changai [Khangai], po beregu Orok-nora [shores of Orok-nor], 8 Sep 1924, N. V. Pavlov (LE). – **Tadzhikistan**: Pamir, meždu r. Kara-su i Pamirskim postom, v 8 verst ot posta, 17 Jul 1913, O. von Knorring 888 (LE). – Vostočnyj Pamir, nižnee tečenie r. Čečekty [Chechekta R.], bassein r. Ak-baisan, 3860 m, 9 Jun 1942, G. Nepli 36 (LE). – Pamir, ad castellum Pamiricum pr. fl. Murgab, Jul 1901, Alexeenko 1657/472 (LE). – Vachan-Pškašinskij rajon, meždu k. k. Ja i g. Vnukut, 2840 m, 8 Aug 1935, P. N. Ovčinnikov & K. S.

Fig. 5. – *Taraxacum armeriifolium*: above, LK 3696; bottom, LK 3762; right, LK 3696.

Afanasjev 1702 (LE). – Pamir, v 6 verst od Pamirskovo posta po napravl. Zor-Kulja, luga po Murgabu, 10 Jul 1913, O. von Knorring 1131 (LE). – **Afghanistan:** Prov. Badakhshan, Wakhan, zwischen Qala-e Panja (72°34' E – 37°00' N) und Ab Gaj (72°42' E – 37°00' N), 2800 m, 4 Jul 1971, O. Anders 7034 (M). – Wakhan, Ptukh, 3300 m, 21 Aug 1975, H. Huss 120 (M). – **India:** Jammu & Kashmir State, Ladakh: below Narbu La to Tso Moriri, 4800 m, 22 Aug 2001, 32°50' N, 78°20' E, L. Klimeš 3678 (PRA, no. det. 16955), L. Klimeš 3799 (PRA), L. Klimeš 3843 (PRA, no. det. 16957), L. Klimeš 3844 (PRA, no. det. 16962). – Karu to Sakti, 3400 m, 11 Sep 2001, L. Klimeš 3691 (PRA, no. det. 16958), L. Klimeš 3845 (PRA). – Tso Kar: Thukje, 4600 m, 4–5 Aug 2001, 33°20' N, 78°0' E, L. Klimeš 3696 (PRA, no. det. 16960), L. Klimeš 3820 (PRA), L. Klimeš 3844 (PRA), L. Klimeš 5205 (PRA, no. det. 16966), L. Klimeš without no. (PRA, no. det. 16964). – Pangong Tso, NW banks, 4300 m, 9 Sep 2002, 33° 57.6' N, 78°25.8' E, L. Klimeš 3745 (PRA, no. det. 16963). – Muglib to Laga village, 3850–4100 m, 11 Sep 2002, 34°2.4' N, 78°10.1' E, L. Klimeš 3755 (PRA, no. det. 16959). – Laga village, 3850 m, 12 Sep 2002, 34°6.8' N, 78°6.6' E, L. Klimeš 3778 (PRA, no. det. 16961). – Leh and Spituk, 3200–3500 m, 16 Sep 2002, 34°7.2' N, 77° 32.7' E, L. Klimeš 3762 (PRA, no. det. 16956, and also to be distributed in Taraxaca Exsiccata, no. 705). – Sumdo Gonma to Kiagar Tso, 4615–4850 m, 7 Sep 2003, 33°09' N, 78°21' E, L. Klimeš 5264 (PRA, no. det. 16965).

6. *Taraxacum sinicum* Kitag., Bot. Mag., Tokyo, 47: 826 (1933), nom. nov. pro *T. sinensi* Dahlst. non Poir.

Syn.:

≡ *Taraxacum sinense* Dahlst., Acta Hort. Gothoburg. 2: 168 (1926), *nom. illeg.*, non Poir. 1813. – Type: Shansi centr., Tai-yuan-fu, 800 m, Oct 1924, H. Smith 7989 (lecto, *fide* Kirschner & Štěpánek 1997a: 96, S, no. det. 9277; isolecto: „in locis paludosis", W, no. det. 9298).

≡ *Taraxacum borealisinense* S.Kitamura, Acta Phytotax. Geobot. 31(13): 45 (1980), *nom. illeg.* [another *nomen novum* for *T. sinense* Dahlst.; the name *T. sinicum* was considered as inappropriate].

= *Taraxacum czuense* Schischk., Sist. Zam. Gerb. Tomsk. Univ. 19/1–2: 6 (1949). – Type: Kosch-Agach, Chuyskaya step [Chuya steppe], 14 Aug 1931, B. K. Schischkin (holo: LE, no. det. 6129; iso: LE, no. det. 6128).

Description: Plants usually small. Leaves narrow, linear-oblanceolate in outline, usually 7–10 cm long at the locality, up to 15 cm long in cultivation or in late summer forms, usually 6–10 mm wide, mid-green, subglabrous or sparsely aranose, especially along the midrib, usually deeply dissected into numerous (often more than 6–7 on each leaf side), usually short, 3–11 mm long, linear-triangular, straight, downwards-pointing lobes, rarely leavers almost undivided, terminal lobe elongated, entire, linear (-triangular) with sagittate base, interlobes narrow, usually 5–7 mm long, entire; petiole narrow, usually brownish-purplish. Summer leaves usually of very similar shape, some usually divided only in proximal half. Scapes aranose, at least below the capitulum. Involucre usually and typically (sub)conical at the base, 6–7 (–8) mm in diameter, inner bracts narrow, usually up to 1 mm wide, usually 10–13 mm long during anthesis, flat and dark near the apex, otherwise deep green. Outer bracts appressed, numerous, usually 16–18, imbricate, yellowish green with red apex to dark green (often suffused reddish), not glaucous, glabrous, not ciliate, flat to slightly callose near the apex; the outermost bracts usually 4.5–6.0 mm long and 1.8–2.7 mm wide, rarely narrower, linear, ca 5 mm long and 1 mm wide, middle outer bracts 6.5–7.0 (–8.0) mm long, 1.5–2.0 mm wide, usually with ± conspicuous membranaceous margin 0.2–0.3 (0.4) mm wide and often distally suffused pinkish. Flowers numerous, flat, deep yellow, outer ligules striped dark grey, usually not much exceeding inner bracts, ligule teeth yellow to greyish; stigmas greenish-grey, pollen present, irregular in size. Achenes pale greyish, 3.5–4.4 mm long, ca 0.9–1.0 mm wide, ± gradually narrowing in a thick subcylindrical cone (often with some spinules at the cone base) 0.7–1.0 mm long, achene body subsparsely to ± densely spinulose, more densely above, sparsely in the middle, with scattered minute spinules in lower 1/3, upper spinules coarse, thicker, the uppemost ones often bent upwards; achene has a robust appearance, rostrum thicker at the base, otherwise ± thin, 5.0–6.5 mm long, pappus slightly yellowish, 6.5–7.0 mm long. Agamosperm. 2n = 24 (J. Kirschner, 10/93, sample T 702; 11/93, sample T 13). – Fig. 6.

The distribution range of *T. sinicum* is the largest of the species in the section *Leucantha*. It extends from S Siberia and the Altai through Mongolia to large parts of NW and N China and Tibet.

Specimens seen: **Russia:** Minusinsk, okr. oz. Shira, Jul 1893, I. T. Gavenkova (LE). – Minusinskiy uezd, Znamenskoe, 9 Aug 1913, S. Turkevich 1045 (LE), 1064a (LE). – Altai, Koshagachskiy aimak, dolina r. Chuyi, 7 Aug 1936, A. V. Kalinina, L. A. Sokolova & B. K. Schischkin (LE). – Altai, kurort Aul, 25 Jun 1921, V. Vereshchagin (LE, no. det. 7920). – Altai, Chuyskaya step, Kiyak-Nar, 18 Aug 1931, B. K. Schischkin (LE). – Tuva, Ovyurskiy rayon, 18 km ot oz. Ubsu-Nur, r. Ak-Chyra, 4 Aug 1973, S. Timokhina & V. Dyukov 1277 (LE). – Vostochnoe Zabaykal'e, s. Aginskoe, oz. Nozhiy, 6 Aug 1964, T. Peshkova & L. Ovchinnikov (LE, no. det.

7930). – Irkutskaya gub., Balagansk. u., okr. s. Bazheyevskogo, 4 Aug 1906, N. Malcev 638 (LE, with dupl.), 2 Sept 1906, N. Malcev 324 (LE). – Nizhne-Udinsk, s. Monastyrskaya, 15 Aug 1909, S. S. Ganeshin (LE). – Nerczinsk, Kuyenga, ad fl. Areda, 24 Aug 1910, V. Sukachev & H. Poplawska 1516 (LE). – Nerczinsk, Kuyenga, 24 Aug 1910, V. Sukachev & H. Poplawska 1451 p.p. (LE). – Distr. Ongudai, in pratis salsis ad pagum Aktash, ca 1800 m, 4–5 Jul 1988, J. Kirschner 79 (PRA, no. det. 16082), 87 (PRA, no. det. 16086), without no. (PRA, no. det. 16954, 16953, with dupl.), cult. in Průhonice 1988–1992, no. JŠ 3394 (PRA, no. det. 16952, with dupl.), no. JŠ 3395 (PRA, no. det. 16085), no. JŠ 3396 (PRA, no. det. 16084), no. JŠ 3404/75 (PRA, no. det. 16951), no. JŠ 3406 (PRA, no. det. 16083). – Distr. Ongudai, in pratis subsalsis in valle flum. Chuya ad pagum Aktash, ca 1800 m, 4–5 Jul 1988, J. Kirschner, cult. in Průhonice, no. T 679 (PRA, no. det. 16081, with dupl.), T 702 (PRA, no. det. 16080, with dupl.). – **Kyrgyzstan:** Tian Shan, in parte infer. vallis Inylchek, situ orientali a loco Mayda-Adyr, alt. 2750 m, 79°17' E, 42°06' N, Jul 1989, L. Businská & R. Businský; cult. under no JŠ 4172/B (PRA, no. det. 16925). – **China**: Ordos [Inner Mongolia], Toy-tu-khay, 29 Aug 1884, G. N. Potanin (LE, with dupl.). – Ordos, bereg Huang-he nizhe Khekou, 4 Aug 1884, G. N. Potanin (LE), also 7 Aug 1884 (LE). – Ordos, uroch. Czökul-Czaidam [not located], 7 Sep 1884, G. N. Potanin (LE). – Ordos, r. Huang-he, 16 Aug 1871, N. M. Przewalski 362 (LE, with dupl.). – Mongolia occid., alpes Nan-shan [Qilian Shan, Qinghai/Gansu], Jun-Jul 1879, N. M. Przewalski (LE). – Gobi, ad fl. Yedzin, non procul ab oppido Gaotai [Gansu], 20 Jun 1886, G. N. Potanin (LE, no. det. 8236, with dupl.). – Inner Mongolia, r. Dzhasakachi, 16 Aug 1957, M. P. Petrov (LE, no. det. 8260). – Inner Mongolia, g. Khanginchi, 50 km s.-z. ot goroda, 6 Aug 1957, M. P. Petrov (LE). – Inner Mongolia, g. Otokoochi, 25 km yu.-z. ot goroda, 1 Jul 1957, M. P. Petrov (LE). – Prov Zhekhe, uezd Chifyn, Khunshanczuytsy, 20 Sep 1952, Fuh-P'ei-Yun et al. 5172 (LE). – Dunkhuan, r. Sulakhe, 31 Jul 1958, M. P. Petrov (LE). – Gansu, g. Chzunwey, 24 Jul 1957, M. P. Petrov (LE, no. det. 8054). – Inner Mongolia, 25 km k yu. ot g. Sanshingun, r. Huang-he, 15 Jul 1957, M. P. Petrov (LE). – 75 km yu. ot Baiankhot, 15 Jun 1958 (M. P. Petrov (LE). – Caidam, Sinin Gunkhe, 6 Aug 1959, M. P. Petrov (LE). – Shensi, g. Suyde, 29 Aug 1957, M. P. Petrov (LE). – **Mongolia**: Südliche Mongolei, Bajanchongor Aimak, Bogd Sum, Südufer des Orag nuur, 22 Jul 1979, W. Hilbig, D. Bumschaa et al. 187/79 (HAL, no. det. 16553). – oz. Ubsa-nor, dol. Ulan-goma, 15 Aug 1931, V. I. Baranov (LE, no. det. 8250). – Mongolia, Dzergin, 18 Aug 1930, V. Baranov (LE, no. det. 8220). – Mongolia centr., Shargin-Gobi, r. Dzhergalontu, 13 Sep 1930, E. G. Pobedimova 678 (LE). – Gobi, oz. Orok-nor, 9 Sep 1886, G. N. Potanin (LE), also 1 Sep 1886 (LE). – Gobi-Altai, khr. Khurkhu-ula, nad Altyn-ama, 27 Jul 1970, V. I. Grubov & al. 310 (LE). – ur. Legin-gol k yu. ot Baga-bogdo, 20 Aug 1927, M. Silschkova 4483 (LE). – mezhdu Ust'-Kiachtoi i Urgoi, 29 Jun 1912, M. P. Tomin (LE). – Vost. aimak, 49–30 N 115–30 E, oz. Khukh-nur, 22 Jul 1987, A. L. Budantsev 2000 (LE). – Vost. Aimak, oz. Khalkhin-gol, 20 Jul 1987, I. A. Gubanov & R[?]. V. Kamelin 1884a (LE). – Ubur-Khangai aimak, Khobdo somon, khr. Arua-Bogdo, 20 Jul 1948, V. I. Grubov 6501 (LE, no. det. 8230). – Gobi-Altai, Bain-tukhum, 29 Aug 1931, N. V. Ikonnikov-Galitzky 4397 (LE), also 4 Aug 1931 (LE). – dolina r. Taly okolo uroch. Algen-Sendel, 6 Aug 1925, V. A. Gusev 59 (LE). – Mongolia orient., 25 km zap. ot Baushintu-sume, u klyucha Bagamotne-bulak, 9 Sep 1931, E. Pobedimova 1308 (LE).

Notes on the typification of the name *Taraxacum sinense* Dahlst.

There are four factors making the typification of the name rather complicated: In the vast area where the syntypes were collected (China and S and SE Siberia) at least five taxa similar to the protologue description and figures are recognized by the present authors. Another problem is that the syntypes in many cases were collected very late, and a detailed knowledge of the relevant taxa from the field or cultivation is needed to interpret the material. Thirdly, the description (and drawings) of the vegetative characters and flowers in the protologue probably belongs to a taxon that differs from the protologue achene characters. Last, the species diversity of the section in NE parts of China and the Transbaikalia is insufficiently explored. In the following text, we discuss individual syntypes:

1. "Irkutsk ad pagum Kasugskoe" (9 Sep 1923, Enander, S, no. det. 9275, 9276): The former plant (no. det. 9275) is of poor quality, and cannot be reliably identified. The latter may be taxonomically identical with the lectotype.

2. "Irkutsk" (24 Jul 1913, Enander, S, no. det. 9279): Material of lower quality but maybe taxonomically identical with the lectotype.

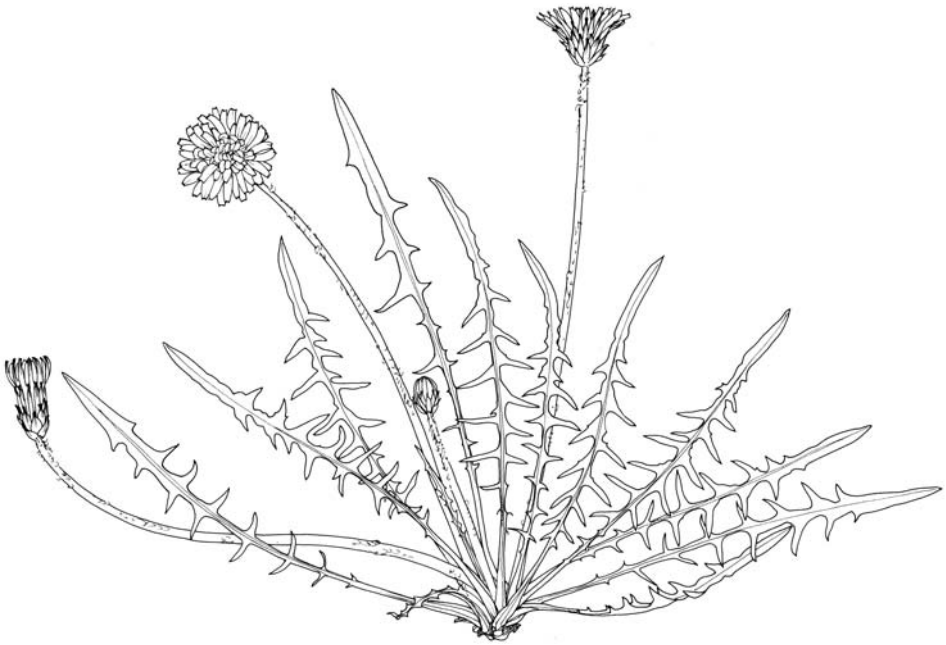

Fig. 6. – *Taraxacum sinicum*. General habit. Del. A. Skoumalová.

3. "Nerczynsk, nasse Steppenwiesen" (1892, F. Karo Pl. Dahur. 427, W, no. det. 9310, WU, no. det. 9593, and duplicates in other herbaria): Most plants of this exsiccate number have achene cones (1.0–) 1.1–1.4 mm long, while those corresponding to the lectotype have cones 0.7–1.0 mm long. These dry plants probably had pale (whitish or pale yellow) flowers, which may or may not mean another difference (Dahlsted himself attributed the colour difference to changes that occurred during drying). Although this difference is minor, we do not include these plants in the same taxon as the lectotype. They are possibly quite close to *T. dealbatum*, see below.

4. "Mongolia interior, Wang-yeh-fu [Ulan Hot vicinity]" (R. C. Ching 359, W, no. det. 9305): This plant was originally listed by Dahlsted as coming from WU but the specimen with his annotation is deposited now at W. Well developed outer bracts clearly show that this collection is taxonomically different from the lectotype.

5. "Zaidam [Qaidam Pendi, Qinghai]" (Roborowsky, WU, no. det. 9595): Only fragments of this material survive but the achenes are identical with those of the lectotype. This plant may belong to the same taxon as the lectotype.

6. "Kuen-lun [Kunlun Mts., Xinjiang]" (Roborowsky, WU, no. det. 9602): Taxonomically identical with the lectotype.

7. "Chili, Hsiao-wu-tai-shan inter Sin-pao-an et Hun-he" (H. Smith 1283, UPS, no. det. 11816): Taxonomically identical with the lectotype.

8. "Shansi centr., Tai-yuan-fu, 800 m [Taiyuan, Shanxi]" (Oct 1924, H. Smith 7989, S, no. det. 9277, the **lectotype**, see above; "in locis paludosis", W, no. det. 9298, isotype; the GB specimen not seen): The vegetative characters described in the protologue perfectly match those of this collection, and the flower heads depicted are also identical.

9. “Kansu, Hoang-ho super.” (Przewalski, WU, no. det. 9596): Although two LE collections made by Przewalski in that region belong to the lectotype taxon, the WU specimen may be taxonomically different.

10. “Kansu, 9000' ” (Przewalski, WU, no. det. 9601): This syntype has rather broad pale margins to the outer bracts and may belong to another taxon.

11. “Sze-ch'uan bor., Mao-chou” (H. Smith 2289, UPS, no. det. 11817): Taxonomically identical with the lectotype. In particular, the achene characters match those of the lectotype.

12. “Yünnan bor.-occid., Dschungdien [Zhongdian]” (H. Handel-Mazzetti 7563, W, no. det. 9316; a duplicate at WU, no. det. 9606, was removed from the W collection after Dahlsted finished his studies): No achenes available, plants turned brown during preparation. Taxonomically close to the lectotype but identification uncertain.

13. “Mongolia, Dao-sunnor” (J. G. Andersson 421a, S, no. det. 17807): Plants relatively well developed, taxonomically identical with the lectotype.

7. *Taraxacum ikonnikovii* Schischk., Fl. URSS 29: 736 (1964)

Type: Gorno-Badakhshanskaya AO, bassein r. Zapadnyy Pshart, vlazhnyy galechnik u Zap. Psharta v 5 km nizhe ust'ya pritoka Dzhan-Kandy [Tadzhikistan, Upper Badakhshan, Zapadnyi Pshart River, 5 km below the mouth of R. Dzhan-Kandy; field note from the collector’s notebook: ‘flowers yellow’], 3660 m, 5 Jul 1958, N. N. Tzvelev 440 (holo: LE, no. det. 6512; iso: LE, no. det. 15748 and unnumbered).

Description: Plants small to medium-sized. Leaves linear to linear-oblanceolate in outline (4–) 6–9 (–15) cm long, 6–10 (–15) mm wide, usually shallowly to deeply lobed, lateral lobes usually 4–6 (each side), linear-triangular to narrowly triangular, usually conspicuously downward-pointing, less often ± patent, usually 3–8 mm long, entire, interlobes often short, entire, most often 3–4 mm wide, terminal lobe elongated, linear triangular, ± acute, sagittate at base; petiole narrow, unwinged, ± purplish or greenish. Scapes sparsely aranose, at least below the capitulum. Involucre rounded at the base, rather big even in small plants, 7–10 mm in diameter, inner bracts deep green, dark and ± corniculate at the apex, 10–13 mm long; outer bracts appressed, distinctly imbricate, numerous (13–17), outer ones broadly ovate to ovate, 4–5 mm long, 2.5–3.5 mm wide, middle ones 6.0–6.5 (–7.0) mm long, 2.0–2.5 mm wide, deep or dark green in the middle, distinctly bordered, borders whitish, 0.4–0.8 mm wide, apex often slightly reddish, ± corniculate. Flowers numerous, outer ligules flat, yellow or pale yellow, striped grey outside, inner ligules ± flat, of the same colour; stigmas pale green, pollen present, irregular in size. Achenes greyish straw-brown, ca 3.9–4.3 (–4.5) mm long, achene body subsparsely spinulose above (spinules thin, erecto-patent), gradually narrowing in ± cylindrical cone 0.9–1.1 (–1.2) mm long, thicker (0.3–0.4 mm), sometimes with sparse spinules near the cone base, rostrum ± thin, 5–7 (–8) mm long, pappus ± white (slightly yellowish), ca 5–6 mm long. Agamosperm. – Fig. 7, 13e.

The species seems to be quite common in Tadzhikistan and, in the north, it reaches SW Xinjiang.

Specimens seen: **Tadzhikistan:** Vost. Pamir, urochishche Chechekty, srednee techenie r. Chechekty [East Pamir, middle stream of Chechekta River], 3900 m, 2 Jul 1945, E. Varivtseva & G. Nepli 147 (LE, with two dupl.). – Vostochnyy Pamir, urochishche Chechekty, srednee techenie r. Chechekty, 3900 m, 14 Jul 1945, E. Varivtseva & G. Nepli 332 (LE). – Gorno-Badakhshanskaya AO, bassein r. Zapadnyy Pshart, u vpadenija Zap. Psharta v r. Murgab [Upper Badakhshan, Zapadnyy Pshart River, at the cofluence of Zap. Pshart River with R.

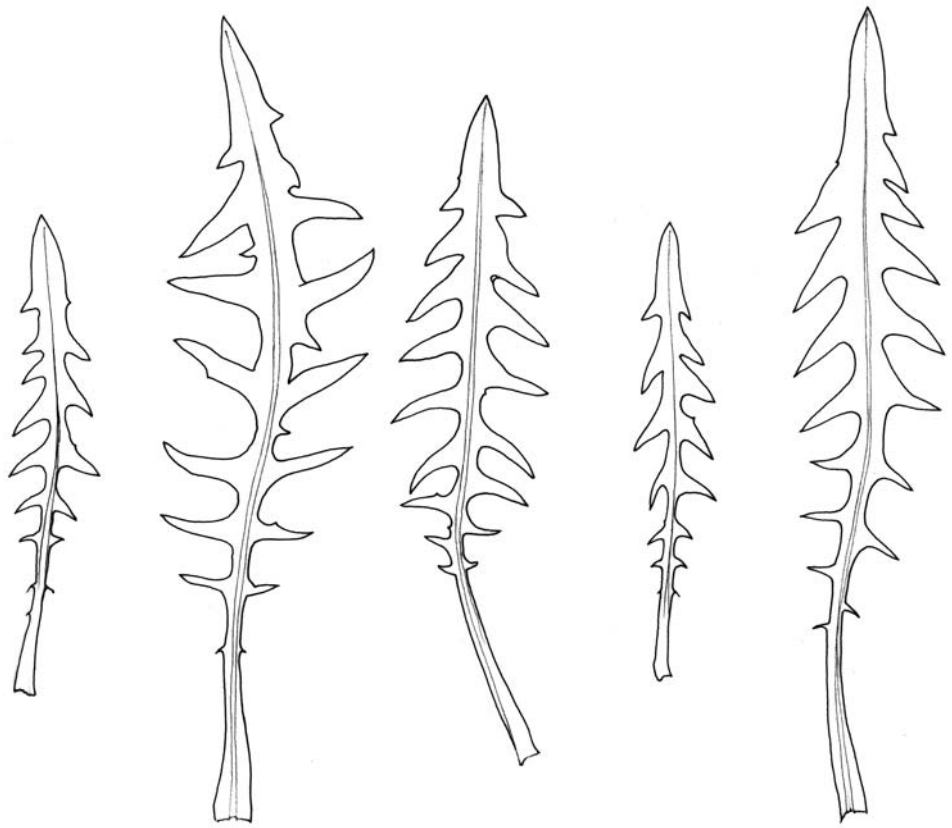

Fig. 7. – *Taraxacum ikonnikovii*. Leaf shapes. Del. A. Skoumalová.

Murgab], 3320 m, cv. zheltye [flowers yellow !!, the note also in the field notebook of the collector], 24 Jun 1958, N. N. Tzvelev 271 (LE). – **China:** SW Xinjiang, Yarkand Valley (Kunlun Shan side), west of Mazar, Mazar Dala (Bazar Dala), 3600 m a.s.l., 27 Aug 1986, 36°24' N, 76°48' E, B. Dickoré 0383 (GOET).

The interpretation of *T. ikonnikovii* was complicated by the fact that the type plant is extremely robust. After a detailed comparison with similar but smaller plants, it turns out that this species is characterized by larger flower heads, longer inner bracts, numerous and imbricate outer bracts and relatively big achenes. Its closest relative, *T. luridum* does not possess distinctly downward-pointing leaf lobes, its outer bracts are not conspicuously imbricate nor broadly ovate, achenes are on average shorter than those of *T. ikonnikovii*. The flower colour of *T. ikonnikovii* is difficult to assess from the older herbarium specimens. However, the collector, Prof. N. N. Tzvelev of St. Petersburg, carefully annotated the dandelion flower colour during his Pamir expedition in 1958. The note that refers to his no. 440 clearly says "flowers yellow", which is repeated on the label of the type plant. In the later description (also compiled by N. N. Tzvelev after the untimely death of B. K. Schischkin in 1963) describes the colour as pale yellow. The flower colour therefore represents another important diagnostic character as that of *T. luridum* is white.

8. *Taraxacum pseudoleucanthum* Soest, Proc. K. Nederl. Akad. Wetensch., Ser. C, 69: 365 (1966)

Type: Ladakh, Mulbekh, Namika La, 28–29 Jul 1933, W. Koelz 6206 (holo: MICH, no. det. 11820). Note: Contrary to the statement written by J. L. van Soest, the anthers of the type plants are polliniferous. Paratypes cited in the protologue are probably taxonomically aberrant from the holotype.

Description: Plants small. Leaves numerous, narrow, linear to linear-oblanceolate in outline, 5–8 cm long, up to 0.8–0.9 cm wide, mid green, subglabrous, often subentire, remotely dentate, sometimes deeper lobulate, lobules or teeth in 3–6 pairs, shortly triangular, usually to 1 mm long, rarely to 2.5 mm long, downwards-pointing, undivided part of leaf usually broader than the divided one, interlobes broad, entire, terminal lobe often not distinctly developed; petiole usually 2–4 mm wide, narrowly winged, ± green or pinkish. Scapes sparsely to densely aranose. Involucre ± rounded to subconical at the base, ca 5–6 mm in diameter, inner bracts mid green, flat to corniculate, bordered membranous, with dark tips, usually 8–9 (–10) mm long, outer bracts appressed, slightly imbricate, subglabrous or sparsely ciliate and flat to callose at the apex, usually 12–15, the outer of them ovate-lanceolate, acuminate, usually 3.0–3.5 mm long, 1.5–2.0 mm wide, middle ones ca 3.5 mm long, ca 1.2 mm wide, green to pale green, slightly suffused pinkish, apex more deeply pink, borders ± distinct, membranous, usually 0.2–0.3 mm wide. Flowers numerous, outer ligules flat, probably white or pale yellowish inside, striped greyish or greyish-pinkish outside, inner ligules ± flat, white or whitish-yellowish, ligule tips pale; stigmas yellow (rarely ± dirty yellow), pollen present, irregular in size. Achenes greyish, usually 3.5–3.9 mm long, 0.8–0.9 mm wide, achene body subsparsely to subdensely spinulose above (spinules thin, acute, erecto-patent), gradually narrowing in subcylindrical, 0.5–0.6 (–0.8) mm long cone, rostrum thin, 4–5 mm long, pappus ± yellowish white, 4–5 mm long. Agamosperm.

The yellow stigmas is a rare feature in the section but otherwise the species requires further study on better material.

Specimens seen: **Tadzhikistan**: Vostochnyy Pamir, pravyy bereg r. Ak-su, protiv massiva Ak-tash, 3850–3900 m, 23 Jun 1953, S. Ikonnikov 19 (LE). – **Kyrgyzstan**: Margelanskiy uezd, dol. r. Darya, nachalo doliny bliz Chapkou Deves, 23 Jun 1913, N. A. Desyatov 1336 (LE, with dupl.). – **China**: Kuen-Lun, urochishche Kulan-Aryk mezhdu poz. Zad i r. Tash-uy, 3500–3800 m, 29 Jun 1942, V. I. Serpukhov 627 (LE).

9. *Taraxacum luridum* Hagl., Bot. Notiser 1938: 307 (1938)

Type: Plantae Pamirenses, in valle Jersil, 2800 m, 1 Jul 1930, C. Persson 16b (holo, designated by Haglund, 1938, in the caption to the figure: S, no. det. 9232). The holotype specimen is a plant in full flower, without fruit. In order to stabilize the usage uf the name we designate an epitype, a plant with both flowers and fruits. – **Epitype (designated here):** Ladakh, Kiagar La, valley S of the pass, 4880–5300 m a.s.l., 5 Aug 2002, 33°6.7' N, 78°22.4' E, L. Klimeš 3773 (epi: PRA, no. det. 16241), duplicates to be distributed as Tarax. Exs., no. 707.

Syn.:

= *Taraxacum alaicum* Schischk., Flora URSS 29: 751 (1964). – Type: Kyrgyzstan: Alaiskiy khrebet: Sary-tash, ber. nebol'shoi rechki (pritok r. Surkh-ob), 22 Jul 1930, S. V. Yuzepchuk 807 (holo: LE, no. det. 6521). [Alai Range, Sary-tash, shores of a small river, a tributary of Surkh-ob]

= *Taraxacum oschense* Schischk., Flora URSS 29: 752 (1964). – Type: Kyrgyzstan: [vicinity of Tadzhikistan Border] Ferg. obl. Oshskiy u., u perepravy cherez Kyzyl-su, bugristye peski, 1 Jul 1913, O. E. von Knorring 702 (holo: LE, no. det. 6504; iso: LE) [Pamiro-Alai, Alai Valley, a ferry on Kyzyl-su]

Fig. 8. – *Taraxacum luridum*: top left, LK 3744; top right, LK 3774; bottom, LK 3789.

D e s c r i p t i o n : Plants small, plant base ± aranose. Leaves generally narrow, ± linear in outline, usually 5–7 (–8) cm long, 6–9 (–11) mm wide (at the widest part), mid-green to slightly bluish green, subglabrous to glabrous, often entire or subentire, usually sinuate dentate to lobed, lobes numerous (4–8 pairs), linear to linear-triangular, up to 6 mm long, usually 0.5–1.3 mm wide, usually patent or slightly downwards-, rarely upwards-pointing, undivided part usually not narrow, at least 2–3 mm wide, lobes entire or seldom with a single basal lobule, interlobes usually 0.5–1.0 cm long, entire, terminal lobe often elongated,

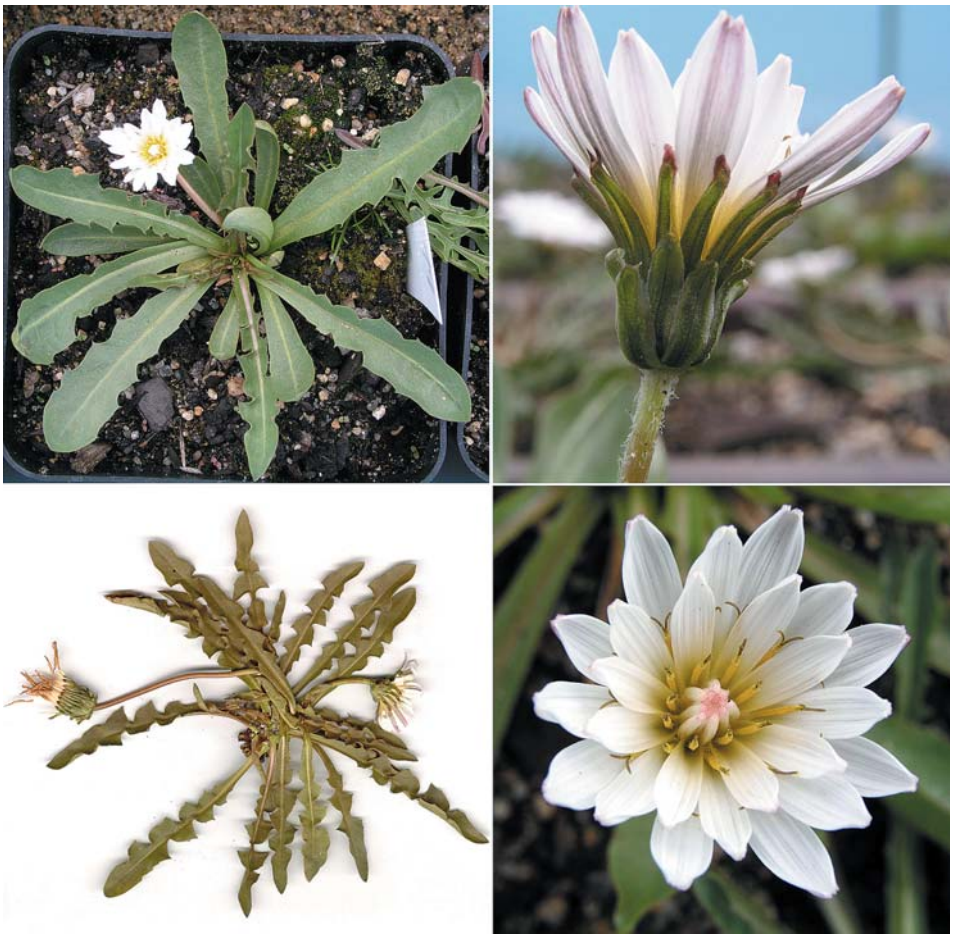

Fig. 9. – *Taraxacum virgineum*: top left, LK 3687; top right, LK 3695; bottom left, LK 3849; bottom right, LK 3695.

not distinct, 0.5–1.5 cm long; petiole often narrowly winged, most often green, sometimes pinkish. Scapes sparsely aranose, later glabrescent. Involucre rounded at the base, 6–7 mm in diameter, inner bracts mid-green, bordered, usually 10–11 mm long, distinctly corniculate, outer bracts appressed, 8–9 (–13), almost not imbricate or indistinctly so, callose to corniculate, ± glabrous or ciliate at the apex, the outermost ones broadly ovate, ca 4 mm long, 2.7–3.0 mm wide, the others up to ovate-lanceolate, usually 4–5 mm long, usually with a distinct blackish green middle part (0.8–) 1.0–1.5 mm wide (brownish-pinkish near the apex of the bract), with a ± gradual transition in a pale green side part ca 0.5–0.8 mm wide, and a membranaceous margin ca 0.3–0.5 mm wide. Flowers numerous, outer ligules flat, white inside, striped grey-greenish (pinkish) outside, inner ligules ± flat, pale yellowish at the very base, otherwise white, stigmas greyish yellow-green with dark hairs when dry, pollen present, irregular in size. Achenes greyish straw-brown, (3.5–) 3.8–4.2 (–4.5) mm long, 0.9–1.0 mm wide, almost smooth or minutely muricate below, sparsely to subdensely

spinulose above, spinules coarse, body subgradually narrowing in ± cylindrical, medium thick (0.3 mm) cone (0.7–) 0.9–1.2 mm long (sometimes sparsely spinulose at the base), rostrum 3.0–4.2 mm long, ± thin, pappus 5–6 mm long, brownish-pinkish. Agamosperm. 2n = 24 (J. Štěpánek, collection L. Klimeš 5286, 5281). – Fig. 8, 13f.

For diagnostic differences between *T. luridum* and *T. candidatum*, see the latter.

Specimens seen: **China**: Kuen-Lun, Kashgaria, ushchelye r. Shor-luk, 4000–5500 m, 28 Jul 1942, V. I. Serpukhov 604 (LE). – **Kyrgyzstan**: [?] Alaiskiy khrebet, Sary-tash, zapadina na stepi, 21 Jul 1930, S. Yuzepchuk 803 (LE). – Alaiskiy khrebet, Taun-murun, 27 Jul 1930, S. Yuzepchuk 1026 (LE). – **Tadzhikistan**: Vostochnyi Pamir, galechniki Binka mezhdu Karakulem i povorotom na vostok, 23 Jul 1935, K. Stanyukovich 182 (LE). – Zap. Pamir, prav. storona r. Darshai, neskol'ko nizhe ust'ya r. Yamast, 3330 m, 28 Jul 1935, P. I. Ovchinnikov & K. S. Afanasyev 143 (LE). – Central'nyy Pamir, urochishche Dzhaman-tal, 9 Jul 1948, E. M. Lavrenko & L. E. Rodin 802 (LE). – Pamir, r. Ak-baytal, 1901, M. I. Tulinow 11 (LE). – Pamir, mezhdu r. Chichekmen i Ana-bel, 7 Jul 1913, O. E. von Knorring 804 (LE). – Pishnekskiy u., dolina r. Arny, 26–29 Jun 1900, V. E. Nedzickiy 86 (LE). – Gorno-Badakshanskaya AO, dolina Zor-Chechekty, 3100 m, Yu. Gusev 5973 (LE). – Gorno-Badakshanskaya AO, rayon Sarezskogo ozera, khr. Muzkol, dolina rechki Kazan-kul, 3900 m, 1 Jun 1958, Yu. Gusev 5068 (LE). – Gorno-Badakshanskaya AO, bassein reki Zpadnyy Pshart, u pritoka Zap. Psharta v 5 km nizhe ust'ya pritoka Dzhan-Kandy, 5 Jul 1958, N. N. Tzvelev 401 (field note: cvety lilovato-belye [field note of the collector: flowers pale lilac-white]) (LE). – Pamir, Kok-say, 9 Jul 1897, S. Korshinsky 1785 (LE). – Pamir, ot Markansu do Karakulya, 4 Jul 1901, Fedtschenko (LE). – Kara-kul', 28 Jun 1906, L. Khorev 37 (LE). – Gorno-Badakshanskaya AO, bassein reki Zapadnyi Pshart, v doline Zap. Psharta v ego nizhnem techenii, 3660 m, 14 Jun 1958, N. N. Tzvelev 106 (LE). – Vostoch. Pamir, urochishche Mad'yany, na pravom beregu r. Murgab, 3700 m, 11 Jun 1942, G. Nepli 35 (LE). – **India:** NW India, Jammu & Kashmir State, Ladakh: Sangtha village, 4400 m a.s.l., 31 Aug 2001, 33°20' N, 77°40' E, L. Klimeš 3789 (PRA, no. det. 16248). – Peldo, 4550 m a.s.l., 6 Aug 2002, 33°01.2' N, 78°17' E, L. Klimeš 3701 (PRA, no. det. 16245). – Pangong Tso, NW banks, 4300 m a.s.l., 9 Sep 2002, 33°57.6' N, 78°25.8' E, L. Klimeš 3744 (PRA, no. det. 16244, with dupl.). – Muglib, E of village, 4150–4200 m a.s.l., 10 Sep 2002, 34°1.1' N, 78°17.8' E, L. Klimeš 3750 (PRA, no. det. 16243, with dupl.). – Nanak La, 5260–5270 m a.s.l., 7 Sep 1999, 33°10' N, 78°10' E, L. Klimeš 3786 (PRA), cultivated at Průhonice under no. JŠ7410 (PRA, no. det. 16247, with dupl.). – Kiagar La, valley S of the pass, 4880–5300 m a.s.l., 5 Aug 2002, 33°6.7' N, 78°22.4' E, L. Klimeš 3773 (PRA, no. det. 16241, also to be distributed as Taraxaca Exs., no. 707). – Nachalak and Luglung rivers, divide between their watersheds, 5100–5500 m a.s.l., 5 Aug 2002, 33°4.7' N, 78°23' E, L. Klimeš 3774 (PRA, no. det. 16246, with dupl.). – Laga village, 3850 m a.s.l., 12 Sep 2002, 34°6.8' N, 78°6.6' E, L. Klimeš 3777 (PRA, no. det. 16242, with dupl.). – N banks of Tso Moriri to Peldo, 4540–4570 m a.s.l., 24 Aug 1999, 33°0.2' N, 78°18' E, L. Klimeš, cultivated at Průhonice under no. JŠ7408 (PRA, no. det. 16231). – Sumdo Gonma to Sumdo, 4390 m a.s.l., 15 Sep 2003, 33°13' N, 78°22' E, L. Klimeš 5276 (PRA, no. det. 16240). – Parma La to Parma village, 4570–4750 m a.s.l., 22 Sep 2003, 33°46' N, 78°25' E, L. Klimeš 5281 (PRA, no. det. 16239, with dupl.). – Parma village to Sato village, 4350–5080 m a.s.l., 24 Sep 2003, 33°50' N, 78°18' E, L. Klimeš 5286 (PRA, no. det. 16238, with dupl.). – Parma village to Sato village, 4560–4630 m a.s.l., 23 Sep 2003, 33°48' N, 78°22' E, L. Klimeš 5283 (PRA, no. det. 16249).

10. *Taraxacum murgabicum* T. I. Vainberg, Fl. Tadzhikskoi SSR 10: 466, 371 (1991)

Type: Badakhshan, dolina r. Murgab (45 km nizhe k. Murgab), uroch. Niyazek, 3525 m, 18 Jun 1961, S. S. Ikonnikov 12044 (holo: LE, no. det. 15746).

Description: Plants small, roots many-headed. Leaves narrow, ± linear, usually 7–9 cm long, 3–6 mm wide, mostly undivided and entire, often with remote short patent teeth, sometimes with 2–4 pairs of linear-triangular acute lobules 1.5–3.0 mm long, ± patent or with slightly recurved apex; interlobes ± entire, ca 6–10 mm long, terminal lobe elongated, narrow, subacute; petioles narrowly winged, narrow, geen or pinkish. Scapes aranose, later sparsely so. Involucre rounded at thye base, small, 4–6 mm wide, inner bracts broad, 1.5–2.5 mm wide, less than 10, usually 8–10 mm long, dark green, ± flat to ± corniculate; outer bracts ± appressed, 9–14, usually ± not or slightly imbricate, the outermost ones

sometimes much narrower than the others, ca 5 mm long, 0.8 mm wide, outer bracts ovate lanceolate to lanceolate, 3.0–4.5 mm long, 1.5–2.0 mm wide, middle ones to 6 mm long and 2.2 mm wide, flat to corniculate, pale green to green, slightly suffused pinkish at thye apex, borders not distinct, ca 0.2–0.5 mm wide, whitish-greenish. Flowers numerous, outer ligules flat, probably whitish, striped pink greyish outside, inner ligules ± pale yellowish or also white, stigmas ± yellow or very pale yellowish-greyish, pollen present, ± irregular in size. Achenes robust, 4.5–5.0 mm long, 1 mm wide, sparsely tuberculate below, ± densely squamulose-spinulose above, spinules short, thin, erect, achene body gradually narrowing in thick (0.4–0.5 mm) conical cone ca 0.4–0.6 mm long, rostrum (immature !) ca 1–2 mm long, thick (ca 0.20–0.25 mm), pappus yellowish-white, ca 5 mm long.

Taraxacum murgabicum is quite similar to *T. luridum* in general appearance, the leaf shape and outer bracts. However, the achenes of the former are unique in the section, and yellow stigmas are also rather rare in the group. Further study is needed because the characters given in the description are based solely on the type plants.

11. *Taraxacum aksaicum* Schischk., Sist. Zam. Gerb. Tomsk. Univ. 19/1–2: 7 (1949)

T y p e : Altai, plato bliz r. Aksai, solentsevatyy lug [The Altai, plateau in the vicinity of the river Aksai, saline meadow], 23 Aug 1931, B. K. Schischkin (holo: TOMSK, n. v.; iso: LE, no. det. 6056).

D e s c r i p t i o n : Plants small; leaves numerous, narrow, ± linear to linear-oblanceolate in outline, usually 8–10 cm long, 0.8–2.0 cm wide, paler green, sparsely aranose to subglabrous, some leaves subentire, with remote pairs of short lobules, most leaves distinctly lobed, lateral lobes 3–5 (each leaf side), linear, remote, 0.2–0.6 (–1.0) cm long, ca 1.0–1.5 mm wide, entire, slightly downwards-pointing or less often ± patent, terminal lobe usually elongated, 1–2 cm long, ca 2 mm wide, interlobes long, entire, usually 1–2 mm wide, in outer, undivided leaves sometimes to 2.5 mm wide. Petioles narrow, unwinged, purplish at the base. Scapes aranose below the capitulum (also in the early summer old scapes long after fruit set), subglabrous below. Involucre rounded at the base, 7–8 mm in diameter, inner bracts dark green, narrow, ca 8–10 mm long, corniculate, rarely ± flat. Outer bracts appressed, ± numerous (16–19), imbricate, ovate to ovate-lanceolate, usually 3–4 mm long, 1.5–2.0 mm wide (even the innermost of them not exceeding 4.5 mm and ± lanceolate), the outermost ones often very small, ovate-lanceolate, ca 2.5 mm long and 1.0–1.5 mm wide, pale greenish, later middle part deeper greyish green, with broad but not sharply delimited borders 0.3–0.5 mm wide, all suffused reddish or pinkish in the distal part, corniculate to ± cornute. Flowers numerous, outer ligules ± flat, probably pale whitish-yellowish, striped grey-pinkish outside, ligule teeth pinkish, inner ligules also pale whitish-yellowish; stigma light greyish or pale greenish-yellowish; pollen present, irregular in size. Achenes (mostly not fully ripe but in the capsule attached to the sheet, a few seemingly ripe fruits are found) pale brownish (-greyish), 4.2–4.5 mm long, ca 0.9 mm wide, indistinctly narrowing in ca 0.4 mm thick cone ca 0.5 (–0.6) mm long; achene body almost smooth in the lower 3/4, ± sparsely spinulose and squamulose above (a combination of subdense squamulae or short spinules with sparse ± coarse acute spinules), rostrum thick (0.2–0.3 mm, which is even thicker than in the other species of the section), 2–3 mm long, pappus white, 5–6 mm long. Agamosperm.

The interpretation of this name is rather difficult because it is based on the type material only, which was collected late (August 23; a normal flowering time of plants in this section is mid June to early July, depending on altitude). Thus, the description of leaf shape should not be used as a decisive diagnostic character. *Taraxacum aksaicum* is close to *T. luridum* (both taxa share corniculate to cornute outer bracts, otherwise an uncommon character in the section) but its achenes are unique for plants in this section.

12. *Taraxacum chitralense* Soest, Bull. Brit. Mus. (Nat. Hist.), Bot., 2: 264 (1961)

Type: Chitral, Gohkir, 36°12' N 72°5' E, edge of bog, [flowers] pale yellow, 10000 ft., 12 Jun 1958, S. A. Bowes Lyon 898 (holo: BM!; iso: E, no. det. 11860).

Syn.:
= *Taraxacum schugnanicum* Schischk., Fl. URSS 29: 741 (1964). – Type: Tadzhikistan, Schugnan, uroch. Dzhausan-kus, v doline r. Shakh-dary [Shugnan, Dzhausan-kus site, valley of river Shakh-dara], 24 Jul [18]97, S. Korshinsky 1684 (holo: LE, no. det. 7963).

Description: Plants small, plant base subglabrous, with a slightly developed 'tunica' (of dry rests of old petioles). Leaves ± linear to linear-oblanceolate in outline, mid green to paler green, subglabrous, outer leaves ± entire, inner and middle leaves with remote teeth or lobules, the onner ones often ± lobed, lobes or lobules 2–4 (each side), patent to (less often) slightly recurved, triangular to narrowly triangular, 2–3 mm wide at the base, 3–4 mm long, ± acute; interlobes broad, usually (2.5–) 3.0–5.0 (–7.0) mm wide and usually 3–6 mm long, ± entire or with very sparse teeth, terminal lobe robust, often ± obtuse, 1.0–1.5 cm long, 3.5–7.0 mm wide. Petiole (?) pinkish to green, narrowly winged, usually at least 2 mm wide. Scapes ± sparsely aranose. Involucre rounded at the base, usually 6–7 (–8) mm wide at the base, inner bracts deep green, distinctly corniculate near the apex, usually to 10 mm long, ca 1.5–2.5 mm wide, outer bracts ± appressed, few (7–10), ± pale green with a darker median strip, often suffused pinkish in the upper part, distinctly corniculate, not to slightly imbricate, ovate, usually 4.0–4.5 mm long, 2.3–2.5 mm wide, with a rather indistinct membranous border ca 0.3–0.4 mm wide, ± glabrous or with a few thicker hairs at the apex. Flowers ± numerous, pale yellow or perhaps whitish-yellowish, outer ligules flat, striped dark grey outside, inner ligules ± flat, ligule teeth (probably) pinkish; stigmas greenish, dark outside, pollen absent. Achenes ± grey brownish, 3.5–4.2 mm long, 0.9–1.0 mm thick, subabruptly narrowing in thick conical cone 0.5–0.6 (–0.8) mm long, achene body ± densely spinulose above, spinules long, ± thin, erect; rostrum ca 4.5–5.0 mm long, pappus ± yellowish-white, ca 6 mm long. Agamosperm.

Taraxacum chitralense (see also *T. pojarkovae*) should be considered as a marginal taxon within the section *Leucantha*. Some features of outer bracts and achenes point to *T. badachschanicum, T. bicorne* and *T. koksaghyz*, a group traditionally classified in the section *Macrocornuta*.

Specimens seen: **Tadzhikistan**: Gorno-Badakhshanskaya AO, bassein r. Zapadnyj Pshart, u levovo pritoka Zapadnovo Psharta v 5 km nizhe ust'ya pritoka Dzhan-Kandy, 3660 m, 5 Jul 1958, N. N. Tzvelev 400 (LE). – Pamir, v 6 verst ot Pamirskovo posta po napravl. Zar-Kulja, zalivnyje luga po Murgabu, 10 Jul 1913, O. von Knorring 814 (LE). – Pamir, ot Pamirskovo posta do Karasu, 15 Jul 1901, Fedtschenko (LE, with dupl.). – Vostočnyj Pamir, luga pod sklon. Aktach, 5 Aug 1935, K. Stanjukovič (LE). – **Kyrgyzstan:** [vicinity of Tadzhikistan Border] Oshskij ujezd, u perepravy cherez Kyzyl-su, 1 Jul 1913, O. von Knorring 704 (LE, with dupl.).

13. *Taraxacum pojarkovae* Schischk., Fl. URSS 29: 546, 749 (1964)

Type: Zaalaiskiy khrebet – Pamir, bliz oz. Kara-kul', solonchaki [The Transalai Range – Pamir, vicinity of Lake Kara-kul, saline sites], 23 Aug 1934, P. Polyakov 605 (holo: LE, no. det. 6482; iso: LE, no. det. 15747).

Description: Plants small, of robust appearance (roots many-headed, thick). Leaves pale green, ± linear to linear-oblanceolate in outline, usually 4–6 cm long, 6–12 mm wide, outer ones usually undivided to remotely dentate, inner ones shallowly to deeply lobed, lateral lobes 2–4, narrowly triangular to linear-triangular, 1.5–2.5 (–4.0) mm long, patent to slightly recurved, interlobes broad, usually 2.5–4.0 mm wide, entire, terminal lobe broad (only slightly narrower than the widest dimension of the leaf), elongated, ± obtuse; petiole ± winged to narrowly winged. Scape aranose, at least below the capitulum. Involucrum ± rounded at the base, usually 7–9 mm wide, inner bracts dark green, slightly suffused reddish, corniculate, to ca 12 mm long; outer bracts ± appressed, not imbricate or inconspicuously so, 9–14, ovate-lanceolate, usually 4.0–6.0 (–7.5) mm long, 1.8–2.5 mm wide, subobtuse, corniculate, pale green with dark middle strip (sometimes wholly pale greenish), suffused pinkish above, glabrous, not ciliate. Flowers numerous, outer ligules flat, probably pale yellow, striped grey-pinkish outside, stigmas blackish green, pollen absent. Achenes ca 4.8–5.0 mm long, ca 1.0 mm thick, pale straw-brown, body sparsely tuberculate on ribs or almost smooth below , sparsely spinulose above (spinules small, thin, sometimes ± recurved), gradually narrowing in subcylindrical cone 0.9–1.3 mm long, ± thick (0.4–0.5 mm), immature rostrum ca 4 mm long, thicker, pappus yellowish white, ca 5–6 mm long. Agamosperm.

Similar to *T. chitralense* in many respects but different in having much bigger fruit with a cone totally different from that of *T. chitralense*. Both species are undoubtedly related and marginal to the section *Leucantha*, with an obvious affinity to the group of *T. neolobulatum* of the section *Macrocornuta* Soest., also inhabiting moist saline sites in Middle Asia.

14. ***Taraxacum album*** Kirschner et Štěpánek, **spec. nova**

Type: Asia Media, Kirghizia orientalis [Kyrgyzstan], Tian Shan centralis: ad pedem boreal. montis Pik Nansen in parte centr. vallis Inylchek, alt. 2800–2980 m s. m., coord. geogr.: 42°11' N, 79°36' 30" E, 16 Jul 1989, L. Businská & R. Businský, cultae sub no. JŠ 4177 (holo: PRA**,** no. det. 16707; iso: PRA, no. det. 16708, K, S)

Descriptio: Plantae agamospermae mediocres foliis angustis ambitu linearibus subglabris raro remote denticulatis vel sinuato-dentatis saepissime lobatis lobis lateralibus triangularibus 3–4 mm longis ad basin 3–4 mm latis patentibus acutis, foliis interioribus saepe profunde dissectis lobis lateralibus linearibus, interlobiis plerumque 3–4 mm latis lobo terminali foliis medianis indistincte evoluto, petiolis anguste alatis vel angustis saepissime violaceis. Scapi dense araneosi. Involucrum ad basin rotundatum usque ad subtruncatum 10–12 mm latum squamis interioribus 12–14 mm longis, viridibus vel glauco-viridibus corniculatis squamis exterioribus appressis numero 10–13 non imbricatis ovatis 6.0–7.5 mm longis 2.5–3.5 mm latis distincte corniculatis raro ecallosis obscure viridibus marginibus albidis (saepe roseolis in parte distali) distinctissimis ad ca 1 mm latis. Flosculi numerosi ligulis exterioribus cucullatis albis extus stria violaceo-grisea notatis ligulis interioribus cucullatis albis vel paulo rubescentibus, stigmatibus obscure atro-griseis antheris polliniferis (pollinis granula diametro valde variantia). Achenium pallide griseum plerumque 3.9–4.2 mm longum ca 1 mm latum corpore superne mediocriter dense spinuloso (spinulis longis robustis), in pyramidem cylindricam usque subcylindricam 0.8–0.9 (–1.0) mm longam mediocriter latam transiente, rostro tenui 4–5 mm longo pappo pallide lutescente 6.5–7.5 mm longo.

Fig. 10. – *Taraxacum album*. General habit. Del. A. Skoumalová.

D e s c r i p t i o n : Plants medium-sized. Leaves narrow, ± linear in outline, usually 7–10 cm long, (7–) 8–10 (–12) mm wide, usually bright green, subglabrous (sometimes with scattered aranose hairs on the petiole beneath), usually lobed, lobes acute, triangular, ± patent, usually 3–4 mm long, 3–4 mm wide at the base, some leaves often almost undivided (with remote teeth only) or remotely sinuate-dentate, the inner leaves usually deeply dissected into ± linear to linear-triangular, ± patent or slightly downwards-pointing lobes; interlobes of middle leaves usually 3–4 mm wide, often with small acute teeth near the distal margin of lobes, often entire; terminal lobe not distinct in middle leaves, up to 2 cm long in inner leaves; petiole narrowly winged in outer and middle leaves, narrow and unwinged in the inner ones, usually purple, midrib purple. Scapes densely aranose. Involucre rounded to slightly truncate at the base, usually 10–12 mm in diameter, inner bracts ca 12–14 mm in flower, dull green to glaucous-green, with reddish tips, corniculate, bordered; outer bracts appressed during anthesis, 10–13, not imbricate, ovate, 6.0–7.5 mm long, 2.5–3.5 mm wide, distinctly corniculate, rarely almost flat, middle part dark green, 0.6–1.2 (–1.5) mm wide, borders very distinct, whitish-membranous, often suffused pinkish (at least distally), margins membranaceous, 0.4–0.5 mm wide, gradually changing in pale whitish-greenish borders 0.5–0.8 mm wide, margins entire to irregularly denticulate (erosae), sometimes sparsely ciliate at the apex. Flowers numerous, outer ligules cucullate, pure white inside, striped purple-greyish outside, inner ligules cucullate, pure white to slightly white-pinkish, stigmas dark (greyish to blackish green), pollen sparsely present, irregular in size. Achenes pale greyish, usually 3.9–4.2 mm long, ca 1 mm wide, subabruptly narrowing in a medium thick, cylindrical to subcylindrical cone 0.8–0.9 (–1.0) mm long, achene body medium densely spinulose above, spinules long, coarse

(achenes robust), rostrum ± thin, 4–5 mm long, pappus pale yellowish, 6.5–7.5 mm long. Agamosperm. – Fig. 10, 13g.

The character of outer bracts and the dry habitat indicate close relations with the section *Suavia*. Achenes, flower colour and leaf shape qualify the species as a marginal member of *Leucantha*.

15. ***Taraxacum occultum*** Kirschner et Štěpánek, **spec. nova**

Type: Mongolia borealis, opp. Suche-Bator [Süchbátar, Süchbaatar], pagus Šamar [Shamar]: in alluvionibus fluminis Orchon [Orkhon gol], 10 Jul 1987, V. Petrovskij, culta sub no. JŠ 3142 (holo: PRA, no. det. 16711; iso: PRA, no. det. 16712, K, S, and Taraxaca Exs., no. 702).

Descriptio: Plantae agamospermae mediocres foliis ambitu ± linearibus sparse araneosis plerumque profunde dissectis lobis lateralibus numero 5–7 utrobique linearibus patentibus interlobiis angustissimis integris vel lobulo unico praeditis lobo terminali angusto acutoque petiolis angustis purpurascentibus. Scapus araneosus. Involucrum ad basin ± rotundatum 7–8 mm latum squamis interioribus saturate viridibus planis, saepissime 11–14 mm longis, squamis exterioribus adpressis numero 10–13 ± imbricatis apice ecallosis squamis extimis late ovatis usque ovatis 5.0–5.5 mm longis 3.5–4.0 mm latis, eis mediis ad 6.5–8.0 mm longis 2.0–2.5 mm latis, obscure viridibus marginibus distinctis albido-membranaceis 0.7–1.4 mm latis. Flosculi numerosi ligulis exterioribus planis luteis extus stria rubro-grisea notatis ligulis interioribus ± planis luteis dentibus apicalibus roseolis, stigmatibus virescentibus obscure pilosis, antheris polliniferis (pollinis granula diametro valde variantia). Achenium griseum 4.1–4.4 mm longum robustum, 1.0–1.1 mm latum, corpore superne spinuloso (spinulis sparsis robustis) in pyramidem subcylindricam ad basin sparsissime spinulosam 0.9–1.0 mm longam ± sensim transiente rostro ± tenui ca 8 mm longo pappo albido 6.5–7.0 mm longo.

Description: Plants medium-sized. Leaves ± linear in outline, usually 8–12 cm long, 10–17 mm wide, mid-green to pale green, sparsely aranose to subglabrous, usually deeply dissected, lobes usually 5–7 (each side), linear, of variable length (2–) 5–8 mm long, ca 1 mm wide, patent, acute, only rarely some outermost leaves less deeply dissected, lobulate to lobed; interlobes very narrow, 3–8 (–10) mm long, usually 1.3–1.8 (–2.0) mm wide, entire or with a single lobule; terminal lobe narrow, acute, usually 1.0–2.3 cm long, 1.5–2.0 mm wide; petiole narrow, unwinged, faintly purplish to purple. Scapes aranose to densely aranose. Involucre ± rounded at the base, 7–8 mm wide; inner bracts deep green, darker and usually reddish at the apex, ± flat, usually 11–14 mm long; outer bracts appressed, 10–13, ± imbricate, outer of them broadly ovate to ovate, 5.0–5.5 mm long, 3.5–4.0 mm wide, middle ones 6.5–8.0 mm long, 2.0–2.5 mm wide, dark green, slightly reddish and flat at the apex, with distinct broad membranaceous to whitish borders 0.7–1.4 mm wide, glabrous (not ciliate). Flowers numerous, outer ligules flat, yellow, striped greyish red outside, inner ligules ± flat, yellow, ligule teeth pink; stigmas greenish with dark hairs, pollen present, irregular in size. Achenes greyish, 4.1–4.4 mm long, robust, 1.0–1.1 mm wide, ± gradually narrowing in a thick, proximally sparsely spinulose subcylindrical cone 0.9–1.0 mm long, achene body spinulose above (mainly on ribs), spinules ± sparse, thick, coarse, rostrum ± thin, ca 8 mm long, pappus white, 6.5–7.0 mm long. Agamosperm. – Fig. 11, 13h.

The combination of ovate, broadly bordered outer bracts and linear, patent leaf lateral lobes, thick cone and coarse spinules on the achene body characterize the species as a distinct member of the section.

Specimens seen: **Mongolia:** Suche-Bator [Süchbátar, Süchbaatar], pagus Šamar [Shamar]: in alluvionibus fluminis Orchon [Orkhon gol], 10 Jul 1987, V. Petrovskij, culta sub no. JŠ 3146 (PRA, no. det. 16713).

Fig. 11. – *Taraxacum occultum* . General habit. Del. A. Skoumalová.

16. ***Taraxacum inimitabile*** Kirschner et Štěpánek, **spec. nova**

Type: Mongolia australis, montes Gobijskij Altaj [Gobi Altai], opp. Dalandzadgat: in pascuo ad rivum in angustio Jolyn-Amt, Jul 1989, D. Blažková, culta sub no. JŠ 4165 (holo: PRA, no. det. 16709; iso: PRA, no. det. 16710, K, S, and Taraxaca Exs., no. 701).

Descriptio: Plantae agamospermae mediocres foliis ambitu ± linearibus araneosis profunde lobatis lobis lateralibus plerumque 5–8 utrobique ± patentibus usque subrecurvis linearibus acutis interlobiis angustis saepissime dente unico (vel denticulis sparsissimis) praeditis raro integris petiolis angustis inalatis. Scapus araneosus. Involucrum ad basin rotundatum 7–9 mm latum squamis interioribus saturate viridibus apicibus aterrimis corniculatis ad normam 12–13 mm longis squamis exterioribus arcte adpressis numero 14–16 imbricatis squamis extimis ± ovatis usque ovato-lanceolatis ca 5.0–5.5 mm longis 3.0–3.6 mm latis, eis mediis plerumque 5.5–7.0 mm longis 2–3 mm latis, saturate viridibus usque atro-viridibus planis vel callosis marginibus pallidis saepissime perangustis 0.1–0.2 mm latis. Flosculi numerosi ligulis exterioribus ± planis luteis extus stria griseo-rosea notatis ligulis interioribus subinvolutis vel planis luteis dentibus apicalibus ± luteis, stigmatibus griseo-viridibus obscure pilosis antheris polliniferis (pollinis granula diametro valde variantia). Achenium pallide griseo-brunneum 4.3–4.9 mm longum robustum, ad 1.2 mm latum, corpore superne mediocriter dense spinuloso (spinulis ad costas sparsis crassis robustis ceteris parvioribus) in pyramidem ± cylindricam 1.0–1.2 mm longam crassam ± sensim transiente, rostro crassiusculo 6–7 mm longo pappo albido vel paulum lutescente 7.0–7.5 mm longo.

Description: Plants medium-sized. Leaves ± linear in outline, usually 8–13 cm long, 13–25 mm wide, sparsely to densely aranose, mid-green to pale green, midrib purplish, deeply lobed, lobes usually 5–8 (each side), ± patent to slightly downwards-pointing, acute, ± linear, (5–) 6–10 (–13) mm long, 1.5–2.5 mm wide; interlobes ± narrow, usually 1.3–2.0 mm wide, 5–8 mm long, often with a single tooth, rarely few teeth near the distal base of the lobe, sometimes entire; terminal lobe usually 1.5–2.0 cm long, 3.0–4.5 mm wide; petiole narrow, unwinged, purplish. Scapes aranose to densely aranose. Involucre rounded at the base, 7–9 mm in diameter; inner bracts deep green, blackish at the apex,

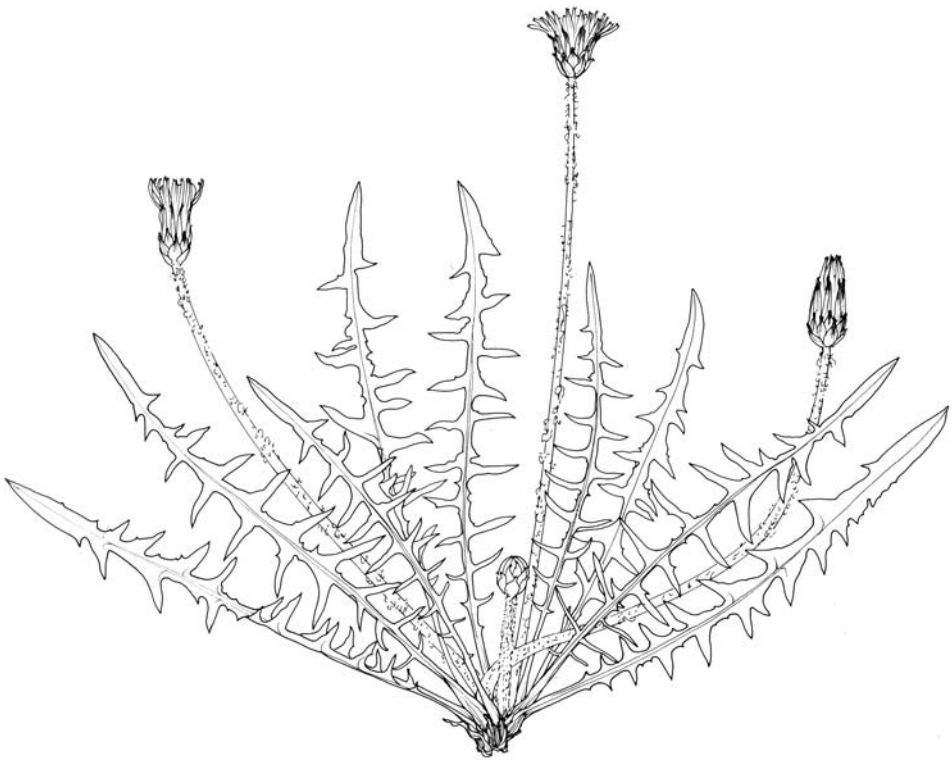

Fig. 12. – *Taraxacum inimitabile*. General habit. Del. A. Skoumalová.

corniculate, usually 12–13 mm long; outer bracts tightly appressed, usually 14–16, imbricate, the outer of them ± ovate to ovate-lanceolate, ca 5.0–5.5 mm long, 3.0–3.6 mm wide, middle ones usually 5.5–7.0 mm long and 2–3 mm wide, green to blackish green, flat to callose, sometimes slightly reddish at the apex, with a very narrow, 0.1–0.2 mm wide pale greenish margins (when bracts pale green, pale border usually wider, ca 0.2–0.4, rarely to 0.8 mm), bracts sparsely ciliate. Flowers numerous, outer ligules ± flat, yellow, striped dark grey-pinkish outside, inner ligules partially involute or flat, yellow, ligule teeth ± yellow; stigmas greyish green with darker hairs, pollen present, irregular in size. Achenes pale brownish-grey, 4.3–4.9 mm long, robust, up to 1.2 mm wide, ± gradually narrowing in a thick ± cylindrical cone 1.0–1.2 mm long (cone often with a few minute spinules in the proximal part), achene body medium densely spinulose, spinules on the ribs less dense, coarse, thick, otherwise smaller, rostrum thicker, 6–7 mm long, pappus white to pale yellowish-white, 7.0–7.5 mm long. Agamosperm. – Fig. 12, 13i.

The conspicuously imbricate outer bracts recall those of *T. ikonnikovii*, but the bract borders in *T. inimitabile* are much narrower and the bract colour is darker. The slightly brownish hue to the achene colour is unique in the section; the achenes are probably the thickest in the section. In the general character of the outer bracts and leaf shape, *T. inimitabile* is similar to *T. suasorium* of the section *Suavia.* The latter is best distinguished by much broader border to the outer bracts.

The problem of the interpretation of the name *Taraxacum dealbatum*

During a detailed study of the plants suspected to belong to the section *Leucantha*, we came across numerous herbarium sheets (about 30) with plants identified by H. Handel-Mazzetti as *T. dealbatum* or *T. sibiricum* before 1907. The latter name was replaced by the name *T. dealbatum* on the labels after 1905 when H. Dahlstedt published his *T. sibiricum*. Most of these herbarium specimens later appeared as syntypes of the name *T. dealbatum* Hand.-Mazz. 1907. Both the protologue and the examination of the syntype material show that Handel-Mazzetti intended to describe a species of the section *Leucantha*, with white or pale yellowish flowers and the characteristic achenes with coarse spinules and a thicker cone. However, the typification of the name poses a serious problem: the syntype plants are considerably heterogenous taxonomically, the interpretation of their characters (particularly the flower colour) is not always correct and the knowledge of the dandelion flora of the relevant regions (Mongolia, China, Turkestan and East Siberia) remains rather fragmentary. Thus, the protologue represents an assemblage of almost incommensurable elements.

Analysis of the syntype material

It was possible to identify many of the authentic plants taxonomically to the agamospermous species level. Several of them belong to *Taraxacum sinicum* (Mongolia, Ordos, Czökul-Czaidam, Potanin, LE, K; Huang-he, Przewalski, WU, LE; Kansu, Przewalski, WU; Tibet occid., Hooker, W; alpes Nanshan, Przewalski, LE; Zaidam, Roborowski, WU; Orok-nor, Potanin, K, two duplicates at LE). Another four might belong to *T. sinicum* but identification would be unsafe (Altai, WU; distr. Minussiensis, Turczaninov, LE; Kuen-lun, Roborowski, WU; Batang, Potanin, WU). Two Altai collections (Ledebour, W; sine coll., LE) belong to *Taraxacum leucanthum*. Another two collections (Kuen-lun, and East Zaidam, both Roborowski, LE) belong to *Taraxacum armeriifolium*. It should be noted that the Kuen-lun collection was annotated by Roborowski as having yellow flowers but the note was overlooked by Handel-Mazzetti (it was written in cyrilic). One specimen (not cited in the protologue but identified as *T. dealbatum* by Handel-Mazzetti before 1907) belongs to *T. stenolobum* Schtschegl. Another four syntypes were not identified.

There is a group of syntypes and authentic specimens important for the typification of the name, which come from the vicinity of Nerczinsk in the Chita Region (and other regions of Russian Transbaikalia). In the herbarium of St. Petersburg (LE), there are two of the syntypes (both collected by Turczaninov in "Dahuria nerczinensis" and identified by Handel-Mazzetti); together with a number of other collections from the same region they represent material that is in full accordance with the protologue (the description and, in particular, the drawing of flower head and achene, Handel-Mazzetti 1907: Plate I, fig. 9a, 9b). Judging from the notes of collectors and from the material itself, they have white or whitish outer ligules and ± pale yellowish inner ones, and their achenes have a relatively thick cone ca 1 mm long. This morphologically homogenous group of plants and their full match with the protologue led us to interpret the name *T. dealbatum* to include the Nerczinsk plants (see the list of material below).

Another four syntypes seen by us (and several duplicates) were collected by Karo under no. 427, sometimes 427a, b (under the name *T. ceratophorum*) near Nerczinsk (BRNM

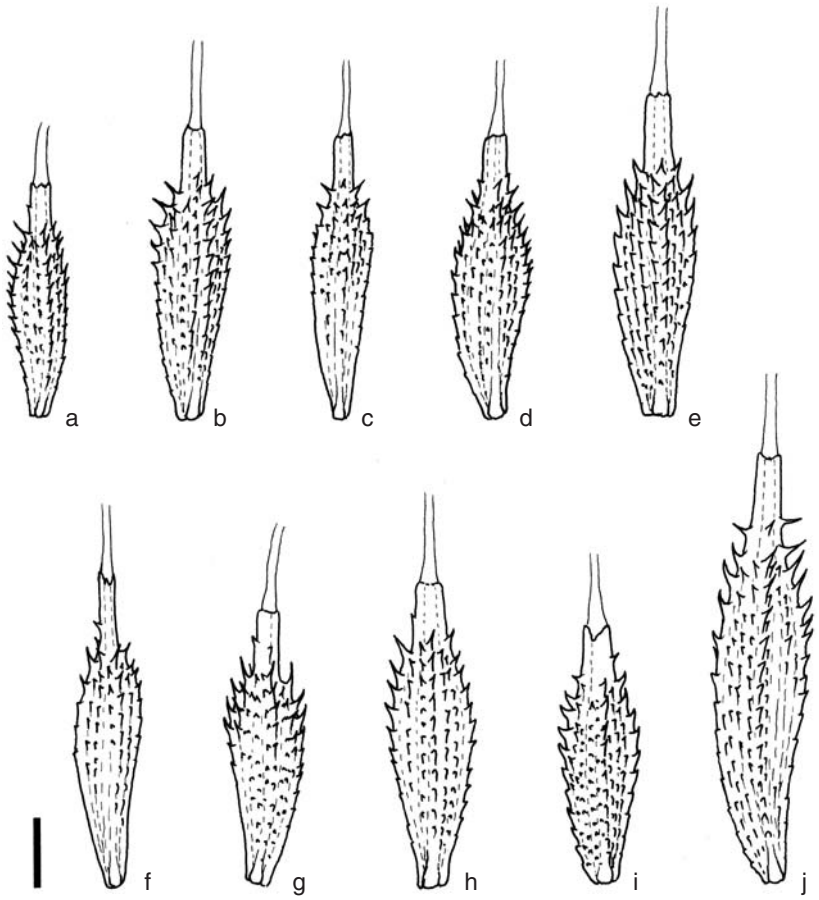

Fig. 13. – Achenes of the new species and their relatives: a – *Taraxacum leucanthum*; b – *T. niveum*; c – *T. candidatum*; d – *T. flavidum*; e – *T. ikonnikovii*; f – *T. luridum*; g – *T. album*; h – *T. occultum*; i – *T. inimitabile*; j – *T. virgineum*. Bar = 1 mm. Del. J. Štěpánek.

– two specimens, K, PRC, W, WU etc.). The exsiccate is not taxonomically homogenous and most of the plants are quite close to the Nerczinsk material collected by Turczaninov but have achenes with narrower cones, usually 1.0–1.4 long and pale flowers (but the name given to the plants by Karo does not imply any paler colour). One of the herbarium specimens deposited at BRNM (no. det. 16537), however, is in all respects identical with the syntypes selected as a guide for the interpretation of the name below. In particular, it has a cone ca 0.4 mm thick (up to 1.0 mm long). This set of collections was also included as a syntype in the protologue of *T. sinense* Dahlst., see *T. sinicum* above, and Dahlsted attributed the paler colour of flowers to the method of drying. As far as the material and our knowledge of the variation go, the Karo plants are white- or whitish-flowered. A field study in the Nerczinsk area may reveal that most of the Karo plants fall within population variation or plasticity limits of *T. dealbatum* as understood here. However, for the sake of clarity of our concept, we keep most of the Karo material as a potentially separate entity.

17. *Taraxacum dealbatum* Hand.-Mazz., Monogr. Gattung Tarax. 30 (1907)

Syntypes representing the present concept of the name: In salsis Dahuriae nerczinensis, 1831, Turczaninov, identified as *Leontodon bicolor* m. var. (LE), later det. by Handel-Mazzetti as *Taraxacum sibiricum* mh. – In salsis Dahuriae Nerczinensis, sine dato, Turczaninov, identified as *Leontodon bicolor* var. (LE), later det. by Handel-Mazzetti as *Taraxacum dealbatum* mh. – Sumpfwiese um Nerczynsk, 1892, F. Karo, identified as *Taraxacum ceratophorum* (BRNM, no. det. 16 537), later det. by Handel-Mazzetti as *Taraxacum dealbatum* mh.

D e s c r i p t i o n : Plants medium-sized, during later development becoming tall, subrobust. Leaves mid-green to slightly bluish green, usually aranose, later often subglabrous, linear-oblanceolate in outline, the outer of them often shallowly lobulate to sinuate-dentate, middle leaves (those well developed during full anthesis) usually 7–13 cm long, (7–) 9–13 (–20) mm wide, deeply lobed to dissected, lateral lobes ± remote, usually 4–7 (each side), most often ± linear, 1.0–1.5 (–2.2) mm wide, entire, ± patent, usually curved upwards or straight; interlobes distinct, narrow, sometimes limited to midrib, ca 1.2–1.5 (–2.5) mm wide, entire, terminal lobe usually narrow, elongated, ± acute; petiole narrow, unwinged, purple. Scapes initially densely, later ± sparsely aranose. Involucre subconical at the base, ca 6–7 mm in diameter; inner bracts narrow, ca 11–14 mm long, ± flat to callose; outer bracts appressed, ca 12–18, imbricate, usually lanceolate to ovate-lanceolate, often narrowly acuminate from ± ovate base, outer of them usually 4.0–5.2 mm long, 1.6–2.5 mm wide, middle ones ca 6 mm long and 1.3–1.6 mm wide, apex callose, reddish, not ciliate, middle part deep green to dark green, ± distinctly and evenly bordered whitish, margins ca 0.3–0.5 mm wide, not sharply delimited. Flowers numerous, outer ligules probably ± white inside, striped pink to grey-pink outside, inner ligules ± flat, probably yellowish, ligule teeth pale reddish or grey-reddish; stigmas pale green with darker hairs, pollen present, irregular. Achenes ca 3.3–3.8 mm long, ca 0.9 mm wide, achene body rugose below, subsparsely spinulose above (spinules coarse, distinct), subabruptly narrowing in a subcylindrical cone 0.8–1.1 mm long, about 0.3–0.4 mm thick, rostrum ± thicker, ca 5.5 mm long, pappus pale yellowish, 5.5–6.0 mm long. Agamosperm.

Further material conspecific with the above three syntypes:

Russia, Transbaikalia: Zabaikal'sk. obl., okolo st. Zaigraevo [vicinity of Zaigraevo Station], 22 Aug 1925, V. Sukachev, N. Konovalev & V. Povarnicyn 64 (LE). – Okolo st. Zaigraevo, 22 Aug 1925, V. Sukachev 63 [collector's note: cv. rozovatye = flowers pinkish] (LE, with duplicate). – Zabaikal'sk. obl., Verkhneudinsk. u., Chitinskiy trakt, okr. pocht. st. Zolotukhino [Chita region, vicinity of mail station Zolotukhino], 24 Jun 1913, H. Poplawska 1001 (LE). – Zolotukhino, pod Debatkoi, 17 Aug 1913, H.. Poplawska 2663 (LE). – Zabaikal'sk. obl., Nerchinsk. okr., bassein r. Kuengi, dolina r. Areda [catchment area of Kuenga, valley of Areda R.], 24 Aug 1910, V. Sukachev & H. Poplawska 1516, det. by Handel-Mazzetti as *T. dealbatum* in 1911 (LE). – Zabaikal'sk. obl., mezhdu r. r. Nerchei i Kuengoi [Transbaikalia, between rivers Nercha and Kuenga], vershina nad [a hill above] Gichektuy po doroge v [along the road in] N. Kiyut, 18 June 1911, V. Sukachev & H. Poplawska 791 (LE). – Nerchinsk, v doline [in the vally of] Umykei, 10 Aug 1910, N. Kychakov (LE). – Buryato-Mongol'skaya ASSR, bassein r. [catchment of Kudara R.] Kudary, 4 Aug 1934, P. I. Kurskiy s. n. (LE).

18. ***Taraxacum virgineum*** Kirschner, Štěpánek et Klimeš, **spec. nova**

T y p e : India, Jammu & Kashmir, Ladakh: Tso Kar: Thukje, 4600 m, 4–5 Aug 2001, 33°20' N, 78°00' E, L. Klimeš 3695, (holo: PRA, no. det. 16532; iso: PRA, no. det. 16533, 16534).

D e s c r i p t i o : Plantae agamospermae pulchre albiflorae foliis saepissime lineari-oblanceolatis lobatis lobis lateralibus numero 2–3 utrobique recurvatis, late triangularibus integris, marginibus distalibus sigmoideis

interlobiis brevibus, lobo terminali lato elongato saepe subobtuso, petiolis late vel anguste alati, scapo araneoso, involucris ad basin rotundatis 8–10 mm latis squamis interioribus 11–13 mm longis, squamis exterioribus numero 10–13 laxe adpressis non imbricatis oblongo-lanceolatis obtusis 5–7 mm longis, 2.0–3.4 mm latis pallide marginatis corniculatis usque cornutis, flosculis numerosis planis vel cucullatis, ligulis exterioribus albis extus stria griseo-purpurea notatis, ligulis interioribus in parte distali albis, ad basin luteolis, dentibus apicalibus roseo-albidis vel purpurascentibus, stigmatibus viridibus obscure pilosis, antheris polliniferis (pollinis granula diametro valde variantia). Achenium saturate griseum 5.7–6.2 mm longum corpore ca 1.0–1.2 mm lato basi tuberculato, superne sparse spinuloso spinulis nonnulis tenuibus longis sursum curvatis, in pyramidem cylindricam mediocriter crassam 1.4–1.8 mm longam sensim transiente, rostro tenui 5–7 mm longo, pappo pallide lutescenti-brunnescente 5–6 mm longo.

D e s c r i p t i o n : Plants medium-sized to small, leaves ± glabrous, mid green, ± linear to linear-oblanceolate in outline, early outer leaves oblanceolate to spatulate, middle leaves ca 5–9 cm long, ca 7–11 mm wide, shallowly to deeply lobed, lobes 2–3 (4) on each side, broadly triangular, ± recurved, distal margin usually sigmoid, entire, proximal margin ± straight, entire, interlobes short, usually 2–3 mm wide (narrower in the innermost leaves), terminal lobe usually broad, elongated, subobtuse to subacute; mid rib greenish to purplish, petioles winged to narrowly winged. Scapes aranose, at least below the capitulum. Involucre rounded at the base, 8–10 mm in diameter; inner bracts usually 11–13 mm long, ± corniculate, outer bracts loosely appressed, 10–13, not imbricate (of ± equal length), oblong-lanceolate, ± broadly obtuse, usually 5–7 mm long, 2.0–3.4 mm wide, mid green with pale, membranous border 0.3–0.6 mm wide, often with a dark mid vein, corniculate to ± cornute near the apex. Florets ± numerous, outer ligules ± flat to cucullate at the apex, white, striped grey-purple beneath, inner ligules ± cucullate, distally white and yellowish at the base, ligule teeth whitish-pinkish to purplish; stigmas greenish with darker hairs; pollen present, irregular in size. Achenes ± deep grey, 5.7–6.2 mm long, achene body (1.0–) 1.1–1.2 mm wide, tuberculate to sparsely minutely spinulose below, minutely spinulose above, sparse spinules on achene ribs often very long, ± thin, often curved upwards, body very gradually narrowing in a medium thick (ca 0.4 mm), cylindrical cone 1.4–1.8 mm long, withg a few spinules near the cone base, rostrum ± thin (ca 0.15 mm), 5–7 mm long, pappus pale yellowish-brownish, ca 5–6 mm long. Agamosperm. 2n = 24 (J. Štěpánek, collection L. Klimeš 3695). – Fig. 9, 13j.

T. virgineum is very distinct in having large achenes with a long cylindrical cone, relatively broad leaves with petioles of outer leaves winged, and, in particular, non-imbricate, obtuse and horned outer bracts. The latter character points to other groups (similar shaped of the involucral bracts are found in many plants in the mountains of SW Central Asia, mainly the Pamir). On the other hand, most characters are in accordance with the pattern of *Leucantha* and this new species is considred to be a marginal member of that section.

S p e c i m e n s s e e n : **India, Jammu & Kashmir, Ladakh**: Below Narbu La to Tso Moriri, 4800 m, 22 Aug 2001, 32°50' N, 78°20' E, L. Klimeš 3849 (PRA, no. det. 16536). – More and Pongmaru, 4800 m, 30 Aug 2001, 33°10 'N, 77°50' E, L. Klimeš 3687 (PRA, no. det. 16535). – Tso Kar: Thukje, 4600 m, 4–5 Aug 2001, 33°20' N, 78°00' E, L. Klimeš 3817 (PRA).

Notes on an excluded taxon

Taraxacum lineare Worosh. et Shaga, Nov. Sist. Vyssh. Rast. 1968: 230 (1968).

Type: [Russia] Prov. Chabarovskensis, distr. Verchneburejensis, 6 km infra pag. Czekunda, 22 Jun 1964, V. Schaga 77 (holo: LE, no. det. 6043).

The enigmatic *T. lineare* is characterized by blackish, distinctly whitish bordered outer bracts, very narrow leaves, yellow flowers and extremely long cone to the achene (ca 2 mm). Outer and inner bracts are rather few (about 7–11), achene rostrum is long (8–9 mm), and the achene body is covered with relatively small spinules.

The above set of characters, particularly those of the achenes, and the distribution outside the known range of the section *Leucantha* led us to the conclusion that *T. lineare* does not belong to the section revised in the present paper. However, we hesitate to classify the species as a member of any of the dandelion sections known from the Far East.

Doubtful names

Taraxacum asiaticum Dahlst. var. *lonchophyllum* M. Kitagawa, Bot. Mag. (Tokyo) 47 (no. 364): 827 (1933). – Type: Mukden sive Feng-t'ien, K. Yamasuta 312 (holo: TI, n. v.)

The detailed description and the figure refer to a taxon quite close to the section *Stenoloba*; certainly the section *Leucantha* can be excluded. However, as we have not seen the type, we have to postpone the interpretation of the name.

Taraxacum yinshanicum Z. Xu et H. C. Fu in Y. C. Ma, Fl. Intramong. 6: 330 (1982). – Type: Daqingshan, Baichazigou, 16 Jul 1973, Ma Yu-chuan 103 (holo: NMU, n. v.).

The detailed description and the drawing show a species closer to the section *Mongolica* (very broad achenes, over 1.2 mm) although the section *Stenoloba* cannot be totally excluded. Further study is needed.

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Souhrn

Taxonomická revize sekce *Leucantha* přináší zpřesněnou definici sekce (je charakterizována kombinací znaků: přitisklé a bělavě nebo blanitě lemované vnější zákrovní listeny, dosti často bílé, bělavé nebo světle žlutavé květy, nažky s řidšími a hrubými osténky a válcovitou tlustou pyramidou, s poměrně krátkými a silnějšími zobánky; nejčastějším stanovištěm jsou vlhké zasolené louky, pastviny a břehy). Sekce zahrnuje převážně apomiktické rostliny (sexualita je vzácná a geograficky omezená) z velké oblasti centrální Asie (od východního a Vnitřního Mon-

golska přes jižní Sibiř, Mongolsko, severní Čínu až po východní Kazachstán, Kyrgyzstán, Tádžikistán, na jih pak po indický Ladák, Pákistán a severovýchodní Afghánistán). Sekce zahrnuje 18 druhů, které jsou v předložené práci podrobně charakterizovány, vč. seznamu studovaných herbářových položek. Sedm druhů je popsáno nově: *T. niveum* z jižní Sibiře a severní Číny, *T. candidatum* z Indie, Tádžikistánu a Afghánistánu, *T. flavidum* z Mongolska a východní Sibiře, *T. album* z Kyrgyzstánu, *T. occultum* a *T. inimitabile* z Mongolska, a *T. virgineum* z indického Ladáku. U dvou přijatých jmen, *T. sinicum* a *T. dealbatum*, byla provedena detailní analýza syntypového materiálu, což umožňuje přesnou interpretaci jmen. Pro zajištění správné interpretace jména *T. luridum* byl vybrán epityp (rostlina z Ladáku, mající květy i plody).

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