

INTERPRETATION OF SOME OLDER *TARAXACUM* NAMES FROM ASIA

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Selected old *Taraxacum* (Compositae) names, either neglected or commonly misinterpreted in the literature, are evaluated on the basis of authentic material. *Taraxacum dissectum* (Ledeb.) Ledeb. is shown to be confined to SC Siberia and conspecific with *T. baicalense* Schischk. *T. lyratum* (Ledeb.) DC. is confined to the Altai; it is absent from N America. *T. eriopodium* DC. and *T. wattii* Hook.f. proved to belong to a single sexual widely distributed species. *Taraxacum parvulum* [Wall. ex] DC. is shown to be conspecific with *T. himalaicum* Soest.

Keywords. Nomenclature. *Taraxacum*, *Taraxacum dissectum*, *Taraxacum eriopodium*, *Taraxacum himalaicum*, *Taraxacum lyratum*, *Taraxacum parvulum*, *Taraxacum wattii*, taxonomy.

INTRODUCTION

During a revision of sectional nomenclature and taxonomy of *Taraxacum*, a number of older names have been found to be misinterpreted or neglected in the important literature. We have chosen a few more important names, common sources of confusion, and selected the lectotypes for them or interpreted the original types.

Most of the specimens studied by us are given our determination numbers (no. det.) in order to facilitate precise identification of specimens dealt with, particularly in the case of mixed gatherings, multiplicates, etc.

1. *Taraxacum dissectum* (Ledeb.) Ledeb., Fl. Ross. 2: 814 (1846).

Basionym: *Leontodon dissectus* Ledeb., Mém. Acad. Sci. Pétersb. 5: 555 (1812). Type: 'ad Lenam' [collector unknown: 'ded. [=dedit] auctor', herb. Meyer] (lecto., LE, selected by Tzvelev in Schischkin, 1964; no. det. 6130).

Syn.: *Taraxacum baicalense* Schischk. in Fl. URSS 29: 747 (1964). Type: 'Baikal. Tagota.', 28 vi 1928. *Sukatshev et al.* 318 (holo. LE, no. det. 6052; iso. LE, no. det. 6131 etc.).

The name *T. dissectum* has appeared in very different concepts in the literature. Several taxa of two or three sections are included in *T. dissectum* of Handel-Mazzetti (1907: 47–50). Van Soest (1954, 1966, 1969), in accordance with the C European tradition, also reported *T. dissectum* to occur in the W Alps and the Pyrenees, and published a new section *Dissecta*. It was Tzvelev (in Schischkin, 1964) who correctly treated *T. dissectum* as an exclusively NC Asian plant. On the basis of studies of the

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Pyrenean plants and typical Siberian members of section *Dissecta* in the field and/or in cultivation, and of authentic material of the relevant taxa, we conclude that *T. dissectum* is confined to the region of Baikal Lake and the upper Lena River in S Siberia. The taxon was also described by Schischkin (1964) as *T. baicalense*.

Taraxacum dissectum is a plant with its base covered with dry remains of old petioles ('tunica'), leaves deeply dissected, hairy, lobes \pm linear, often dentate at distal margin base, interlobes often dentate or lobulate, scapes densely hairy, outer bracts adpressed, flat, ovate to ovate-lanceolate, (3.5–)5–6mm long and (1.5–)3.5–4.0mm wide, with dark green middle strip and distinct broad white margin, stigmas pale green, pollen present, irregular, and achenes greyish straw-brown, (4.0–)4.4–4.6mm long and 0.8–0.9mm wide, gradually narrowing to a narrow cylindrical cone 0.8–1.0mm long, achene body almost smooth below, \pm densely spinulose above, spinules thin, long, acute, rostrum c.6mm long, pappus white, c.6–7mm long. *Taraxacum dissectum* is an agamospermous species.

Additional specimen examined. Baikal Region, 'Balagavische Steppe, Mamerka', Cajander 1901 (S. no. det. 9250).

Most of these characters (except for relatively large achenes) are characteristic of the whole section *Dissecta* that dominates the *Taraxacum* flora of substeppe and dry secondary habitats in SC Siberia (the section is not adequately represented in herbaria because of the relatively early flowering time). At the same time, the above features clearly conflict with those of the Pyrenean and W Alpine plants called *T. dissectum* by Handel-Mazzetti and van Soest (op. cit.).

2. *Taraxacum lyratum* (Ledeb.) DC., Prodr. Syst. Natur. Reg. Veg. 7/1: 148 (1838). Basionym: *Leontodon lyratus* Ledeb., Fl. Altaica 4: 152 (1833) (et Ic. Pl. Nov. Imperf. Cogn. Fl. Ross. Alt. 5: 27 (1834)). Type: 'In lapidosis summae alpis ad fl. Tschuja contra ostium fl. Tschegan legit cl. Bunge' (lecto. selected here (top left plant), hb. C.A. Meyer, LE, no. det. 6075; iso. LE, no. det. 6074, G-DC!, K, no. det. 8791).

The name *T. lyratum* is one of the oldest ones for small plants of the section *Arctica* Dahlst. It was Handel-Mazzetti (1907) who introduced a broad concept of the name, and included a number of specimens from a wide range of N American localities in it. He was followed by Sherff (1920), who evidently misunderstood the nature of variation in *Taraxacum*, and included a series of taxa of at least two sections in his *T. lyratum*. Since then, the problem has been thoroughly studied by Haglund (1946) and Tzvelev (in Schischkin, 1964); both these authors arrived at the conclusion that *T. lyratum* represented a species absent from N America. In spite of these unequivocal results, *T. lyratum* appeared again in the recent checklists of the N American flora (Shetler & Skog, 1978; Kartesz, 1994). Thus we have returned to this problem after collecting *T. lyratum* in the Altai and studying the original material of it.

It was A. Bunge who collected 'ein neuer *Leontodon*' (Ledebour, 1830: 145) on 19 July 1826 'auf dem steilem Gerölle' on the slopes of the Kuraiskij Chrebet in the Altai, not far from the place where the river 'Tschegan in die Tschuja mündet'. The

same locality appears in Ledebour's *Flora Altaica* (1833). A detailed drawing of authentic plants was published by Haglund (1946, fig. 2). Neither the lectotype (selected by Tzvelev in Schischkin, 1964) nor the isotypes have ripe achenes, however.

We have visited the region explored by Bunge and, on 3 and 4 July 1988, the Kuraiskij Chrebet was studied approximately at the Bungean locality. Plants fully corresponding to the type collection were sampled there, and some of them yielded achenes in cultivation later. Thus we are able to complete the description and evaluation of morphology and ecology of *T. lyratum* sens. str.:

Taraxacum lyratum has a very specialized ecology. At the locality (slopes of Mt Aktash in the Kuraiskij Chrebet, no. det. 12231 in the herbarium of the authors), it grew within the range of 2600–2800m, exclusively on very fine, mobile, \pm dry scree. It was the only *Taraxacum* taxon growing on this type of habitat, and the root morphology shows major adaptations to it. Unlike other *Taraxaca* (taprooted), *T. lyratum*, otherwise a dwarf plant, develops a complex branched system of very long (up to 80cm, as far as observed), thin, pliable roots able to survive the movement of the substrate. This is a phenomenon not known in any other *Taraxacum* of the section *Arctica*, nor in other dandelions.

Leaves and outer bracts of *T. lyratum* were described in detail and illustrated in Haglund (1946); other important characters are also given there. *Outer bracts* of *T. lyratum* lack a paler border, are usually ovate to ovate-lanceolate, (3.5–)4–4.5mm long and (1.5–)2.0–2.5mm wide, corniculate near the apex, not numerous (c.7–9). *Flowers* are yellow, ligules slightly striped greyish outside, stigmas yellow to greyish yellow, pollen present, irregular in size. *Achenes* are pale straw-brown (slightly greyish), 3.9–4.2mm long, cone not distinct, achene body smooth, \pm gradually narrowing to a thicker rostrum c.3–4mm long, pappus white, c.5mm long.

The above combination of ecological and morphological characters clearly differs from any Arctic-Siberian or Alaskan taxon studied by us. *T. lyratum* should be classified as a member of the section *Arctica* Dahlst. So far as the material goes, *T. lyratum* seems to be confined to the Altai; very probably it is absent from N Siberia, and almost surely from N America (no *T. lyratum* from outside the Altai has been found in the material from ALA, BM, K, LE, W, WU). In our opinion, most of the recent confusion about *T. lyratum* in N America is a consequence of a mistake in Fernald (1933: 373) who supposed that it had been described from 'the region of Behring Straits'.

3. *Taraxacum eriopodum* DC., Prodr. Syst. Natur. Reg. Veg. 7/1: 147 (1838). Type: [Nopalia 1821] Wallich, Numer. List, p. 112, no. 355a (lecto. selected here G-DC!; iso. K-W, no. det. 11726, BM, no. det. 11788).

Syn.: *Leontodon eriopodum* D. Don, Mem. Wern. Nat. Hist. Soc. Edinburgh 3 (1817–1820): 413 (1821). Type: 'Habitat in Nepaliae alpihus. Wallich.' (holo. — the specimen has not been traced).

Taraxacum wattii Hook.f., Fl. Brit. India 3: 401 (1882). Type: 'Silundi,

Pangee', c.3900m, *Watt* 2741 (lecto. selected here K, no. det. 8782; iso. E, no. det. 11769, 11770).

From the viewpoint of formal nomenclature, it should be explained why *Taraxacum eriopodum* DC. is not based on *Leontodon eriopodum* D. Don. De Candolle (loc. cit.) not only puts a question mark to the name *Leontodon eriopodum* but also adds a note about the differences between his species and Don's description ('*Species nostra differt a descriptione Doniana . . .*'). The two names are therefore treated as independently typified. Taxonomically, the description of *Leontodon eriopodum* given by Don (loc. cit.) corresponds to the characters of *Taraxacum eriopodum* DC. It should be added that not even Wallich himself was able to identify which of his plants had been examined, but not annotated, by Don.

In the Himalaya and adjacent regions, in the vast area from Pakistan to Bhutan, a distinct *Taraxacum* taxon occurs frequently, approximately from 3000 to 4500m. Full description of this taxon is given below; it is remarkable in having blackish outer bracts, brownish-hairy scapes and plant base, leaves with rounded terminal lobe and obtuse lateral lobes, and black stigmas. Plants of this appearance invariably have regular pollen, a reliable indication of sexuality. In spite of sexual reproduction, they exhibit little variability that usually concerns unimportant features, such as plant size, intensity of leaf lobation, etc. The only exception to this rule is the colour of achenes: in the populations of this taxon, both plants with red achenes and those with pale greyish ones occur side by side.

Not surprisingly, the species with this large geographical range has been given several names. The name *T. eriopodum* clearly belongs to this taxon (but none of the authentic specimens has achenes). A detailed examination of the original material of *T. wattii* Hook.f. has shown that it undoubtedly belongs to the same taxon. The latter name is based on plants with pale greyish achenes, but the specimens are rather poorly preserved and in a later stage of development. Van Soest (1963) correctly interpreted both names as belonging to the section *Tibetana* Soest but (unaware of the reproductive system of the plants in question) recognized them as separate taxa differing in achene colour. We have studied abundant material of this taxon in BM, K and E, and are convinced that in a sexual taxon mere achene colour variation cannot substantiate taxonomic separation if the variants coexist in the same population. Good proof of this opinion is provided by a set of duplicates from Sikkim (*Ludlow & Sherriff* 10079, E, no. det. 11774, and BM, no. det. 11773), where both colour variants are found in a single collection (see below).

We conclude that these Himalayan plants should bear the name *T. eriopodum* DC., and are characterized as follows:

Plants usually medium-sized. *Leaves* medium green to bright green, outer ones whitish-brownish araneous below (sparsely above), middle leaves usually subglabrous, but plant base brownish-hairy. Leaves 8–15cm long, usually 1.5–2.5cm wide, shallowly to moderately deeply divided into 3–4 pairs of distinctly obtuse (rounded apex) lateral lobes usually c.1cm long and c.1cm wide at the base, with minutely dentate

distal margin; terminal lobe usually broader than the others, obtuse, rounded, usually 1.5–3cm long. *Scapes* brownish araneous. *Involucrum* rounded at the base, 11–14mm in diam., inner bracts dark green, often bordered reddish, flat to corniculate, usually 12–14mm long. *Outer bracts* adpressed to erect, usually 16–18, not imbricate, dark green and suffused red (black when dry), callose to corniculate, (5.5–)6.5–7.5mm long, (2.0–)2.5–3.0mm wide, \pm lanceolate, without paler border. *Flowers* numerous, ligules flat, yellow, outer ones striped greenish grey, ligule teeth grey or pink. *Stigmas* dark (black when dry), pollen present, regular in size. *Achenes* deep red or pale straw-brown, 4.5–5.0mm long, \pm gradually narrowing to a conical cone with thick base, (1.0–)1.2–1.4(–1.5)mm long, achene body robust, 1.1–1.3mm wide, \pm densely spinulose above, spinules short, conical, acute, rostrum usually thicker, c.6mm long, pappus yellowish, 6–6.5mm long. Sexual. Flowers in late summer or autumn (July–October).

Selected additional specimens examined. KUMAON. Pendaree, 15 x 1848, *Strachey & Winterbottom* s.n. (K, no. det. 11716). *Wallich* s.n. (G-DC!, K, no. det. 11720, 11721, K-W, no. det. 11727).

NEPAL. Tharey, 1927, *Wigram* 70 (K, no. det. 11723). Lamjura Pass, 18 x 1976, *Schilling* 2202 (K, no. det. 11724). Annapurna, 14 ix 1954, *Stainton et al.* 8595 (K, no. det. 11785). Kimaling, 11 viii 1954, *Stainton et al.* 2366 (BM, no. det. 11786).

SIKKIM. Changu, 28 ix 1913, *Cooper* 978 (E, no. det. 11767). Nathu La, Gangtok – Yatung, 19 x 1942, *Ludlow & Sherriff* 10079 (E, no. det. 11774, BM, no. det. 11773).

BHUTAN. Zambuthang, Lingshi, 2 x 1984, *Sinclair & Long* 5466 (K, no. det. 11715). Shingche La, 23 ix 1984, *Sinclair & Long* 5278 (K, no. det. 11722).

TIBET. Chumbi, 28 viii 1913, *Cooper* 717 (BM, no. det. 11787).

4. *Taraxacum parvulum* [Wall. ex] DC., *Prodr. Syst. Natur. Reg. Veg.* 7/1: 149 (1838). Type: hoc loco: ‘Kamaon, no 357’ [dupl. from Wallich collection, leg. R. Blinkworth, sent to DC. in 1830] (lecto. selected here (upper plant) G-DC!; iso. K, no. det. 11725, E, no. det. 11766, K-W, no. det. 11729). *Leontodon parvulum* Wall., *Numer. List* [‘Catal.’], p. 112, no. 3247/357 (1831) [‘Kamaon RB’], *nom. inval.* [the name was distributed with isotypes].

Syn.: *Taraxacum himalaicum* Soest, *Bull. Brit. Mus. (Nat. Hist.)* 2/10: 267 (1961). Type: ‘Nepal. Pokhara’, 1954, *Stainton, Sykes & Williams* 4848 (lecto. selected here (top right plant) BM, no. det. 8420). *Taraxacum himalaicum* Soest f. *himalaicum*, sensu Soest in *Wentia* 10: 38 (1963).

The name *Taraxacum parvulum* DC., nomenclaturally important as the type of the section *Parvula* Hand.-Mazz., has been misinterpreted, overlooked or sunk in the synonymy since its appearance in 1838. Handel-Mazzetti (1907) includes it in *T. dissectum* (see above), and not even van Soest (1963: 34–35, 38–41) accepts it as a correct name of any of the numerous Himalayan taxa recognized by him. The latter author was very close to equating *T. parvulum* and *T. himalaicum* Soest but hesitated to do so because ‘As I made no notes on the achenes, when studying the Geneva specimen, I suppose they were not present in that sample; in h. K they are certainly lacking’ (van Soest, 1963: 40).

Our examination of the duplicates of *Wallich* 357 in K-W, K and E surprisingly revealed many ripe achenes in these specimens. Comparison between the original material of *T. himalaicum* and *T. parvulum* leaves no doubt that they belong to the same species (and form). In particular, the specimens share the following essential characters:

Plants small to medium-sized, *leaves* grey-green, almost glabrous. *Outer bracts* not numerous, usually 8–10, slightly imbricate, pale greenish, usually (4.0–)4.5–5.5mm long, (1.5–)1.8–2.3mm wide, \pm lanceolate, border distinct, whitish to membranaceous, 0.2–0.3mm wide; middle dark strip often developed. *Stigmas* pure yellow to pale greyish yellow, pollen present, probably regular. *Achenes* pale orange-brownish, 3.8–4.6mm long (including the cone), gradually narrowing to a conical, (0.8–)1.0–1.2(–1.4)mm long cone, achene body spinulose to sparsely spinulose above, spinules not numerous, usually thin, short. Rostrum c.6mm long, pappus 6–7mm, white.

Most of the specimens examined have almost regular pollen, which means that sexuality is very likely in this widely distributed Himalayan taxon. That is why we refrain from taxonomic evaluation of closely similar but aberrant plants known as *T. himalaicum* f. *kuluense* Soest. The latter taxon mostly includes plants with greenish stigmas, irregular pollen and greyish achenes (a single plant with greyish achenes is also found among those on the type sheet of *T. himalaicum* sens. str.), but requires further study, particularly on living material, and for the time being we suggest it is referred to as *T. parvulum* sens. lat.

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