

Two new *Taraxacum* species from the Inari region in northern Finland

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Two new *Taraxacum* L. species, *T. cariciphilum* Sonck & H. Øllg. and *T. rangiferinum* Sonck & H. Øllg., both belonging to the indigenous sect. *Taraxacum* (*Crocea* M. P. Chr.), are described, and a survey of localities is given. The importance of cultivation as a tool to understand the morphological variability of the species in this section is demonstrated.

Key words: new species, *Taraxacum*, taxonomy

In a work on the *Taraxacum* L. flora of Finnish Lapland Sonck (1991) listed and commented on the occurrence of *Taraxacum* species, excluding however the widely distributed and common indigenous group of species, which Dahlstedt (1930: 78) included in sect. *Spectabilia* Dahlst. as *T. croceum* Dahlst. (*coll.*). This taxon contains the genotype of *Taraxacum* and thus cannot keep the name sect. *Crocea* M. P. Chr. (Christiansen 1942: 255), but must be called sect. *Taraxacum*. The microspecies of this section have been poorly understood, primarily because of a lack of fundamental knowledge about their morphological variability in nature.

Dahlstedt (1930:82) assumes that *Taraxacum croceum* Dahlst. (*coll.*) consists of partially sexual plants which form a swarm of \pm stabilized hybrids with numerous character combinations, which fact impedes clearness at specific level. For

that reason, Dahlstedt (1930) reduces taxa in this group, described by himself as species, viz. *T. ceratolobum* Dahlst. and *T. repletum* Dahlst. to varietal status. Dahlstedt's assumption has never been confirmed.

A later detected method to easily control for instability in *Taraxacum* species, i.e. by controlling the pollen diameter, has convinced us that our two new species are fixed polyploids. The rather wide distribution of both *T. cariciphilum* Sonck & H. Øllg. and *T. rangiferinum* Sonck & Øllg. seems to confirm this. Last, but not least, the cultivations have shown a great uniformity of the offspring.

In our opinion, the morphological variability of the species in sect. *Taraxacum* is due to their great ability to adjust themselves to extreme ecological conditions in arctic and subarctic climate and to various types of soil. The understanding of



Fig. 1. *Taraxacum rangiferinum* Sonck & H. Øllg. — Spontaneous mother plants (lower row) and their respective progeny (upper row; collected VI.1986 after cultivation in the Botanical Garden of the University of Helsinki). The mother plants are indicated in the specimen list (see text) from left to right as “Kaa”, “460”, “450”, “509”, and “333”.

the morphological differences or matching of species within this group can be obtained by comparative cultivations, because the cultivated specimens develop several characteristics which are usually not, or only faintly, developed in the mother plant because of more stressing ecological conditions in the wild.

Both *Taraxacum caricophilum* and *T. rangiferinum* have been cultivated in the Botanical Garden, University of Helsinki, for a couple of years, and several specimens of the offspring have been conserved as voucher specimens for comparison with the mother plant. In fact, we were highly surprised that the progeny of six rather poorly developed, but still \pm different, mother plants of *T. rangiferinum* turned out to be six exactly identical rows (Fig. 1, where 5 of these parent–child sets are shown). We would hardly have dared to describe the two new species in this paper without being able to refer to the cultivations. In addition, after having studied the progeny it is easier to con-

clude what a “typical” specimen of the species is.

The uniformity of the cultivated specimens makes us conclude that the variability of a species in sect. *Taraxacum* is hardly well understood without cultivation experiments. Furthermore, the cultivated specimens show which characters should be taken into consideration when determining spontaneous specimens.

As a preparation for the second part of Sonck’s investigation the *Taraxacum* flora of Finnish Lapland (cf. Sonck 1991) we here describe two new species of sect. *Taraxacum*.

Taraxacum rangiferinum Sonck & H. Øllg., sp. nov. (Figs. 1–3)

Planta parva, ad (in habitibus optimis) 35 cm alta. Folia laete flavescenti-viridia–pure viridia, glabra–subglabra, tenuia–subtenuia, lobata, lobis lateralibus deltoideis, retroversis, dorso recto–pa-



Fig. 2. Holotype of *Taraxacum rangiferinum* Sonck & H. Øllg.

rum concavo integro vel (in speciminibus cultis) uno dente lato instructo, margine proximali fere recto integro, apice subobtusum-acuto, lobo terminali parvo-mediocri sagittato, interlobiis angulatis-(saepe) late rotundatis. Petioli ± alati, ut nervus medianus plerumque pallidi. Scapus subglaber, sub involucri magis araneosus, e basi pallida plerumque valde brunnescens. Involucrium circa 11 mm longum, circa 10 mm latum, laete-obscure viride, non pruinosum. Squamae exteriores horizontales - ± recurvae, tenues, plerumque circa 2 mm latae, circa 8 mm longae, pallidae, margine hyalino distincto nullo. Calathium 35-40 mm diametro, laxum, convexum, obscure luteum, ligulis marginalibus planis, subtus stria cano-violacea ornatis, denticulis terminalibus etiam florum interiorum obscure rubris. Antherae polliniferae. Stigmata virescentia. Achenium stramineum, 4.5 (raro ad 5.0) mm longum (pyramide inclusa), 1.0-1.1 mm latum (spinulis inclusis), superne spinulis medio-



Fig. 3. Achenes of *Taraxacum rangiferinum* Sonck & H. Øllg. (× 15). Photo by Tuuli Timonen.

criter validis plerumque rectis instructum, ceterum parce verrucosum-leve), pyramide subconica 0.3-0.5 mm longa. Rostrum 7-8 mm longum, pap-po albo 6-7 mm longo.

Holotype: Finland. Finnish Lapland, Inari Parish, NE end of the lake Paadarjärvi, sandy beach, 25.VI.1986 C. E. Sonck (H).

In sect. *Taraxacum*, *T. rangiferinum* is recognised by rather lax, polliniferous flowerheads, light yellowish green leaves with uniform usually entire and rather blunt, recurved lateral lobes, small to medium sized end-lobes and pallid, ± broadly winged petioles. In the whole plant brownish red colour occurs almost only in upper scape half, where the colour usually becomes intense. The buds are small, dark green without pruina, with small and thin, horizontal to recurved, outer bracts which are without a well-defined hyaline border. The achenes are straw-coloured, about 4.5 mm long, including a short (0.3-0.5 mm) ± conical cone.

Under optimal conditions, e.g., cultivation, *Taraxacum rangiferinum* produces a somewhat

higher number of sidelobes than in the wild, and these lobes usually have a conspicuous tooth on dorsal edge, which is rarely seen in spontaneous specimens of *T. rangiferinum*.

Among the species of sect. *Taraxacum* known by us, *T. subpellucidum* Railons. seems to be the closest morphological relative of *T. rangiferinum*, both of them having pallid petioles, glabrescent light green leaves with recurved, blunt to acute, sidelobes, \pm dark involucre with recurved thin outer bracts, and darkish yellow lax flowerheads with polliniferous anthers. Among the differences stated by us are: (1) a pronounced homophylly in *T. rangiferinum*, in contrast to heterophylly in *T. subpellucidum*; the latter has strap-shaped, almost entire outer leaves, and long narrow inner leaves with coarse teeth, which almost match the size of the lobes; (2) outer bracts width in *T. rangiferinum* about 2 mm, in *T. subpellucidum* 2.5–3 mm; (3) ligule teeth are yellow in *T. rangiferinum*, \pm red in *T. subpellucidum*; and (4) achene cone in *T. rangiferinum* 0.5 mm long or less, \pm conical, in *T. subpellucidum* about 0.75 mm, cylindrical.

Additional specimens examined (paratypes). — **Finland.** *Lapponia Inarenensis* (Li). Inari. Palomaa village, meadow or roadside, 24.VI.1967 C.I. Sahlin 077; Laanila, brookside, 25.VI.1967 C.I. Sahlin 11501, 11502; Samuttijärvi, 10.VII.1981 CES; Ivalo, Mattila, meadow, 7.VII.1982 C. E. Sonck; lake Akujärvi, brookside 2 km E of N end of lake Pieni Arttajärvi, 19.VIII.1982 C. E. Sonck (motherplant “509”, Fig. 1); Törmänen, river Ivalojoiki, Pajakoski, 2.VII.1983 C. E. Sonck; Törmänen, bank of river Ivalojoiki, 2.VII.1983 C. E. Sonck; lake Akujärvi, side of brook running from lake Harjajärvi to lake Iso-Arttajärvi, 4.VII.1983 C. E. Sonck; lake Akujärvi, upper end of lake Iso-Arttajärvi at mouth of river Arttajoki, 4.VII.1983 C. E. Sonck; by Ivalo hospital, 2.VII.1984 C. E. Sonck & H. Øllgaard; parish village, Terstojoki, 6.VII.1984 C. E. Sonck & H. Øllgaard; Menesjärvi, by brook from fjeld Vaatimenseisomapää, 9.VII.1984 C. E. Sonck & H. Øllgaard; parish village, shore of lake Solojärvi at Jurmunkoski, 9.VII.1984 C. E. Sonck & H. Øllgaard, 13.VII.1984 C. E. Sonck; lake Akujärvi, 1 km W of lake Kyörtisjärvi, by brook from fjeld Paaresoaiivi, 14.VII.1984 C. E. Sonck & H. Øllgaard (motherplant “450”, Fig. 1); lake Akujärvi, brookside on S slope of fjeld Paaresoaiivi, 14.VII.1984 C. E. Sonck & H. Øllgaard (motherplant “460”, Fig. 1); Törmänen, river Alajoki, by bridge, 17.VII.1984 C. E. Sonck (motherplant “333”, Fig. 1), 23.VI.1986 C. E. Sonck; Törmänen, Kerttuoja, 17.VII.1984 C. E. Sonck (motherplant “470” and progeny); Kaamanen, bank of river Kaamasjoki, N of bridge, 18.VII.1984 C. E. Sonck (motherplant “Kaa”, Fig. 1), 2.VII.1990 C. E. Sonck & H. Øllgaard; Törmänen, Palkisoja, ca. 1 km along road to Ruohokangas,

2.VII.1985 C. E. Sonck; lake Akujärvi, Raja-Jooseppi road, brook at Nangujärvi cross-roads, 26.VI.1986 C. E. Sonck; brook N of Palovaara, by a burned hut by road Palkisoja-Ruohokangas, 26.VI.1986 C. E. Sonck; by brook Vuoloaja E of small lake Peuralampi, by road Palkisoja-Ruohokangas, 26.VI.1986 C. E. Sonck; Törmänen, Tolonen, 27.VI.1986 C. E. Sonck; Kuttura-road, Hirvasvuopio, 29.VI.1986 C. E. Sonck; Kuttura-road, river Sotajoki, 29.VI.1986 C. E. Sonck; Akujärvi–Arttajärvi path, brook from NE to lake Jäkälämoroosto, 4.VII.1990 C. E. Sonck & H. Øllgaard; Akujärvi–Arttajärvi, near N end of lake Pieni Arttajärvi, 4.VII.1990 C. E. Sonck & H. Øllgaard; Ivalo, ca. 30 km E, Vanhapään morosto/Pieni Arttajärvi, 4.VII.1990 C. E. Sonck & H. Øllgaard; parish village, by brook nr. 2 flowing into lake Kontosjärvi (Kotkajärvi), 5.VII.1996 C. E. Sonck; Utsjoki, 2 km S of Mieraslompola, by river Kuktsejohka, 10.VII.1984 C. E. Sonck & H. Øllgaard. *Lapponia Enontekiensis* (Le). Enontekiö. Kilpisjärvi, W of lake Masehjavi, 13.VII.1986 C. E. Sonck. **Norway.** *Troms fylke.* Malangen. Vranen, birch forest with high-herb meadow between road and lake Lillevatn, 125 m, 16.VII.1967 C. I. Sahlin 06962. **Sweden.** *Torne Lappmark.* Vittangi congregation, Lainio area, Lainio village, ca. 310 m, 24.6.1964 C. I. Sahlin 15118.

Taraxacum cariciphilum Sonck & H. Øllg., sp. nov. (Figs. 4 and 5)

Planta parva—mediocriter (35 cm) alta. Folia laete canescenti-viridia, glabra—subglabra, tenuia—subtenuia, lobata, lobis lateralibus deltoideis, retroversis vel (praesertim in speciminibus cultis et magnis) magis patentibus, semper peracutis, saepe \pm acuminatis, dorso saepe dente conspicuo instructo, lobo terminali parvo acuto plerumque sagittato rarius hastato, interlobiis \pm alatis angulatis vel (in speciminibus cultis) late rotundatis. Petioli pallidi \bar{n} alati, nervo mediano plerumque pallide fusco-rubescente. Scapus subglaber, sub involucre parce araneosus, e basi pallida saepe brunnescens. Involucrum 11–12 mm longum, 9–10 mm latum, laete—obscure viride, non pruinosum. Squamae exteriores erectae, apicibus \bar{n} recurvis, 1.5–2(–2.5) mm latae, margine hyalino nullo vel inconspicuo. Calathium circa 45 mm diametro sublaxum convexum subobscure luteum, ligulis marginalibus subtus stria cano-violacea ornatis, denticulis terminalibus etiam florum interiorum obscure rubris. Antherae polliniferae. Stigmata obscure virescentia. Achenium stramineum circa 4.5(–5.0) mm longum (pyramide inclusa), ca. 1.2 mm latum (spinulis inclusis), superne spinulis mediocriter validis saepe \pm recurvis instructum, ceterum plerumque verrucosum (rarius fere



Fig. 4. Holotype of *Taraxacum cariciphilum* Sonck & H. Øllg.

leve), *pyramide subconica* 0.4–0.6 mm longa. *Rostrium* 7–8 mm longum. *Pappus* albus.

Holotype: Finland. Lapponia inarensis, Inari parish, at road towards Kuttura, about 14 km from Laanila, on top of *Carex juncella* -tuft in brook towards SW, 29.VI.1986 C. E. Sonck (H; isotype in the private herbarium of H. Øllgaard).

This species, in sect. *Taraxacum*, is a close relative of *T. ceratolobum*, with which it shares the multilobate leaves with pallid petioles and slightly reddish brown midribs, short endlobes, acute usually markedly dentate sidelobes which are reflexed with acute-angled interlobes, at least in well-developed fully exposed plants in nature. Cultivated plants and large specimens have more patent lobes with rounded interlobes. The main differences against *T. ceratolobum* are the larger, rather lax flowerheads which always produce pollen.

When travelling in Inari in the spring 1986 along a road to Kuttura, C. E. Sonck passed a brook running down a slope, in a SW direction. The snow had melted away and large tufts of *Carex juncella* (Fr.) Th. Fr. grew by the edges of the brook. On the top of these tufts, flowering *Taraxaca* could be seen. At first, this sight was rather bewildering. However, it can be quite easily explained: the melt-



Fig. 5. Achenes of *Taraxacum cariciphilum* Sonck & H. Øllg. ($\times 15$). Photo by Tuuli Timonen.

ing snow makes the brook overflow and the tufts remain in water for quite a long time with only their topmost part above water. Achenes of *Taraxaca* may then be caught there and begin to grow.

Additional specimens examined (paratypes). — **Finland.** *Lapponia inarensis* (InL). Inari. Parish village, on yard of Jurmunkoski house, 29.VI.1973 C. E. Sonck; Njurgulahti, by the house, 29.VI.1973 C. E. Sonck; Partakko, Kokkarinen, 11.7.1984 C. E. Sonck & H. Øllgaard (motherplant “410”, achenes sown IV.1985, progeny collected VI.1986); parish village, by road to Ronkajärvi, brook from fjeld Nukkumapää to lake Kaitamojärvi, 13.VII.1984 C. E. Sonck & H. Øllgaard; parish village, shore of river Juutuanjoki towards tourist hotel, 16.VII.1984 C. E. Sonck & H. Øllgaard; by river Karvajoki, at Kittilä road, 15.VII.1985 C. E. Sonck (motherplant “M-7”, achenes sown 1986, progeny collected VI.1987); Lemmenjoki, Njurgulahti, by small brook, 7.VII.1987 C. E. Sonck; by road Menesjärvi–Kittilä, bank of river Ivalojoiki W of bridge, 20.VI.1989 C. E. Sonck, 10.VII.1990 C. E. Sonck & H. Øllgaard, 15.VII.1995 C. E. Sonck. Utsjoki Parish. Välimaa, 7.VII.1979 C. E. Sonck; Garnjarga, 7.VII.1979 C. E. Sonck; Nuorgam, river Nivajoki, 7.VII.1979 C. E. Sonck; by Aurala store, 7.VII.1979 C. E. Sonck; Kuoppäniva, shore meadow of river Inarijoki, 27.VI.1983 C. E. Sonck; Nuorgam, 2.5 km from border, meadow by Aurala store, 1.VII.1983 C. E. Sonck; Kiviniemi, 1.VII.1983 C. E. Sonck; Nuorgam, meadow by Aurala warehouse, 9.VI.1988 C. E. Sonck; Kaava, 22.VI.1989 C. E. Sonck. *Lapponia enontekiensis* (EnL). Enontekiö Parish. Kilpis-

järvi, W of lake Masehjavri, 13.VII.1986 *C. E. Sonck*. **Russia**. By Petsamo road, between lake Raakkujärvi and old border, 21.VI.1954 *C. E. Sonck*. **Sweden**. Torne Lappmark. Jukkasjärvi congregation, Luopakte area, side-brook to river Sarvasjokk, ca. 100 m from it and 5.5 km from outlet of Sarvasjokk in lake Nakerijärvi, ca. 720 m, 3.VII.1949 *C. I. Sahlén 12701* (herb. H. Øllgaard).

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