Further new Taraxacum species (Asteraceae, Cichorieae) from northern Europe

Author: Øllgaard, Hans

Source: Willdenowia, 36(2) : 693-706

Published By: Botanic Garden and Botanical Museum Berlin (BGBM)

URL: https://doi.org/10.3372/wi.36.36205
Further new Taraxacum species (Asteraceae, Cichorieae) from northern Europe

Abstract


Five new species of Taraxacum from northern Europe (T. freticola, T. leptoscelum, T. nigrescens, T. opertum, and T. palmgrenii) are validly named, described and discussed, and their known distribution is presented. All are members of T. sect. Ruderalia. For two species known by illegitimate names (later homonyms), new names are proposed: T. homoschistum, T. longiconicum.

Key words: Compositae, dandelions, taxonomy.

Herbarium abbreviations follow Holmgren & Holmgren (1998-). A list of specimens seen, in addition to the type material, is given in an electronic supplement to this paper at http://www.bgbm.org/willdenowia/willd36/Ollgaard.htm

Holotype: Denmark, Nordjylland (N Jutland), “Distr. 11, Hadsund, “Hornbechsvej, ved en sti””, 56º43’0”N, 10º06’5”E, 2.5.1981, Øllgaard HØ-81-33 (C); isotypes: HØ-81-32 (B), HØ-81-29 (L), HØ 81-30, HØ 81-31 (S). – Fig. 1.

Planta mediae magnitudinis, 25-35 cm alta, rosula ± erecta. Folia pallide viridia, omnia lobata subglabra immaculata, petiolo anguste alato (vel in specimibus valde expositis late alato) pallido (in foliis interioribus rubescente), nervo medio viridi vel sordide brunnescente, striolis nullis. Lobus laterales utrinque c. 4 recruci integri deltoidei, margine distali convexo vel sinuato integro, apice subacuminato subacuto, margine proximali fere recto integro. Lobus terminalis foliorum exteriorum et mediorum mediae magnitudinis obtusiusculus, interiorum major fere obtusus. Interlobia bene definita angulata parum crispa, plerumque viridia. Scapus glabrescens,
Fig. 1. *Taraxacum freticola* – holotype specimen.
sub involuco valde araneosus. Involucrum viride parce pruinose. Squamae exteriores lanceolatae, 15-16 mm longae, 4-4.9 mm latae, plurumque leviter et sordide violascens, marginibus planis non hyalinis, apice non vel parce corniculato, curvato-reflexae. Squamae interiores latitudine inter se fere aequales. Calathium circa 55 mm diametro luteum modice densum convexum. Ligulae planae vel subcanaliculatae, denticulis apicalibus luteis, marginales subitus stria ipsius ligulae angustiore cano-rubescente ornatae. Antherae polliniferae, grana pollinis diametro variabilia. Stigmata virescentia. Achaenium fusco-stramineum, pyramide inclusa 4.2-4.4 mm longum, superne spinulis mediae longitudinis subrobusitis rectis instructum, pyramide 0.8-1 mm longa cylindrica laevi. Rostrum = 12 mm longum. Pappus albus.

As a member of Taraxacum sect. Ruderalia, T. freticola is a rather small to medium-sized species, 25-35 cm tall, with a ± erect rosette of very pale green, only indistinctly hairy, unspotted leaves. The petioles are narrowly winged (more broadly in fully exposed specimens), pale in outer and ± reddish in inner leaves. The midrib is green to indistinctly brownish and lacks striolate pattern. Alle leaves are distinctly lobed, with 4 lobe pairs. The side lobes are recurved, undivided, with the distal margin convex or s-curved, usually entire, and with a somewhat acuminate, medium acute tip. The proximal lobe margin is almost straight or irregular, entire or subulate-dentate. The terminal lobe of the outer and middle leaves is medium-sized, somewhat larger in the inner leaves, and usually almost obtuse. The interlobes are well differentiated, angular, only faintly plicate and usually green.

The scapes are mostly glabrescent but hairy under the involucres. The involucro is dark green, only faintly pruinose. The outer bracts are 15-16 × 4-4.9 mm, usually somewhat brownish violet tinged, regularly arranged, ± curved-reflexed. The margins of the outer bracts are flat, without hyaline border and without cornicuination near the tip. The inner bracts are almost equally wide, not coalescent. The flower head is c. 55 mm in diameter, medium yellow, medium dense, with a ± convex profile. The ligules are flat or canaliculate, with yellow apical teeth, the outer circle has a narrow, indistinct reddish grey stripe on the underside. Pollen is present, with grains of obviously varying diameter. The stigmas are discoloured.

The achenes are straw-coloured to greyish brown, 4.2-4.4 mm long (incl. the 0.8-1 mm long outer circle), cylindrical, smooth cone. The achene spinules are medium long, medium strong, straight. The rostrum is = 12 mm long. The pappus is white.

Discussion. – Because of its lobation and reflexed rather broad outer bracts Taraxacum freticola is best placed in an informal group of morphologically related species within T. sect. Ruderalia, series Retroflexa. In this group it stands out by its rather pale petioles, the almost obtuse end lobes, and the often dirty purplish, unbordered outer bracts. The somewhat acuminate lobe tips resemble those of T. oxyrhinum Sahlin which, however, has darker green leaves and only c. 3.5 mm wide outer bracts. Furthermore, the latter species usually has at least some obtuse lobe tips, and in some leaves the midribs tend to be brownish adaxially for almost the total length.

Distribution. – Denmark and Poland.


Notes. – This species was first described by Marklund (1926) as Taraxacum hastatum, and until 1982 (see below) that name was in common use. Saarsoo & Haglund (1962: 528) regarded T. hastatum Markl. and T. undulatiflorum M. P. Christ., published in 1936, as one species that they named T. hastatum, either being unaware of or ignoring Brenner’s earlier T. hastatum. Jokela (1963: 26) likewise maintained the name T. hastatum Markl., but included both T. undulatiflorum and T. hastatum Brenner in synonymy. In Hagendijk & al. (1982: 146) T. undulatiflorum is accepted and regarded as identical with T. hastatum Markl. but different from T. hastatum Brenner. However, the photograph in Hagendijk & al. (1982: fig. 205) is in fact T. hastatum
Fig. 2. *Taraxacum homoschistum* – specimen Brandt-Pedersen & Øllgaard HØ-03-21 (herb. Øllgaard) (see character tabulation in Table 1).

Fig. 3. *Taraxacum undulatiflorum* – specimen from Denmark, Jylland, Århus, 2.5.2002, Øllgaard HØ-02-183 (herb. Øllgaard) (see character tabulation in Table 1).

Taraxacum homoschistum and T. undulatiflorum are different but morphologically related, medium-sized species with ± pale leaf petioles and recurved, greenish to irregularly and slightly reddish outer bracts of medium length and width, and with medium-sized flower heads, polliniferous anthers and somewhat greenish stigmas. They are separated mainly by leaf characters, as seen from the photographs (Fig. 2 and 3) and Table 1.

**Distribution.** – Both species are known from Britain, the Czech Republic, Denmark, Finland, Germany, the Netherlands and Sweden, T. homoschistum also from Norway.


Holotype: Germany, “Hessen, Kreis Fritzlar: Fritzlar, vall i utkanten av staden mot SE” [cultivated grass field on the SE outskirts of the city], 51°07’2”N, 9°17’3”E, 7.5.1975, Sahlin 64661 (B). – Fig. 4.

**Planta** mediae magnitudinis sed sat gracilis, 20-35 cm alta, rosula ± erecta. **Folia** saturate viridia, omnia lobata subglabra immaculata, petiolo longo angusto rubri-purpureo, nervo medio viridi vel sordide brunnescente, striolis nullis. **Lobi laterales** utrinque (3-)4 recurvi integri deltoidei, margine distali plerumque regulariter convexo integro, apice subacuto, margine proximali fere recto integro vel parce subulato-dentato. **Lobus terminalis** foliorum exteriorum et mediorum parvus vel mediae magnitudinis, obtusiusculus, interiorum major. **Interlobia** ad medium folii longa (in partem distalem breviora), angusta, bene definita, angulata, parum crispa, parce piceata vel saepe viridia. **Scapus** glabrescens, sub involucro valde araneosus. **Involucrum** viride parce pruinosum. **Squamae exteriores** sat parvae (10-11 mm longae, c. 2.5 mm latae), lanceolatae, laete vel obscure virides, marginibus planis non hyalinis, apice non vel parce corniculato, ± patentes vel paulo curvato-reflexae. **Squamae interiores** latitudine inter se aequales. **Calathium** 45-55 mm diametro, modice densum vel densum, convexum, modice luteum. **Ligulae** planae vel par-tim subcanaliculatae, denticulis apicalibus luteis, marginales subitus stria ipsius ligulae angustiore rubro-canescentae ornatae. **Antherae** polliniferae, grana pollinis diametro variabili. **Stignata** virescentia. **Achaenium** fusco-stramineum pyramide inclusa 3.6-3.8 mm longum, superne spinulis mediae longitudinis modice robustis rectis vel recurvis instructum, pyramide 0.4-0.5 mm longa cylindrica laevi. **Rostrum** 10-11 mm longum. **Pappus** albus.

**Table 1. Comparison of leaf lobes of Taraxacum homoschistum and T. undulatiflorum.**

<table>
<thead>
<tr>
<th>Lobe pairs</th>
<th>T. homoschistum</th>
<th>T. undulatiflorum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disposition</td>
<td>very regular in density, shape and direction</td>
<td>irregular in density (often more spaced in proximal leaf half), shape and direction</td>
</tr>
<tr>
<td>Division</td>
<td>rarely (only in extreme modifications) clef by a deep incision</td>
<td>often clef by a ± deep incision</td>
</tr>
<tr>
<td>Distal half</td>
<td>± gradually narrowing towards the tip</td>
<td>usually ± linear</td>
</tr>
<tr>
<td>Proximal margin</td>
<td>at the base, perpendicular to the midrib</td>
<td>at the base, often antorse</td>
</tr>
<tr>
<td>Marginal teeth</td>
<td>if present, are small and mainly in the interlobes</td>
<td>usually present, especially on the lobe margins, but also in the interlobes, often very long</td>
</tr>
</tbody>
</table>
Fig. 4. *Taraxacum leptoscelum* – holotype specimen.
Taraxacum leptoscelum is a medium-sized but rather delicate plant for its section, 20-35 cm tall, with a ± erect rosette of pure green, glabrescent, unspotted leaves. The petioles are long, unwinged, distinctly to strongly purplish red. The midrib is green to faintly reddish or brownish and lacks a striolate pattern. All leaves are distinctly lobed, with mostly (3-)4 lobe pairs. The lobes are recurved and entire, usually with a regularly convex entire distal margin and a medium acute tip. The proximal lobe margin is almost straight, entire or subulate-dentate. The terminal lobe is small to medium-sized, or (in inner leaves) sometimes large, without a well-defined tip. The interlobes are usually unwinged, long in the middle part but shorter in the distal half of the leaf, flat, only faintly tar-blotched or often green.

The scapes are mostly glabrescent, but distinctly arachnoid under the involucre. The involucres are medium green to dark green, not (or indistinctly) pruinose. The outer bracts are rather small, 10-11 × c. 2.5 mm, lanceolate, light to dark greyish green, ± horizontal to somewhat curved-reflexed, their margins flat and unbordered and the tip without distinct corniculation. The inner bracts are not coalescent. The flower head in full bloom is 45-55 mm in diameter, medium dense to dense, with a convex profile, medium yellow. The ligules are flat or partly canaliculate, with yellow apical teeth, the outermost circle beneath with a narrow indistinctly reddish grey stripe. Pollen is produced, the pollen grains of distinctly varying diameter. The stigmas are discoloured.

The achenes are brownish grey, 3.6-3.8 mm long (including the cone). The cone is 0.4-0.5 mm long, cylindrical, smooth. The achene spinules are medium long, medium strong, straight to recurved. The rostrum is 10-11 mm long. The pappus is white.

Discussion. – Labels on the holotype sheet, by C. I. Sahlin and M. Kääntönen respectively, mention two species morphologically close to Taraxacum leptoscelum: T. deltoideum G. E. Haglund and T. distinctum H. Lindb. The latter resembles T. leptoscelum in having long, narrow and purple-coloured petioles, but the side lobes in T. leptoscelum are fewer (T. distinctum: 5-6 pairs), more strongly curved, the interlobes are longer, and the outer bracts more recurved. T. deltoideum is more robust, has greyish green leaves and somewhat broader, strongly reflexed outer bracts.

Distribution. – Czech Republic, Denmark, Germany, Poland and Slovakia.


Note. – Judging from the photograph (Railonsala 1976: 22) Taraxacum longiconicum belongs in T. sect. Borea (s.str.), a placement also supported by Railonsala’s (1976: 10) comment: “is closely related to T. remotijugum Lindb. fil.” (= T. humile Brenner), a member of T. sect. Borea. Railonsala’s (1977: 28) description of T. longipyramidatum confirms the sectional position, but apart from the remark cited above the protologue has no discussion of the species. Until now I have not been able to study original specimens, so that assessment of the exact affinity, and indeed confirmation of distinctness, of T. longipyramidatum must await further study.


Holotype: Denmark, distr. 34, Langeland, “Rudkøbing tds. E, road A 9 at 22.1 km, at the southern Longelse exit, moist mossy road verge”, 54°56'0''N 10°48'0''E, 8.5.2001, Brandt-Pedersen & Øllgaard HO-01-106 (C [2 parts of the same individual]). – Fig. 5.

Planta robusta mediae magnitudinis, 20-40 cm alta, rosula patente. Folia subcanescenti-viridia, omnia lobata subglabra immaculata, petiolo ± alato pallido, nervo medio viridi vel sordide brunnescente, striolis nullis. Lobi laterales utrinque 5-6 recurvi integri vel interdum profunde fissi, deltoidei, margine distali irregulariter sinuato vel convexo, integro vel interdum dente...
Fig. 5. *Taraxacum nigrescens* – holotype specimen.
Longo robusto praedito, apice modice acuto, margine proximali saepius fere recto, raro dente conspicuo munito. Lobus terminalis parvus vel mediae magnitudinis, subacutus vel subobtusus. *Interlobia* bene definita angulata ± crispa, plerumque extenuato-piceata vel sordide viridia. *Scapus* glabrescens, sub involucro valde araneosus. *Involucrum* subobscurae viride valde pruinose. *Squamae exteriores* breviores latiores, 12-13 mm longae, 4.5-6 mm latae, apiculatae, supra canovirides subitus obscure virides vel saepe sordide violaceae regulares erecto-patentes vel patentes, marginibus planis non vel angustius hyalinis, prope apicem saepe increasatae sed non corniculatae. *Squamae interiores* latitudine inter se fere aequales vel interdum inaequilatae et ± cohaerentes. *Calathium* 55-60 mm diametro luteum, modice densum vel densum, convexum. *Ligulae* planae vel partim subcanaliculatae, denticulis apicalibus obscuris, subtus stria ipsius

*Ligulae* pyramide 0.6-0.7 mm longa cylindrica laevi. *Rostrum* longum, superne spinulis mediae longitudinis subrobustis vel robustioribus rectis instructum, variabilia. *Stigmata* Antherae ligulae angustiore rubescenti-grisea ornatae. *Achaenium* fusco-stramineum, pyramide inclusa 3.9-4.1 mm longum, superne spinulis mediae longitudinis subrobustis vel robustioribus rectis instructum, pyramide 0.6-0.7 mm longa cylindrica laevi. *Rostrum* 10-11 mm longum. *Pappus* albus.

*Taraxacum nigrescens* is a robust, medium-sized, 20-30 cm tall plant with a patent rosette of greyish green, indistinctly hairy, unspotted leaves. The petioles are ± winged, pale on the abaxial side (usually with no trace of red). The midrib is dirty green to distinctly brownish and lacks a striolate pattern. All leaves are distinctly lobed, with 5-6 lobe pairs. The side lobes are recurved, entire or sometimes dissected by deep incisions, with the distal margin irregular or ± convex, entire or sometimes with a robust tooth, and a moderately acute tip. The proximal lobe margin is almost straight or irregular, usually entire, rarely bearing a conspicuous tooth. The terminal lobe is small to medium-sized, moderately acute or almost obtuse, not conspicuously larger in inner leaves. The interlobes are acutely angled to well differentiated and angular, ± plicate, very often blurrily tar-coloured or dirty green.

The scape is mostly glabrescent but hairy under the involucr. The involucrum is darkish green, pruinose. The outer bracts are relatively short and broad, 12-13 × 4.5-6 mm, apiculate, greyish green ventrally, dark green dorsally, often dirty violet, regularly arranged, erect to horizontal. The margins of the outer bracts are flat, without or with a very narrow hyaline border, often thickened near the tip, but not properly corniculate. The inner bracts are almost equally wide, or sometimes coalescent and of obviously varying width. The flower head is rather large (55-60 mm in diameter), medium yellow, medium dense to dense, with a ± convex profile. The ligules are flat or partly canaliculate, with dark apical teeth, dorsally with a narrow, indistinct reddish grey stripe. Pollen is produced, the pollen grains are of obviously varying diameter. The stigmas are discoloured.

The achenes are straw-coloured to greyish brown, 3.9-4.1 mm long (incl. the 0.6-0.7 mm long, cylindrical, smooth cone). The achene spines are medium long, medium strong or very robust, straight. The rostrum is 9-10 mm long and bears a white pappus.

**Note.** – In Øllgaard & al. (2002) *Taraxacum nigrescens* is erroneously placed in *T. sect. Borea.*

**Discussion.** – Because of its pale petioles and its erect to patent outer bracts *Taraxacum nigrescens* is morphologically related to *T. tenebricans* (Dahlst.) H. Lindb., and also resembles some of the species in an informal group of morphological relatives centred on *T. undulatum* H. Lindb. & Markl. (*T. sect. Undulata*). T. *tenebricans* (now regarded as belonging in *T. sect. Macro- donta*) has ± erect, usually unwinged, more strongly toothed leaves and narrower outer bracts. In *T. sect. Undulata* most species have spreading, arcuate-recurved outer bracts. Only *T. undulatum* itself has an erecto-patent collar of outer bracts, but differs in its green midribs and interlobes from *T. nigrescens* with its brownish midribs and tar-coloured interlobes. Moreover, the outer bracts of the latter are darker green or with a faint dirty violet hue, whereas those of *T. undulatum* remain greyish green even after anthesis.

**Distribution.** – Denmark and Poland.

Holotype: “Denmark, TBU-distr. 13a, “2 km S of Jebjerg, road 46, at 11.2 km, p-ground, verge/lawn”, 05°22′4′′N, 09°57′1′′E, 22.5.2003, Brandt-Pedersen & Øllgaard HØ-03-217 p.p. (C); isotypes: HØ03-208, HØ-03-209 (AAU), HØ-03-210, HØ-03-211 (B), HØ-03-217 p.p. (C), HØ-03-219 (DR), HØ-03-216 (H), HØ-03-214 (L), HØ-03-220 (OXF), HØ-03-218 (PRA), HØ-03-213, HØ-03-215 (S). – Fig. 6.


*Taraxacum opertum* is a medium-sized 20-40 cm tall species with a patent to ± erect rosette of faintly greyish green, only indistinctly hairy, unspotted leaves. The petioles are usually broadly winged, pale (usually with no trace of red). The closest morphological relatives are primarily the species *T. croceiflorum*, *T. lacerifolium* and *T. pallidipes* which all have pale petioles.

---

**Discussion.** – *Taraxacum opertum* is recognised mainly by its pale-petioled leaves with a characteristic lobation and by the strongly pruinose involucres with strongly reflexed, green, medium broad to broad, unbordered outer bracts. The leaf lobes are very often deeply cleft and/or ± toothed with long, not very acute teeth. The closest morphological relatives are primarily *T. pallidipes*. 

Markl., *T. croceiflorum* Dahlst., and *T. lacerifolium* G. E. Haglund, which all have pale petioles...
Fig. 6. *Taraxacum opertum* – holotype specimen.
and ± deeply reflexed outer bracts. *Taraxacum pallidipes* differs in having narrowly bordered outer bracts and undissected leaf lobes. Besides, *T. pallidipes* is normally a conspicuously hairy plant with a less pronounced lobe dentation, with teeth that are relatively short and more acute. In *T. pallidipes* the end lobes lack the well-defined tip often present in *T. opertum*. Both *T. croceiflorum* and *T. lacerifolium* have non-pruinose involucres and a more crowded leaf lobe formation. Furthermore, *T. croceiflorum* has red-tipped outer bracts and darker yellow flowers, with ligules that are striped red dorsally. The inner bracts of *Taraxacum opertum* often hang together irregularly during and after anthesis, which is rarely seen in *T. pallidipes*, *T. croceiflorum* and *T. lacerifolium*.

**Distribution.** – Britain, Czech Republic, Denmark, Germany and Sweden.


*Taraxacum palmgrenii* is a medium-sized 20-40 cm tall species with a patent to ± erect rosette of faintly greyish green, usually indistinctly but sometimes fairly hairy, unspotted leaves. The peti-oles are narrowly to broadly winged, pale or (in inner leaves) reddish. The midrib is green to indistinctly brownish and lacks a striolate pattern. All leaves are distinctly lobed, with c. 5 lobe pairs. The side lobes are patent to recurved, often dissected by deep incisions, sometimes falcate or (in outer leaves) often with the distal margin ± convex, entire or with robust long teeth of irregular size and a medium acute to almost obtuse tip. The proximal lobe margin is almost straight or irregular, usually entire, rarely with a ± conspicuous tooth. The terminal lobe is medium-sized, subobtusus or with a short linguating tip. The interlobes are well differentiated, angular, plicate, green.

The scapes are mostly glabrescent but hairy under the involucres. The involucre is pale to dark green, indistinctly pruinose. The outer bracts measure 12-13 × 4-5 mm, they are pale greyish green, rarely irregularly coloured, regularly arranged, deeply reflexed to vertically deflexed. The margins of the outer bracts are flat and without hyaline border, often with a thickening near the tip, but without a real corniculatio. The inner bracts are almost equally wide, but sometimes coalescent and of obviously varying width. The flower head is c. 50-55 mm in diameter, medium yellow, medium dense, with a ± convex profile. The ligules are flat or canaliculate, with yellow apical teeth, the outermost ligules are narrowly and indistinctly striped reddish grey dorsally. Pollen is produced, the pollen grains are of obviously varying diameter. The stigmas are discoloured.
Fig. 7. *Taraxacum palmgrenii* – specimen Øllgaard & Räsänen HØ-01-330 (C).
The achenes are straw-coloured to greyish brown, 3.9-4.1 mm long (incl. the 0.6-0.7 mm long, cylindrical, usually smooth cone). The achene spinules are medium long, medium strong, straight. The rostrum is 9-10 mm long. The pappus is white.

Discussion. – Usually *Taraxacum palmgrenii* is easily recognised, especially the living plant seen in the wild when the entire leaf lobes appear somewhat concave, with several lobes conspicuously dissected, and because of its deeply reflexed outer bracts. However, herbarium specimens are more difficult to interpret. They have been confused with *T. olitorium* G. E. Haglund, which, however, has less reflexed outer bracts with a narrow hyaline border (quite unbordered outer bracts in *T. palmgrenii*) and straight leaf lobes with no convex distal lobe margins, not even when they are entire. Undissected forms of *T. palmgrenii* might look somewhat like the common species *T. lingulatum* Markl., also producing side lobes of the “bird’s wings” type. However, the latter is never seen with dissected lobes, and usually its lobes are far more irregular in appearance, often with one or more lobe tips quite obtuse in the distal leaf part. Besides, the outer bracts are longer and usually broader, and the fruits are somewhat longer.

Distribution. – Denmark, Finland and Sweden

Acknowledgements
L. Meierott, Am Happach, and I. Uhlemann, Dresden, Germany, contributed information of their finds of *Taraxacum leptoscelum* and *T. opertum* in Germany. W. Greuter, Berlin, reviewed the Latin and English language.

References
Lundevell, C.-F. & Øllgaard, H. 1999: The genus *Taraxacum* in the Nordic and Baltic countries: types of all specific, subspecific and varietal taxa, including type locations and sectional belonging. – Preslia 71: 43-171.

Address of the author:
H. Øllgaard, Lupinstien 7, Birgitteleyst, DK-8800 Viborg, Denmark; e-mail: botarax@dlgtele.dk