

## Seven new species of *Taraxacum* Wigg. (Asteraceae), native to the British Isles

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### ABSTRACT

***Taraxacum breconense*** C. C. Haw., **sp. nov.** (sect. *Celtica* A. J. Richards), ***T. edmondsonianum*** H. Øllg., **sp. nov.** (sect. *Ruderalia* Kirschner, H. Øllg. & Stepanek), ***T. haworthianum*** A. A. Dudman & A. J. Richards, **sp. nov.** (sect. *Erythroserma* (H. Lindb.) Dahlst.), ***T. hirsutissimum*** C. C. Haw., **sp. nov.** (sect. *Naevoza* M. P. Christ.), ***T. latens*** H. Øllg., **sp. nov.** (sect. *Ruderalia*), ***T. nigridentatum*** T. Edm., **sp. nov.** (sect. *Ruderalia*) and ***T. sahlinianum*** A. A. Dudman & A. J. Richards, **sp. nov.** (sect. *Hamata* H. Øllg.) are described as new species, native to the British Isles.

KEYWORDS: Denmark, Germany, Netherlands, Czech Republic, Compositae.

### INTRODUCTION

Before his untimely death in 1989, C. C. Haworth was planning to publish an account of British and Irish *Taraxacum* as part of the handbook series of the Botanical Society of the British Isles. Preliminary to this, he lectotyped the Dahlstedt British species (Haworth & Richards 1990) and described six new species (Haworth 1990).

We are proceeding with the publication of this handbook, and in order to do so we need to publish a further seven species. They appear here under a variety of authors. *T. breconense* and *T. hirsutissimum* appear here under Haworth's authorship, as he left manuscript descriptions for them. *T. nigridentatum* is named and described by T. Edmondson, and appears here under his authorship. Two species are named and described by the Danish authority Hans Øllgaard, and we are grateful to him for his permission to publish them within this paper. The remaining two species are described by ourselves. Haworth (and others) formerly referred to *T. haworthianum* as *Taraxacum* "British laetum", and *T. sahlinianum* as *Taraxacum* "British atactum".

### THE SPECIES

#### 1. *Taraxacum breconense* C. C. Haw., **sp. nov.**

HOLOTYPE: Nant Sere, Breconshire, v.c. 42. GR SO/041.247, wall/bank of lane, 13 May 1992, M. Porter 92/38 (OXF). (Fig. 1).

ISOTYPUS: herb. A. A. Dudman.



FIGURE 1. Holotype of *Taraxacum breconense* C. C. Haw. (top specimen).

Planta magnitudine mediocris. Folia patentia viridia immaculata epiceata, fere glabra et plana, late lanceolata, ad 150 mm longa; lobi laterales 2–4, recurvati acuti, apice angusti, ad basem latiores, saepe margine distali sat sigmoideo vel convexo in foliis bene evolutis, lobis inferioribus margine distali plusminusve irregulariter denticulata; lobus terminalis submagnus subhastatus, late acutus, valde subdivisus irregulariter profundeque dentatus; petiolus viridis exalatus. Scapus sub anthesi saepe foliis brevior, interdum purpurascens, ad apicem sat pilosus. Involucri squamae exteriores 7–10 × 2.5 mm, patentes subrecurvatae, supra canescentes purpureo suffusae, subtus obscure

virides, interdum albo roseove indistincte submarginatae. Calathium 15–30 mm in diametro, subclausum, pallide luteum; ligulae subbreves involutae; stylus stigmataque inserti lutei; antherae epolliniferae. Achenium stramineo-brunneum, 3.5 mm longum pyramide exclusa, superne spinulosum, pyramide subconica 0.7 mm longa; rostrum 8 mm longum; pappus albus.

Plant medium-sized. Leaves spreading, mid-green, lacking spots or dark markings, flat and almost glabrous, broadly lanceolate, to 150 mm in length; leaf-lobes 2–4, acute and recurved with a narrow apex, broader proximally with the distal margin sigmoid or convex in shape in well-developed leaves, the proximal lobes more or less irregularly denticulate on the distal margin; terminal lobe rather large and somewhat hastate in shape, broadly acute, markedly subdivided and irregularly and deeply dentate; petiole green, unwinged. Scape often shorter than the leaves at flowering, sometimes becoming purplish, hairy above. Exterior bracts 7–10 × 2.5 mm, spreading to somewhat recurved, greyish green suffused with purple above, dark green below, sometimes indistinctly bordered with white or rose. Capitulum 15–30 mm in diameter, not opening fully, pale yellow, the ligules short and involute; style and stigmas inserted, yellow anthers lacking pollen. Achene straw-brown, 3.5 mm long (excluding the cone), spinulose above, cone more or less conical, 0.7 mm long; rostrum 8 mm long, pappus white.

*T. breconense* is a close relative of *T. ostenfeldii* Raunk., with similar involucre and sharing small capitula with short yellow styles which lack pollen. However the ligules are notably involute, a rare condition amongst British *Taraxacum* species (compare *T. argutum* Dahlst.), and the relatively large and complexly subdivided end-lobes are distinctive and diagnostic. *T. breconense* is classified within sect. *Celtica* A. J. Richards.

*T. breconense* is so far recorded from seven sites in four 10-km squares in v.c. 42 (Brecon). It has been recorded from limestone cliffs, walls and lane-banks. Our knowledge of this species depends entirely on the enthusiasm and expertly prepared collections of Michael Porter.

## 2. *Taraxacum edmondsonianum* H. Øilg., sp. nov.

HOLOTYPE: Denmark. Jylland [Jutland], distr. 11. Hadsind, Hornbechsvej, ved en sti [by a footpath], 2 May 1981. *H. Øilgaard 81-28 2./2 (C)*. (Fig. 2).

ISOTYPUS: OXF (*HO 81.28 1./2*).

The type specimens were collected and the plant taken into cultivation; the achenes were described from the cultivated plant (Birgittelyst, 1982).

Planta magnitudine mediocris, 30–40 cm alta. Folia sat laete canescenti-viridia, sparsim vel in foliis interioribus sat manifeste araneosa, late lanceolata, plerumque uniformiter lobata, margine proximali loborum lateralium sat crispo, minute denticulato; petiolus alatus, plus minusve amoene roseus, non striatulus; lobi laterales patentes subfalcati, raro plus minusve pagodiformes (ut in *Taraxaco aequilobo*); lobus terminalis triangularis vel triangulari-hastatus, brevis, marginibus distalibus plus minusve concavis, integris vel interdum incis. apice lobis ibi saepe rotundatus. Scapus pallidus vel leviter brunnescens, sub involucre dense araneoso-pilosus alibi parce. Involucrum c. 14 mm longum, c. 11 mm latum, laete vel sat obscure viride, haud pruinatum. Squamae exteriores lanceolatae, 14 (–16) mm × 4 (–5) mm, non vel vix marginatae, retroflexae, sat regulares, supra pallide virides. Calathium 45–55 mm in diametro, luteum convexum radians; ligulae marginales planae vel saltem haud canaliculatae, subtus stria cano-violacea ornatae; antherae polliniferae, granis pollinis in diametro variantibus; stylus luteus, stigmata lutea vel in sicca levissime virescentia. Achenium fusco-stramineum, ad 4 mm longum pyramide inclusa, superne grosse spinulosum, alibi plus minusve verrucosum vel fere laeve, in pyramidem cylindricam (0.4–) 0.5 (–0.6) mm longam abrupte abiens. Rostrum c. 11 mm longum. Pappus albus.

Plant medium-sized (30–40 cm). Leaves light greyish-green, slightly or (on inner leaves) markedly araneose-hairy, broadly lanceolate, mostly uniformly lobate, the proximal margins of the lateral leaf-lobes somewhat crisped, minutely denticulate; petiole narrowly winged, more or less a beautiful rose-pink, the midrib faintly reddish or brownish, lacking a striatulate pattern. Lateral leaf-lobes patent, subfalcate, rarely more or less pagoda-shaped (as in *T. aequilobum* Dahlst.).



FIGURE 2. Holotype of *Taraxacum edmondsomanum* H. Ollg.

Terminal leaf-lobe triangular to triangular-hastate, short, more or less concave on distal margins, entire or sometimes incised, and then the apices of the lobules rounded. Scape pale or becoming slightly brownish, densely araneose-pilose under the head, the remainder slightly pilose. Involucre about 14 mm long and 11 mm wide, pale or somewhat darkish green, not pruinose. Exterior bracts lanceolate, 14(-16) × 4(-5) mm, unbordered or scarcely bordered, somewhat regularly arranged, pale green above. Capitulum 45-55 mm in diameter, yellow, convex, the marginal ligules spaced, flat or at least not furrowed, with grey-violet stripes beneath. Anthers bearing pollen with grains of varying diameter (suggesting agamospermous behaviour). Styles yellow, stigmas yellow or in the dry state very slightly greenish. Achene brownish-straw coloured, to 4 mm long (including the

cone), strongly large-spinulose above, the rest more or less verrucose or almost smooth, abruptly contracted into a cylindrical cone of (0.4)0.5(–0.6) mm. Rostrum about 11 mm long. Pappus white.

*T. edmondsonianum* is classified within sect. *Ruderalia* Kirchner, H. Øllg. & Stepanek. Morphologically, it is a relative of the common and widespread *T. aequilobum*, having many uniform leaf-lobes and more or less winged petioles. The latter species is recognised by the lateral leaf-lobes, usually shaped like the roof of a pagoda, and by the conspicuously irregular and twisted exterior bracts. In contrast, the leaf-lobes of *T. edmondsonianum* are more patent, less acuminate and more straight-sided on the distal margin; the proximal margin to these lobes is convex and bent upwards throughout. Also, the exterior bracts of *T. edmondsonianum* are strongly and regularly reflexed, and are not twisted. Other good marks of recognition are the delicate and beautiful rose-pink petiole, and the small terminal leaf-lobes with usually concave upper margin. Often, some terminal lobes are incised, the lobules so formed being rounded. *T. edmondsonianum* has a paler leaf colour than *T. aequilobum* and the stigmas are yellow when fresh. The constancy of these differences has been confirmed after cultivation in standard conditions.

*T. edmondsonianum* is named after T. Edmondson of Chester, who recognised it as a new species during his very thorough investigation of the *Taraxacum* flora of the Chester district. In the British Isles it is so far known from Herefordshire (v.c. 36), Cheshire (v.c. 58), South Lancashire (v.c. 59), West Lancashire (v.c. 60) and Cumberland (v.c. 70), where it has been recorded from seven 10-km squares. It is known from at least seven separate localities in the city of Chester. Outside England, it is recorded from nine localities in five recording districts (TBU02, 10, 11, 13a, 49) in Jutland, Denmark, and from a single locality in Hessen, Germany. (A full list of authentic specimens identified up until now can be obtained from the species' author at Lupinstien 7, Birgittelyst, Viborg 8800, Denmark.)

### 3. *Taraxacum haworthianum* A. A. Dudman & A. J. Richards, *sp. nov.*

HOLOTYPE: Druridge Bay, Northumberland, v.c. 67, GR NZ/276.965, sand-dune grassland 100 m from the sea, 20 May 1987, A. J. Richards 87/41 (OXF). (Fig. 3).

ISOTYPE: herb. A. A. Dudman, H. Øllgaard, J. Stepanek.

Planta parva. Folia prostrata viridia glabra, immaculata epicecata, nervo mediano basin versus viride purpureove, anguste lanceolata, ad 100 mm longa; lobi laterales 6–8, subintegri subrecurvati, regulatim triangulares vel margine distali sigmoideo, apice angusto, subacuto subobtusove vel interdum expanso; lobus terminalis subsagittatus integer in apicem acutum protractus; petiolus angustus exalatus ad basem vivide atropurpureus, distaliter interdum viridescens. Scapus tenuis purpureus adscendens, superne pilosus. Involucri squamae exteriores ovatae breves, 4–6 × 2 mm, subadpressae, margine anguste albo-scarioso vel roseo-scarioso, apice abrupte purpureo-corniculato. Calathium 25–30 mm in diametro, luteolum; ligulae breves lataeque, stria cano-violescenti subtus notatae, dentibus apicalibus purpureis; stylus stigmataque sordide lutei; antherae polliniferae. Achenium 3.0 mm longum pyramide exclusa, angustum, in stato maturo atropurpureum, in statu juveniliore rubescens, superne acute spinulosum, alibi fere laeve, pyramide anguste cylindrica 0.8–1.1 mm longa; rostrum 6–7 mm longum; pappus albus, 2n = 24\*.

Plant small. Leaves prostrate, green, glabrous, lacking spots or dark markings, the midrib green or purple, narrowly lanceolate, to 100 mm in length; lateral leaf-lobes 6–8, subentire, somewhat recurved, regularly triangular, or with the distal margin sigmoid, with narrow subacute to subobtuse, or sometimes somewhat expanded apices; terminal lobe entire and subsagittate, drawn out into an acute apex; petiole narrow and unwinged, brilliantly purple at the base. Scapes narrow, purple, ascending, hairy above. Exterior bracts ovate, short, 4–6 × 2 mm, subadpressed to the involucre, narrowly white- to rose-bordered, abruptly ending in a marked purple corniculation. Capitulum 25–30 mm in diameter, pale yellow, the ligules short and wide with a grey-violet stripe and purple teeth; style and stigmas dirty yellow; pollen present. Achene 3.0 mm (excluding the cone), narrow, dark purple when mature, reddish when immature, acutely spinulose above, the rest almost smooth, the cone narrowly cylindrical, 0.8–1.1 mm; rostrum 6–7 mm; pappus white, 2n = 24\*.

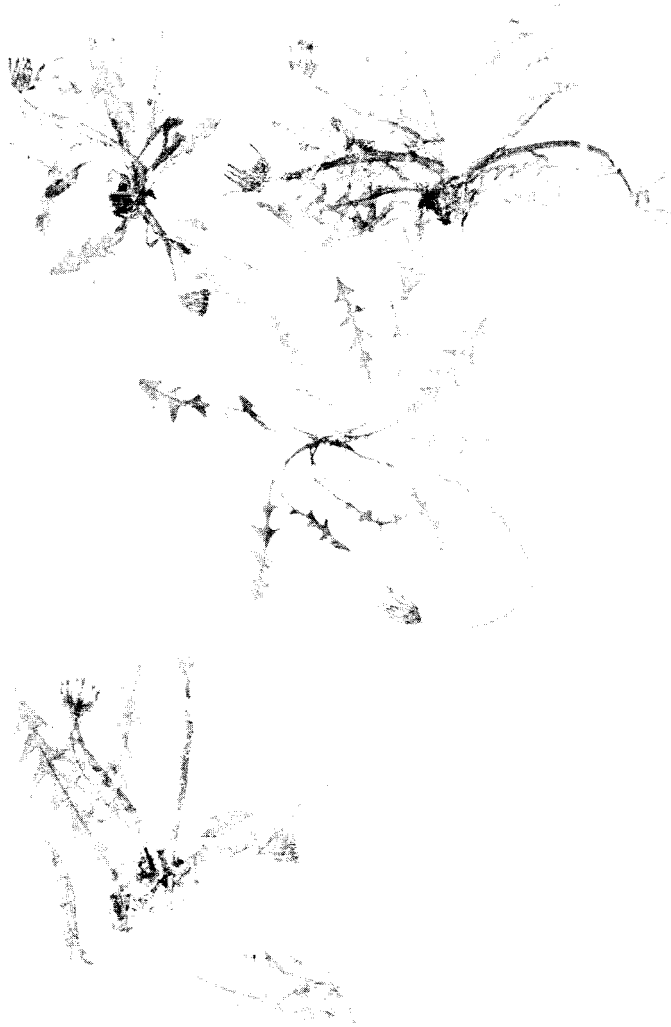


FIGURE 3. Holotype of *Taraxacum haworthianum* A. A. Dudman & A. J. Richards (top right hand specimen).

*T. haworthianum* is a close relative of *T. laetum* (Dahlst.) Raunk., a widespread sect. *Erythrosperma* (H. Lindb.) Dahlst. species of the sand-dunes and other dry grasslands of northern Europe. It was included within this species in Richards (1972), where some material was also referred to *T. laetiforme* Dahlst. In later years, it was recognised that such British and Irish material differs from *T. laetum*, notably by the narrow, bright purple petioles of all leaves (these are short and green in *T. laetum*), and also by the grey-violet, not purple, ligule stripes, a slightly longer achene body, and by dirty yellow, not brilliantly gold stigmas.

Øllgaard (1986) showed that *T. laetiforme* is a very localized and rare Danish species, and he gave the name *T. discretum* to the widespread plant from the Netherlands and Scandinavia which had been called "*T. laetiforme*" by Haglund and van Soest. This species has achenes that are chestnut-brown when mature, and petioles that are green in outer leaves, but purple on inner leaves. The stigmas are a dirty greenish colour. In 1986, it was considered that *T. discretum* occurred in the British Isles, but Haworth later showed that such plants were in fact forms of what is described here as *T. haworthianum* with immature achenes.

For some time, Haworth considered the possibility that the future *T. haworthianum* could be equated with another relative of *T. laetum*, the Dutch *T. agaurum* Soest. However, that species always has winged, green petioles and golden stigmas, and in our view *T. agaurum* is very closely allied to *T. laetum* itself. After testing these species in cultivation, it was Haworth's opinion, with which we concur, that no British plants can be referred to *T. laetum*, *T. agaurum* or *T. discretum*.

Haworth himself referred to this British relative of *T. laetum* and *T. discretum* as *Taraxacum* "British laetum", and also as "*T. sublaetum*". However, we would like to abandon these Haworth worknames, and to take this opportunity to recognise Chris Haworth's substantial contribution to British taraxacology.

*T. haworthianum* is widespread in species-rich, calcareous grassland (most commonly in sand-dunes) in Britain and Ireland, having been recorded from 83 10-km squares in the following vice-counties: 1-4, 6, 13, 15, 25, 27-29, 41, 42, 45, 46, 48, 49, 52, 55, 57-60, 67-69, 73-75, 82, 85, 90, 93-95, 102-104, 106, 107, 109, 110, S, H9, H12, H21, H28, H39, H40.

With its prostrate rosettes of highly dissected leaves with narrow, purple petioles, and very pretty, rounded involucre of bordered, purple corniculate exterior bracts, *T. haworthianum* is a distinctive and attractive little plant. It bears more than a passing resemblance to a sect. *Obliqua* Dahlst. species, *T. platyglossum*, Raunk. from which its slender, deep blackish-purple achenes will immediately distinguish it.

#### 4. *Taraxacum hirsutissimum* C. C. Haw., sp. nov.

HOLOTYPE: Dunrossness, Shetland, v.c. 112, GR HU/3.2, above the source of the Red Burn, near Williamsetter, roadside verge, 20 June 1979, W. A. Scott 2618 (OXF). (Fig. 4).

Planta mediocris. Folia ascendens canescentia, per paginam superiorem breve subdense hirsuta, sparse puncto-maculata vel immaculata, epiceata, nervo mediano viridi vel plus minusve purpureo-tincto, oblanceolata, ad 200 mm longa; lobi laterales 4-7, patentes subrecurvati, apice anguste acuti, margine distali saepe angulato-concavi, fere edentati; lobus terminalis sagittatus integer, apice subprotractus acutus; petiolus purpureus, vix alatus. Scapus purpurascens, superne pilosus. Involucrum squamae exteriores leviter recurvatae, lanceolatae, 12 × 2.5 mm, supra pallide virides, subtus pruinoso-glaucae, vix marginatae. Calathium intense luteum, ad 30 mm in diametro; ligulae stria obscuro-canescens subtus notatae, dentibus apicalis luteis; stylus stigmataque aurantiaci; antherae polliniferae. Achenium stramineum, 3.5 mm pyramide exclusa, pyramide conica 0.5 mm longa; rostrum 9-10 mm longum; pappus albus.

Plant medium-sized. Leaves ascending, greyish, shortly and rather densely hairy throughout the upper surface, unspotted or with scattered punctate spots, lacking dark markings, the midrib green or faintly purple, oblanceolate, to 200 mm long; lateral leaf-lobes 4-7, patent or slightly recurved, with narrow acute apices, the distal margins concave, often with a concave angle, almost lacking teeth; terminal leaf-lobe sagittate, entire, with an acute, somewhat extended apex; petiole purple, scarcely winged. Scape purplish, hairy above. Exterior bracts somewhat recurved, lanceolate, 12 × 2.5 mm, pale green above, bluish pruinose green beneath, scarcely bordered. Capitulum deep yellow, to 30 mm in diameter, ligules striped dark grey beneath, ligule teeth yellow; style and stigmas orange; pollen present. Achene straw-coloured, 3.5 mm (excluding the cone), the cone conical, 0.5 mm; rostrum 9-10 mm; pappus white.

Over more than two decades, Richard C. Palmer and Walter A. Scott have thoroughly examined the *Taraxacum* species of Shetland. A number of their gatherings relate to a distinctive member of sect. *Naevosa* that is immediately recognised by its leaves, which are rendered greyish by their dense



FIGURE 4. Holotype of *Taraxacum hirsutissimum* C. C. Haw.

covering of short even hairs, and by the orange stigmas. Among its British relatives, this plant is most closely related to *T. euryphyllum* (Dahlst.) Hjelt, and the achenes, leaf-shapes and involucre of the two species are quite similar, although the leaves of *T. hirsutissimum* are generally more multilobate and the end-lobes more sagittate. However, apart from differing in the stigma colour and in the hairiness of the leaves, *T. euryphyllum* also virtually lacks pollen, while the sparse punctate leaf spots of *T. hirsutissimum* are distinctive. Haworth cultivated this species from achenes sent by Scott, and it retained its distinctive features in cultivation. So far, *T. hirsutissimum* is only known from v.c. 112 (Shetland), where it has been recorded from eleven sites in two 10-km squares.



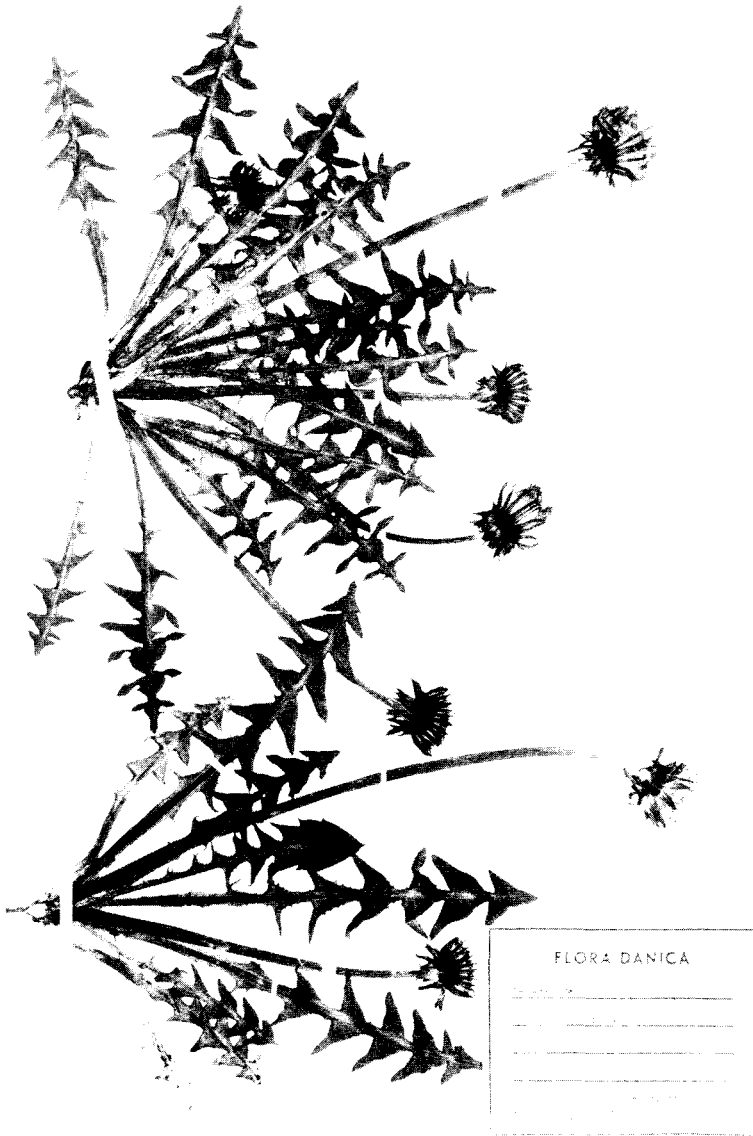


FIGURE 5. Holotype of *Taraxacum latens* H. Øllg. (top specimen).

5. *Taraxacum latens* H. Øllg., sp. nov.

HOLOTYPE: Denmark, Jylland (Jutland), distr. 14, 5 km SSW Viborg, road 13 at the 86.6 km mark, *Picea* plantation, 3 May 1993, H. Øllgaard 111.01 (part of exsiccata (HØ 93–111.xx)) (C). (Fig. 5).

Planta magnitudine mediocris c. 30 cm alta. Folia flavescenti-viridia vel viridia, sparsim araneosa, nec piceata nec maculata; nervo mediano viridi vel rarius subrubescenti, colore non striatulo; lobi laterales plerumque 6–8, deltoidei, in speciminibus tenuibus plerumque plus minusve falcati, parce

dentati vel integri vel interdum incisione alta subfissi, margine proximali integro vel denticulato, apice loborum subobtusius vel acuti; lobus terminalis foliorum exteriorum intermediorumque parvus, saepe incisus, apice brevi indefinito vel gradatim sat longe protracto, in foliis interioribus conspicuo, cordato-hastato, subacuto vel subobtusius: interlobi partis superioris folii lobis lateralibus perdensis saepe subtecti, in medio plus minusve acutanguli, non vel parum plicati; petiolus roseo-purpureus, anguste alatus. Scapus folia aequans vel superans, viridis vel leviter brunnescens, sub involucreo densissime araneoso, alibi sparsim araneosa. Involucrum subobscurum viride, curtum, saepe fere globosum, leviter pruinose. Squamae exteriores lanceolatae, c.  $14 \times 4$  mm, recurvae vel retroflexae, regulares, apice ecorniculatae, laete virides vel colore roseolo tinctae, plus minusve manifeste marginatae. Calathium mediocre, c. 45 mm in diametro, intense luteum; ligulae marginales planae vel parum canaliculatae, subtus stria cano-violacea ornatae, dentibus apicalibus rubrescentibus; antherae polliniferae, granis pollinis diametro variis; stigmata plus minusve virescentia. Achenium fusco-stramineum, 3.5 mm longum pyramide subcylindrica laevi c. 0.6 mm longa bene definita inclusa. Rostrum 11 mm longum; pappus albus.

Plant medium-sized, about 30 cm high. Leaves yellowish-green to green, slightly araneose-hairy, neither spotted nor blotched dark, the midrib green or rarely slightly reddish, but not striatulate; lateral leaf-lobes usually 6–8, deltoid, sometimes more or less falcate in slender specimens, sparsely dentate to entire or sometimes with deep subdivisions, the proximal margin entire or denticulate, the apex subobtusius to acute; terminal lobe of the outer and intermediate leaves small, often subdivided, the apex short and obscure or varying towards somewhat long-protracted, of inner leaves conspicuous, cordate-hastate, subacute or subobtusius: interlobes of the distal part of the leaf partially hidden by dense, overlapping lateral lobes, in the median part of the leaf more or less acute, not or scarcely plicate; petiole rose-purple, narrowly winged. Scape equalling or exceeding the leaves, green or lightly brownish, very densely araneose-hairy underneath the involucre, the remainder sparsely hairy. Involucre rather dark green, short, often almost globose in bud, lightly pruinose. Exterior bracts lanceolate, c.  $14 \times 4$  mm, recurved or reflexed, regular in arrangement, the apex ecorniculate, pale green or faintly suffused with rose, more or less strongly bordered. Capitulum medium-sized, about 45 mm in diameter, deep yellow; marginal ligules flat or slightly canaliculate, striped grey-violet beneath, the apical teeth reddish; anthers bearing pollen, the pollen grains of varying diameter; style and stigmas more or less greenish. Achene fuscous-straw-coloured, 3.5 mm including the well-defined and smooth subcylindrical cone, about 0.6 mm long. Rostrum 11 mm long; pappus white.

*T. latens* is classified within sect. *Ruderalia* (= sect. *Vulgaria* nom. illegit.). Amongst the numerous, mostly anthropochorous species in this section, it is recognized by the rose-pink, somewhat winged petioles, the pale green, more or less densely lobate leaves bearing entire proximal margins to the lateral lobes, and the light green, strongly recurved to reflexed, regularly arranged exterior bracts with an obviously differentiated border. The lateral leaf-lobes tend to become falcate, with a broad basal part and a well-differentiated linear distal process, especially in old plants, or in modifications from exposed positions. The terminal lobes of the outer and middle leaves are usually small and inconspicuous, more or less incised, with a gradually elongate apex, while those of inner leaves are large and conspicuous, with gross teeth almost of the stature of confluent lateral leaf-lobes.

The closest morphological relative of *T. latens* seems to be *T. crispulum* G. E. Haglund, a little-known species not recorded from the British Isles, which, however, according to the description (Haglund 1934) and the type material, has crispate interlobes with obvious dark blotchings, and much larger teeth. Also, *T. crispulum* does not produce inner leaves with large terminal lobes, the proximal margins of the lateral leaf-lobes are more or less subulate-dentate, and the achene cone is a little shorter.

Amongst commoner *Taraxacum* species, *T. latens* is best compared with *T. aequilobum* (the leaf-shape is somewhat similar, but in *T. aequilobum* the exterior bracts are very irregular and more or less twisted), *T. vastisectum* Markl. ex Puol. (again, the leaf-shape is somewhat similar, but the latter species has a darker and faintly bluish leaf colour, usually well-developed teeth on the proximal margins of the lateral leaf-lobes, no elongation at the apex of the terminal leaf-lobe, and less reflexed, dirty purplish exterior bracts) and *T. amplum* Markl. (similar in leaf and petiole

colour, and in the border to the exterior bracts, but with more or less patent exterior bracts, and the sagittate, usually entire, terminal lobes to the inner leaves).

In the British Isles, *T. latens* has so far been recorded from five 10-km squares in north Essex (v.c. 19), Shropshire (v.c. 40), Denbighshire (v.c. 50) and Cheshire (v.c. 58). Its distribution here suggests that it may be introduced. Elsewhere, it has been recorded from 17 recording districts (TBU09, 10, 11, 14, 15, 20, 26, 28, 33, 37, 39b, 47, 48, 49, 50, 52, 53) in Jutland, Denmark, from three sites in the Netherlands, from two sites in Germany, and from three sites in the Czech Republic. (A full list of authentic specimens identified up until now can be obtained from the species' author at Lupinstien 7, Birgittelyst, Viborg 8800, Denmark.)

6. *Taraxacum nigridentatum* T. Edm., sp. nov.

HOLOTYPE: Hapsford, Cheshire, v.c. 58. GR SJ 468.745, 3 May 1985. *T. Edmondson 1985.57* (OXF). (Fig. 6).

Planta robusta, magnitudine mediocris vel magna. Folia adscendentia erectave, obscure viridia, immaculata, interlobis dentibusque utrinque valde piceata. nervo mediano sordide roseo, lanceolata, ad 250 mm longa, multilobata; lobi laterales 5–8, subpatentes recurvate, sat longi, acuti, margine distali recto sigmoideo, multos dentes nigros vel unum dentem grossum ferenti; lobus terminalis subhastatus subsagittatusve, folii partibus inferioribus angustior, 1–2- saepe unilateraliter inaequaliterve subdivisus vel dentatus, apice protractus subacutus; petiolus alatus, interdum late alatus, roseus vel basi albus. Scapus sub anthesi folia aequans, sordide roseus. Involucri squamae exteriores patentees vel eae infimae recurvatae, 12–14 × 2–3 mm, emarginatae, supra pallide virides vel purpureo suffusae, subtus obscuriores. Calathium luteum, 40–50 mm in diametro, ligulis stria cano-brunnescenti subtus notatis; stylus stigmataque sordidi; antherae polliniferae. Achenium stramineo-brunnescenti spinulosum, 3–3 mm longum pyramide exclusa, pyramide minima, ad 0.3 mm longa; rostrum 5–6 mm; pappus albus.

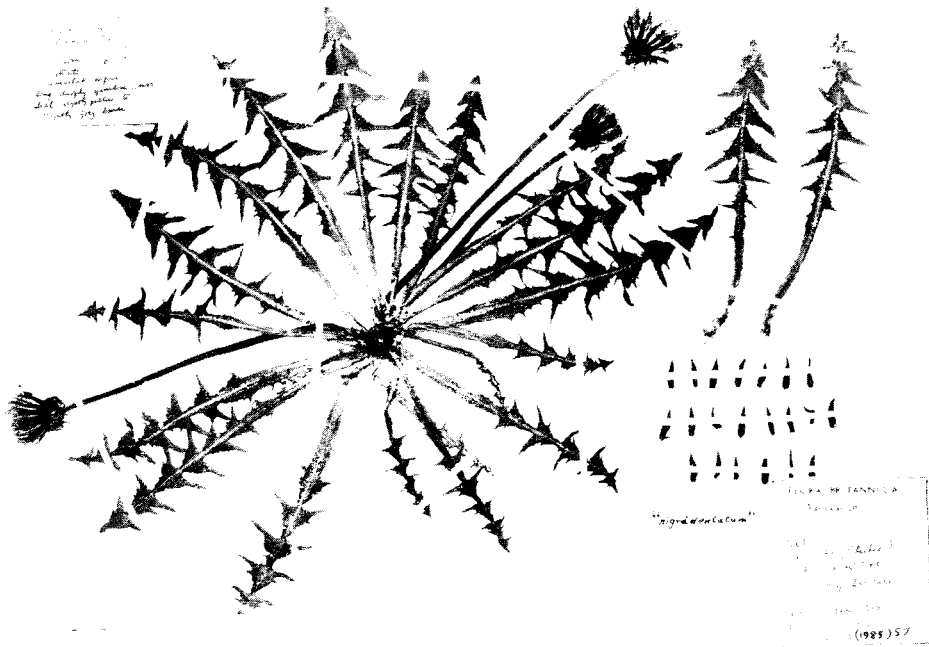


FIGURE 6. Holotype of *Taraxacum nigridentatum* T. Edm.

Plant robust, medium-sized to large. Leaves ascending or erect, dark green, unspotted, the interlobes and teeth heavily marked with black on both sides, midrib dirty pink, lanceolate, to 250 mm in length, multilobate; lateral leaf-lobes 5–8, patent to recurved, rather long, acute, with many black teeth on the distal margin or with one large tooth on distal lobes, the distal margin straight-sided or sigmoid; terminal leaf-lobe subhastate to subsagittate, narrower than lower parts of the leaf, with 1–2 subdivisions or teeth, often on one side only, or if on both sides, then usually alternately arranged, with an attenuate subacute apex; petiole winged, sometimes widely so, pink, or white at the base. Scape equalling the leaves at flowering time, dirty pink. Exterior bracts mostly spreading, the lower recurved, 12–14 × 2–3 mm, unbordered, pale green or suffused purplish above, darker below. Capitulum deep yellow, 40–50 mm in diameter, the ligules striped greyish-brown beneath; style and stigmas dirty coloured; pollen present. Achene straw-brown, spinulose, 3.3 mm (excluding the cone), the cone very small, to 0.3 mm; rostrum 5–6 mm; pappus white.

*T. nigridentatum* is a weedy species classified within sect. *Ruderalia*. These plants of anthropogenic habitats tend to be much more mobile than species of more natural habitats, and consequently they rarely occur as localized endemics. Approximately 130 species classified within this section are recorded from the British Isles, but of these only four have yet to be recorded in another country. So far, *T. nigridentatum* is not recorded with certainty away from western Britain, where it may be endemic, although similar plants may occur in the Netherlands. It has been recorded from 29 10-km squares, but so far is known from only the following western vice-counties: East Gloucestershire (v.c. 33), West Gloucestershire (v.c. 34), Monmouthshire (v.c. 35), Breconshire (v.c. 42), Flintshire (v.c. 51), Cheshire (v.c. 58) and Cumberland (v.c. 70).

*T. nigridentatum* is a relative of *T. pannulatum* Dahlst., and morphologically it is particularly close to *T. pannulatiforme* Dahlst., although in well-developed leaves, the leaf-lobes of *T. nigridentatum* tend to be narrower and more multidentate. However, *T. nigridentatum* is invariably and characteristically heavily blotched with black on the interlobes and leaf-teeth, while the midrib and the petiole (except usually the very base outside which is white) are a dirty reddish-pink. In comparative cultivation with *T. pannulatiforme*, Haworth showed that the distinctive leaf colour and the minor differences in leaf shape of *T. nigridentatum* were maintained (the leaves of *T. pannulatiforme* are essentially green throughout).

#### 7. *Taraxacum sahlinianum* A. A. Dudman & A. J. Richards, **sp. nov.**

HOLOTYPE: Woodside, Maryport, Cumberland, v.c. 70, GR NY/047.343, roadside, 8 May 1991, A. A. Dudman s.n. (OXF). (Fig. 7).

Planta magnitudine mediocris, sat robusta. Folia suberecta plana, sordide obscuriviridia, immaculata epiceataque, nervo mediano ordinatione intertexto sordide purpureo notato, late oblanceolata, ad 200 mm longa; lobi laterales 2–4, patentes subrecurvati, lati subbrevesque, triangulares subacuti, margine distali saepe recto vel subconvexo, lobis inferioribus margine distali dentibus filiformis ornatis; lobus terminalis submagnus, obtusus sed apice ipso mucronatus, inaequaliter grosse 1–3-dentatus; petiolus alatus vel saepe late alatus, dentatus, ordinatione intertexto purpureo notatus. Scapus sub anthesi folia aequans, erectus. Involucri squamae exteriores pruinosa, patentes sed decurvatae, 10 × 3 mm, vix marginatae, supra pallide virides interdum purpureo suffusae, subtus obscuriores. Calathium luteum, 40–45 mm in diametro, ligulis stria obscura griseo-violacea subtus notatis; stylus stigmataque sordidi; antherae polliniferae. Achenium fulvo-stramineum, apice rugosum alibi laeve, 3.8–4.0 mm pyramide exclusa, pyramide conica 0.6 mm longa; rostrum 10 mm longum; pappus albus.

Plant medium-sized, somewhat robust. Leaves suberect, flat, dark and dirty green, lacking spots or dark markings, the midrib dirty purple in an interwoven pattern, broadly oblanceolate, to 200 mm long; lateral leaf-lobes 2–4, patent to somewhat recurved, broad and rather short, triangular, subacute, the distal margins straight or slightly convex, filiform dentate on lower lobes; terminal leaf-lobe rather large, obtuse but mucronate, unequally provided with 1–3 large teeth; petiole winged, often broadly so, filiform dentate, purple in an interwoven pattern. Scape equalling the leaves at flowering time, erect. Exterior bracts spreading but downcurved, pruinose, 10 × 3 mm,

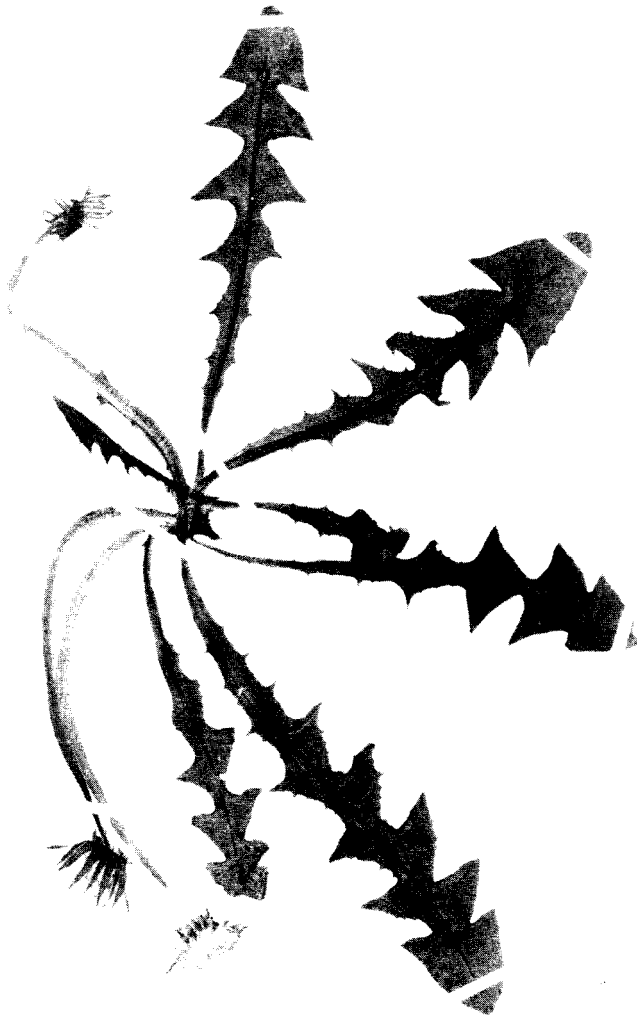


FIGURE 7. Holotype of *Taraxacum sahalinum* A. A. Dudman & A. J. Richards.

scarcely bordered, pale green but sometimes suffused purple above, darker green below. Capitulum deep yellow, 40–45 mm diameter, the ligules striped dark grey-violet below, style and stigmas dirty coloured; pollen present. Achene fulvous-straw coloured, rugose above, the remainder smooth, 3.8–4.0 mm (excluding the cone), the cone conical, 0.6 mm; rostrum 10 mm; pappus white.

From the shape, size, posture and pruinosity of the exterior bracts, the colour and lobation of the leaves, and the characteristically 'interwoven' pattern of the colour in the midrib and petiole, it is

clear that *T. sahlinianum* should be classified with sect. *Hamata* H. Øllg. Within this section, *T. sahlinianum* is most closely allied to *T. atactum* Sahlén & Soest. In particular, the large, subrounded end-lobes to the leaves, which are often one-sidedly provided with one or a few large teeth, are reminiscent of this species. Although *T. atactum* is a widespread British species, some early records in fact refer to *T. sahlinianum*.

Øllgaard first pointed out that not all British material referred to *T. atactum* was typical of that species, and this was confirmed by the late C. I. Sahlén, one of the authors of the name *T. atactum*. Since then, Haworth and Richards have recognised a distinctive taxon which was given the workname *Taraxacum* "British atactum". Now that we believe that we understand this taxon well, we feel that the time has come to describe it formally. In doing so, we would like to commemorate the Swedish taraxacologist Carl Ingemar Sahlén who died in 1990.

*T. sahlinianum* is best distinguished from *T. atactum*, and indeed from its other relatives in sect. *Hamata*, by the broad, broadly lobed leaves with an often widely winged petiole, and by the large achene. Apart from *T. atactum*, no relative has a long toothed end-lobe to the leaf. The dull, dark and rather dirty hue of the leaf is also distinctive.

*T. sahlinianum* will probably prove to be a widespread and frequent species of semi-natural grassland habitats, particularly in the west of Britain. At present it is recorded from 15 10-km squares in the following vice-counties: West Gloucestershire (v.c. 34), Monmouthshire (v.c. 35), Breconshire (v.c. 42), Carmarthenshire (v.c. 44), West Lancashire (v.c. 60), Westmorland (v.c. 69), Cumberland (v.c. 70) and Wexford (v.c. H12).

So far, *T. sahlinianum* has not been recorded outside the British Isles.

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