

THE TARAXACUM FLORA OF THE SIERRA DE GUADARRAMA AND ITS SURROUNDINGS (SPAIN)

by
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Resumen

RICHARDS, A. J. (1992). Los Taraxacum de la Sierra de Guadarrama y alrededores (España). *Anales Jard. Bot. Madrid* 50(2): 201-208 (en inglés).

De la Sierra de Guadarrama y alrededores se citan 18 especies agamospermas pertenecientes a seis secciones del género *Taraxacum*. Cinco de las especies son novedades para la Península Ibérica: tres de ellas no habían sido citadas y otras dos —*T. navacerradense* (sect. *Alpestria*) y *T. nietoi* (sect. *Celtica*)— se describen aquí como nuevas. En esta región casi todos los *Taraxacum* parecen ser agamospermos. Solamente se ha encontrado uno sexual, de carácter adventicio.

Palabras clave: *Taraxacum*, taxonomía, agamosperma, España.

Abstract

RICHARDS, A. J. (1992). The Taraxacum flora of the Sierra de Guadarrama and its surroundings (Spain). *Anales Jard. Bot. Madrid* 50(2): 201-208.

Eighteen native agamosperous species of *Taraxacum* are reported from the Sierra de Guadarrama and its surroundings. These are classified amongst six sections of the genus. Three species are recorded from Spain for the first time, and in addition two new species are described, *T. navacerradense* (sect. *Alpestria*) and *T. nietoi* (sect. *Celtica*). In this region it seems that almost all *Taraxacum* are agamosperous. Only a single specimen of an adventive sexual was discovered.

Key words: *Taraxacum*, taxonomy, agamospermy, Spain.

INTRODUCTION

Taraxacum (Asteraceae-Cichorieae) is a panglobal, although mostly non-tropical, genus of rosette-forming perennial herbs. Many species are of ruderal habit, and can form noxious weeds. However, within a region it is typical to find adventive species in anthropogenous habitats, and 'native' species in seminatural habitats. The majority (90%) of species are agamosperous, with a diplosporous parthenogenesis (RICHARDS, 1973). Many narrowly delimited asexual lines occur, and some 2000 of

these have been described as 'species'. Such plants sometimes lack pollen.

However, in some regions, including many lowland parts of southern Europe, plants are mostly sexual outcrossers. Such populations are much more variable than is found for the sexuals, and taxonomically they can only usually be treated at sectional rank.

As yet, little is known of the taxonomy, or the distribution of asexual and sexual *Taraxacum*, in most of Spain. There has been work by V. SOEST (1948, 1951, 1952, 1954a,b,c, 1955, 1966, 1970, 1972), SAHLIN

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(1981, 1984) and SONCK (1983, 1985) from the Pyrenees, northern and western Spain and Portugal. However, the only collections from the central region of Spain seem to have been by LINDBERG (1932), who described six species from near the railway station at Aranjuez ('prope urbem Madrid'). In fact although Aranjuez lies within the Comunidad de Madrid, it lies some 50 km to the south, on the river Tajo.

In late May, 1990, I was invited to give an address at *II Jornadas de Taxonomía Vegetal* at the Real Jardín Botánico, Madrid. Through the kind offices of Dr. Nieto Feliner, I was able to spend three days collecting *Taraxacum* in the Sierra de Guadarrama, Somosierra and Sierra de Ayllón to the north of Madrid. In all I collected 38 numbers, some in considerable quantity. The main collections reside with the Real Jardín, Madrid (MA), but duplicates have been kept by the author, and have been distributed to the taraxacologists H. Øllgaard (Denmark), J. Stepanek and J. Kirschner (Czechoslovakia) and C.-E. Sonck (Finland).

Most taxa recorded here are very little known and poorly understood. Consequently, I have compared material of all species recorded with type specimens.

There are almost no *Taraxacum* in Madrid. In two days, I found three plants, all in deep shade in the Retiro Park, where they are certainly introduced. Two agamospecies were involved, but neither could be identified with certainty. However, the Sierras above 1000 m are rather rich in native *Taraxacum*, where they are mostly restricted to very wet (in late May) acidic ground. Only *T. obovatum*, *T. marginellum* and *T. dubium* occur on limestone, and here always in deep shade.

Altogether I found 18 species, eight classified in section *Erythrosperma* and five in section *Celtica*. The remaining five species are classified within four sections, rather a high sectional diversity. Two new taxa are described, *T. nietoi* (*Celtica*) and *T. navaceradense* (*Alpestria*).

In the Sierras I found only one specimen of an adventive species, classified within the largely anthropogenous section *Rudera-*

lia Kirschner, Øllgaard and Stepanek. This was discovered growing in the lorry park on the Puerto de Somosierra (route N-I), where it was almost certainly adventive. This was the only sexual individual encountered; all the *Taraxaca* from seminatural habitats in the Sierra de Madrid were asexual. It seems as if, as is also the case in Greece and other southern Mediterranean areas where *Taraxacum* is largely montane, central Spain lies to the south of the sexual zone.

A systematic list follows with comments:

Taraxacum sect. *Obovata* V. Soest

T. obovatum (Willd.) DC.

MADRID: Puerto de Navacerrada, wet road bank in *Pinus sylvestris* forest, 1000 m, 21-V-1990, A. J. Richards 90/25. SEGOVIA: 1 km west of Casla, limestone, 22-V-1990, A. J. Richards 90/12.

As Lindberg and others have noted, very variable in leaf-morphology, and achene colour (grey and red), even in one population, but apparently asexual. The Navacerrada plants have very narrow lobate leaves, but the achenes are identical with those of the much more typical 90/12. Two chromosome counts have been reported in this species, $2n=32$ and $2n=48$ (RICHARDS, 1973). It is possible that future work will reveal the presence of more than one taxon in the Madrid region.

Taraxacum sect. *Erythrocarpa* Hand.-Mazz.

T. malato-belizii V. SOEST (1970)

MADRID: Puerto de Navacerrada, wet acidic grassland, 1500 m, 21-V-1990, A. J. Richards 90/27, 32 (MA 505716). SEGOVIA: Riofrío de Riaza, hayedo de la Pedrosa, acidic wet ground near tree-line, 1600 m, 22-V-1990, A. J. Richards 90/17 (MA 505728).

Originally described from Portuguese mountains. The type only has a single fragmentary achene, which however matches those of collected material well. The leaves bear a marked resemblance to those of *T. duplidentifrons* Dahlst. This seems to be the first record for Spain.

Taraxacum sect. **Erythrosperma** (H. Lindb. fil.) Dahlst.

T. lacistophyllum (Dahlst.) Raunk.

MADRID: Valle de Lozoya, Alameda del Valle, wooded spring on limestone, 1250 m, 23-V-1990, A. J. Richards 90/2 (MA 505741).

This species, which is widespread and common through much of western Europe, was recorded from Spain several times by V. Soest.

T. gallaecicum V. SOEST (1954b)

MADRID: Puerto de Navacerrada, wet acidic places, 1500 m, 21-V-1990, A. J. Richards 90/30 (MA 505718). SEGOVIA: Riofrío de Riaza, hayedo de la Pedrosa, acidic wet ground near tree-line, 1600 m, 22-V-1990, A. J. Richards 90/15 (MA 505729).

In both localities growing in company with *T. malato-belizii*, which has less dissected leaves. The involucre is very similar to that of *T. lacistophyllum*, but the leaf-shape is quite different, and the small turbinate, almost smooth achenes agree well with those of the type. These are the first records for central Spain.

T. catalanum V. SOEST (1954a)

MADRID: Puerto de Somosierra, drier parts of steep acidic slopes, 1500 m, 22-V-1990, A. J. Richards 90/23 (MA 505722).

The rather broad, green-bordered exterior bracts, the bright green leaves with hastate terminal lobes and concavely notched lateral lobes, and the rather robust achenes with long spines are diagnostic.

T. braun-blauquettii V. SOEST (1954c)

MADRID: Valle de Lozoya, 2 km west of Lozoya, and Alameda del Valle, wet road-verges, etc., 1250 m, 23-V-1990, A. J. Richards 90/3,4 (MA 505739, 505740). Puerto de Navafria, acidic grassland in forest gap, 1500 m, 23-V-1990, A. J. Richards 90/10 (MA 505733). 3 km west of Lozoyuela, under *Quercus pyrenaica*, 1200 m, 23-V-1990, A. J. Richards 90/11 (MA 505732).

This species is markedly heterophyllous, which is not clearly shown on V. Soest's illustration, which mostly has leaves of the broad (early) form. However, my material agrees well with the type and with other specimens received from V. Soest. V. Soest

had already recorded this species from central Spain.

T. dubium V. SOEST (1970)

MADRID: Puerto de Navafria, acidic grassland in forest gap, 1500 m, 23-V-1990, A. J. Richards 90/9 (MA 505734). Puerto de Somosierra, drier parts of steep acidic meadows, 1600 m, 22-V-1990, A. J. Richards 90/22 (MA 505723). SEGOVIA: 1 km west of Casla, rocky limestone ground, 1000 m, 22-V-1990, A. J. Richards 90/14 (MA 505730).

Closely allied to *T. braun-blauquettii*, with which it grows on the Navafria. Differs chiefly by not being heterophyllous, and by the distinctive end-lobe, best described as 'hamate-trilobate'. A good match with the rather fragmentary type, except for the achenes which agree with V. Soest's description, but are slightly smaller than those of the type. Described from Portuguese mountains; this seems to be the first record for Spain.

T. marginellum H. LINDBERG fil. (1932)

MADRID: Puerto de Navafria, acidic grassland, 1700 m, 23-V-1990, A. J. Richards 90/8 (MA 505735). SEGOVIA: 1 km west of Casla, rocky limestone meadow, 1000 m, 22-V-1990, A. J. Richards 90/13 (MA 505731).

As Lindberg noted, best diagnosed by the ciliate, white-bordered erect ovate bracts, and by the rather obtuse lateral leaf-lobes; the leaves are a bright green. Closely allied to *T. miniatum*, but with a different leaf-shape and colour, shorter bracts and shorter achenes, the rostrum being only 4 mm. Lindberg's figure is of the type, which is untypically robust with late-season dissected leaves. The achenes of my material have narrower cones than those of the type.

T. miniatum H. LINDBERG fil. (1932)

MADRID: Puerto de Morcuera, Valle de Lozoya, grassland at summit (acid), 1800 m, 23-V-1990, A. J. Richards 90/1 (MA 505743). Puerto de Navacerrada, dry ground, 1860 m, 21-V-1990, A. J. Richards 90/35 (MA 505714).

Apparently this species usually inhabits dry alpine turf at the tree-line. Like *T. marginellum*, this species also has ciliate bracts with white margins, and is best diagnosed from *T. marginellum* by longer bracts (5-7 mm against 3-4 mm), larger achenes,



Fig. 1.—Holotype of *Taraxacum navacerradense*.

the body of which is 3.5 mm long and the cone 7-8 mm, and the acute down-pointed lateral lobes to the dark green leaves.

T. lambinonii V. SOEST (1961)

MADRID: Puerto de Navacerrada, short alpine turf, 1870 m, 21-V-1990, A. J. Richards 90/34 (MA 505715).

Dwarf alpine plants looking superficially like members of section *Alpina* G. Hagl., but with achenes typical of the present section. Much more dwarf than the type, but otherwise a good match. The achenes are exactly the same as the Exsiccatum VI, 203 from J. Kirschner and J. Stepanek (Prague). Recorded previously from the Pyrenees, but apparently the first time this widespread mountain species was found in central Spain.

Taraxacum sect. *Alpina* G. Hagl.

T. panalpinum V. SOEST (1959)

GUADALAJARA: Sierra de Ayllón, puerto de la Quiesera, short acidic grassland at summit, 1710 m, 22-V-1990, A. J. Richards 90/18 (MA 505727).

Very characteristic material of this very widespread alpine species known from here (V. SOEST, 1969), and distributed as far as the Tatra and Albania.

T. pseudopyrenaicum V. SOEST (1966)

MADRID: Puerto de Navacerrada, short alpine grassland to the west of the pass, growing with *T. lambinonii*, 1860 m, 21-V-1990, A. J. Richards 90/33.

A good match for the type. Specimens have corniculate inner phyllaries, supposedly a good character for *T. pyrenaicum* Reuter. However, these are also evident on the type of *T. pseudopyrenaicum*, and my specimens lack the green alate petioles and short bracts of *T. pyrenaicum*. *T. pseudopyrenaicum* has not previously been recorded south of the Pyrenees.

Taraxacum sect. *Alpestris* V. Soest

Taraxacum navacerradense A. J. Richards, *sp. nov.* (figs. 1, 2)

Planta semirobusta, ad 25 cm alta, clariter viridis. Folia erecta, succulenta, anguste

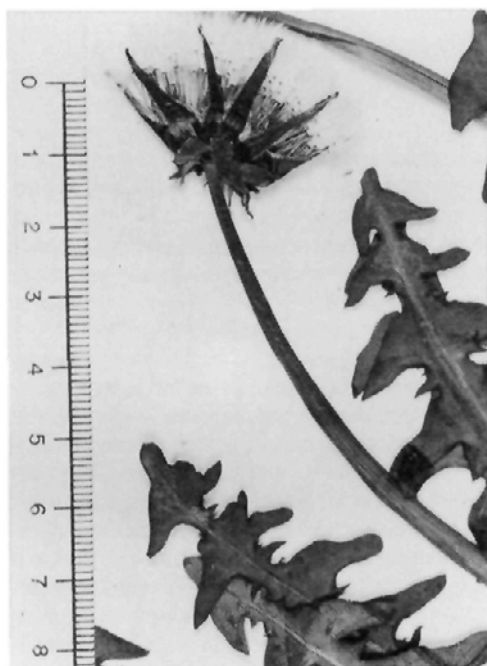


Fig. 2.—Details of the involucre and leaf apices of *Taraxacum navacerradense*.

oblonga, in lobis grossedentatis subpatentibus vel omnidirectionis deltoideis 5-7 divisa; lobus terminalis brevis trilobatus; petiolus viridis anguste lobatus. Scapus subbrunneus utriusque glaber altus. Involucrum robustum, basi late rotundata; squamae exteriores erecto-patentes ad 12 × 3 mm obscure virides anguste sed clariter albomarginatae, apice subcorniculatae; squamae interiores valde corniculatae. Capitulum luteum ad 40 mm in diametro sat dense investitum, ligulis purpleodontatis atropurpureo vittatis; styli stigmataque lutei, valde polliniferi. Corpus achenii 4.0 mm, brunneo-rufescens breviter spinulosus saepe utrinque, pyramide crasso conico 0.5 mm, rostro 10 mm, pappo albo praeditus. Species agamosperma videtur.

Holotypus: Spain, Madrid, Puerto de Navacerrada, wet places in pine woods at 1000 m, locally abundant, 21-V-1990, A. J. Richards 90/26 (MA 505744).

Isotypes: Hb. A. J. Richards and in several private herbaria (listed above).



Fig. 3.—Holotype of *Taraxacum nietoi*.

A robust and brilliant species with erect very bright pale green highly and regularly dissected leaves, long and wide rufous achenes (4.0 + 0.8 mm) and large erect very corniculate bracts. This species has the facies of several species in this section from the Alps, for instance *T. aestivum* V. Soest. The habitat and achene colour suggest also suggest classification within this section. However, the highly corniculate inner bracts are reminiscent of members of section *Borealia* Hand.-Mazz. (= *T.* sect. *Ceratophora* auct., nom. illeg.).

Taraxacum sect. **Celtica** A. J. Richards & C.-I. Sahlin.

T. nordstedtii Dahlst.

MADRID: Puerto de Navafria, acidic flushes in *Pinus sylvestris* forest, 1500 m, 23-V-1990, A. J. Richards 90/6 (MA 505737). Puerto de Somosierra, wet steep acidic slopes, 1650 m, 22-V-1990, A. J. Richards 90/20 (MA 505725). Puerto de Navacerrada, wet places in *Pinus sylvestris* forest, acidic ground, 1000 m, 21-V-1990, A. J. Richards 90/28 (MA 505720).

Also in several other wet acidic sites in pine woodland between 1000 and 1600 m. The commonest and most widespread *Taraxacum* in these Sierras. As usual variable, some approaching the 'occidental modification'.

T. ?gelertii Raunk.

MADRID: Valle de Lozoya, 2 km east of Lozoya, water meadows by lake, 1200 m, 23-V-1990, A. J. Richards 90/5 (MA 505738).

This material can probably be referred to this widespread species, but it is fragmentary and not absolutely clear, being somewhat in summer form.

T. pinto-silvae V. SOEST (1955)

GUADALAJARA: Sierra de Ayllón, 10 km west of puerto de la Quesera, wet riverside, 1450 m, 22-V-1990, A. J. Richards 90/19 (MA 505726). Puerto de Somosierra, very wet steep acidic slopes, 1650 m, 22-V-1990, A. J. Richards 90/21 (MA 505724). Puerto de Navacerrada, wet places in acidic *Pinus sylvestris* woodland, 1000 m, 21-V-1990, A. J. Richards 90/29 (MA 505719).

These specimens all refer to the same species, and match well with V. Soest's type, which is however a larger plant. However,

some variation is evident in my collections, so that the achene body ranges from 3.5 to 4.0 mm in length, and the exterior bracts can be up to 4 mm in width. V. Soest referred this species to section '*Vulgaria*' (= sect. *Ruderalia*), but at that date species classified today within section *Celtica* (1985) were placed there. This is a typical member of sect. *Celtica*, related to *T. gelertii* Raunk. These are the first Spanish records of a species first described from Portugal.

?**T. coryphorum** SAHLIN (1984)

MADRID: Puerto de Navafria, acidic flushes in *Pinus sylvestris* forest, 1500 m, 23-V-1990, A. J. Richards 90/7 (MA 505736).

This material resembles Sahlin's figure and description, but differs from *T. coryphorum* in lacking pollen and by pure yellow stigmas.

T. nietoi A. J. Richards, sp. nov. (figs. 3, 4)

Planta mediocris, ad 25 cm alta, obscure viridis. Folia suberecta-patentes, spatulata,

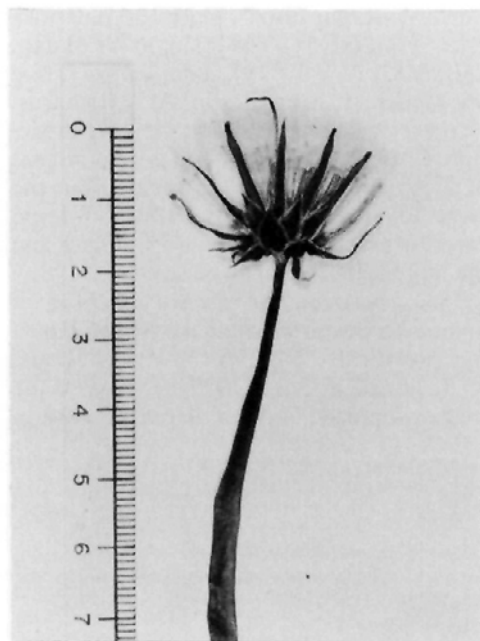


Fig. 4.—Involucre of *Taraxacum nietoi*.

2-3 lobata, lobis lateralibus subintegribus deltoideo-attenuatis, lobo terminalo late-hastato interdum unilateraliter vel bilateraliter subdiviso; petiolus exalatus rubro-brunneus cum nervo mediano minute vittatus. Scapi folia subaequantur cuprei glabri. Involucrum robustum obscure viride, basi late rotundata. Squamae exteriores erectae ovatae, 8×4 mm, distincte 0.5 mm albo-maginatae, laeves. Capitulum luteo-flavum, ad 35 mm in diametro, ligulis purpureodontatis cano-purpureo vittatis; styli stigmataque sordide lutei, valde polliniferi. Corpus achenii 3.8 mm, cano-brunnescens apice breviter spinulosus, pyramide subcrasso conico 0.6 mm, rostro 8 mm, pappo albo praeditus. Species agamosperma videtur.

Holotypus: Spain, prov. Segovia, Riofrío de Riaza, hayedo de la Pedrosa. Wet acidic ground near the tree-line at 1600 m amongst *Erica arborea* and *E. australis*, growing with *T. malato-belizii* and *T. gallaecicum*, 22-V-1990, A. J. Richards 90/16 (MA 505742).

Isotypes: Hb. A. J. Richards and in several private herbaria, listed above.

Remarkably, unnamed material from north Wales can also be placed here: British Isles, Flint (vc 51), roadbank at Yr Hafan, 33/188667, 12-V-1984, *T. Edmondson* (1984) 46, 47. Hb. T. Edmondson, A. J. Richards.

T. nietoi is a characteristic member of section *Celtica*. The leaf-shape is reminiscent of *T. lancastricense* A. J. Richards, but the large ovate, beautifully white-bordered exterior bracts, the yellowish stigmata and the large achenes are all distinctive.

Links between the *Taraxacum* flora of Spain and western Britain have been reported previously, e.g. for *T. drucei* Dahlst (= *T. lainzii* V. SOEST, 1954b). Four of the species reported here are native to western

Britain, so such a disjunction is not unexpected. *T. nietoi* should be sought in other regions of western Europe.

T. nietoi is named for Dr. Nieto Feliner who sponsored my journey to Spain.

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