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THE GENUS *TARAXACUM* (*ASTERACEAE*) IN THE SOUTHERN HEMISPHERE. I. THE SECTION *ANTARCTICA* HANDEL-MAZZETTI AND NOTES ON DANDELIONS OF AUSTRALASIA

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Abstract: A survey of *Taraxacum* taxa described from Latin America is presented. *Taraxacum* sect. *Antarctica* is revised taxonomically. The plants usually classified as members of the section in the southernmost South America, often under several species names, proved to represent a single taxon, *Taraxacum gilliesii*. The species proved to be diploid with 2n=16, reproducing sexually, which is documented by tetrad formation in megasporogenesis. The sexual reproduction is responsible for the considerable variation in a number of the species' characters. Full synonymy, notes on the nomenclature (including typification) and a description of the section and the species are also given. An analysis of plants often referred to as *T. magellanicum* from New Zealand is given. Plants from Australia and New Zealand were found to be sexual and belonging to a new section, *T.* sect. *Australasica*.

Keywords: Australia, *Compositae*, New Zealand, Taxonomy, Temperate South America

Electronic appendix (www.ibot.cas.cz/folia): Figs. 6–9

INTRODUCTION

The genus *Taraxacum* is quite common in temperate parts of South America (e.g., in Patagonia). There, *Taraxacum* species dominate in towns, along roadsides and in many other ruderal sites much like in the temperate and boreal Europe. The taxonomy of the native ones was in need of revision because of very different species concepts adopted in various works.

The first *Taraxacum* species were described from Latin America in the 19th century: *T. gilliesii* HOOK. et ARN. (HOOKER & ARNOTT 1835) from the Argentinean Andes, *T. mexicanum* DC. (CANDOLLE 1838) from the vicinity of Mexico City and both *T. magellanicum* COMM. ex SCH. BIP. (SCHULTZ-BIPONTINUS 1855) and *T. ibari* PHIL. (PHILIPPI 1894) from Chilean Patagonia. Later, *T. melanocarpum* HAND.-MAZZ. from the Chilean Andes and the section *Antarctica* HAND.-MAZZ. (HANDEL-MAZZETTI 1907) were published by the Austrian monographer of the genus. At the same time, DAHLSTEDT (1907) added *T. andinum* DAHLST. from the Argentinean Andes and *T. rhusiocarpum* DAHLST. from the Chilean part of Patagonia. *T. fernandezianum* DAHLST. (SKOTTSBERG 1922) was published as a supposed endemic species from the Juan Fernandez Islands (Chile). Fifty years later, RICHARDS (1976) summarized the neotropical dandelions, published the section

Mexicana A.J. RICHARDS and 11 new species belonging to this section: *T. argutifrons* A.J. RICHARDS, *T. calocephaloides* A.J. RICHARDS, *T. craspedotoides* A.J. RICHARDS, *T. cuzcense* A.J. RICHARDS, *T. disseminatoides* A.J. RICHARDS, *Taraxacum submolle* A.J. RICHARDS ex KIRSCHNER et ŠTĚPÁNEK (*T. spathulatum* A.J. RICHARDS, nom. illeg.), *T. subspathulatum* A.J. RICHARDS, *T. tenejapense* A.J. RICHARDS, *T. unguilobifrons* A.J. RICHARDS. For the sake of completeness, we summarize the main differences between the section *Mexicana* and plants from the southernmost Latin America studied below: the section *Mexicana* is characterized by narrowly lanceolate, ± numerous, uniformly green to pruinose-green, suberect to erect outer bracts, subcylindrical, 0.5–0.8 mm long cone, and thin, 6–8 mm long rostrum. DOLL (1976) described *T. andiniforme* R. DOLL from Peru. Recently, *T. patagonicum* UHLEMANN (2002) was published from the Chilean part of Patagonia.

In the present paper, the section *Antarctica* is dealt with in detail. The sections of *Taraxacum* found in the field and in herbarium collections from Latin America are listed below to give a survey of the diversity of the genus in that area. Only *T.* sect. *Erythrosperma* (LINDB.) DAHLST. was not found in the above sources, and is adopted from the literature (RICHARDS 1976).

List of sections of the genus *Taraxacum* in Latin America

(sectional keys in RICHARDS 1976 and UHLEMANN 2002)

1. *T.* sect. *Antarctica* HAND.-MAZZ.
2. *T.* sect. *Celtica* A.J. RICHARDS
3. *T.* sect. *Erythrosperma* (LINDB.) DAHLST.
4. *T.* sect. *Hamata* H. ØLLG.
5. *T.* sect. *Mexicana* A.J. RICHARDS
6. *T.* sect. *Ruderalia* KIRSCHNER, H. ØLLG. et ŠTĚPÁNEK

MATERIAL AND METHODS

The paper is based on field studies carried out by I. Uhlemann in November 1999 (Chile: Patagonia, coastal parts of the Region VII) and in January 2002 (Chile: Andes), the study of herbarium material preserved in B, CONC, DR, E, GLM, HIP, K, NY, RNG, S, SGO, US, W and the observation of living plant material obtained from the gatherings.

Chromosome numbers. The squash method was applied to the root tips of seedlings, which were pretreated with 0.002 M 8-hydroxyquinoline (4 h), Carnoy fixative (12 h), hydrolyzed in 1 M HCl (5 min., 60 °C) and stained with aceto-carmine to determine the chromosome number.

Embryology. The same procedure as for the cytological studies was applied to young ovaries. Cuttings (15–20 µm) were carried out using a Cryostat (Leica CM 1510).

NOTES ON THE GENUS *TARAXACUM* IN AUSTRALIA AND NEW ZEALAND

Before the South American plants are treated in more detail, we have to solve the problem of the alleged identity of plants from the Australasian and South American regions. The

traditional inclusion of indigenous Australasian dandelions in the section *Antarctica* and New Zealandian plants in *T. magellanicum* (HANDEL-MAZZETTI 1907) has generally been accepted in relatively recent literature (ALLAN 1961, 1982, GARNOCK-JONES 1988, SCARLETT 1999). However, a detailed examination of the type material of the names based on plants from Australia and New Zealand shows that there are conspicuous features distinguishing them from the material from South America. Moreover, the character combination including adpressed, usually green to deep green, pale bordered outer involucral bracts, sexual reproduction (autogamy, see HUGHES & RICHARDS 1988, 1989), and, in particular, very thin, long subcylindrical cone (the achenes vary in size but the cone usually is 1.0–1.5 mm long and ca. 0.2 mm thick, in smaller achenes at least 1/3 as long as the coloured part of the achene, in longer achenes usually about 1.5 mm long), qualifies the group as a separate section. We describe the section under the name *Taraxacum* sect. *Australasica*.

Taraxacum sect. *Australasica* KIRSCHNER, SCARLETT & ŠTĚPÁNEK, sect. nov.

Typus: *Taraxacum aristum* MARKL.

Diagnosis: Plantae graciles, squamis involucralibus exterioribus ecorniculatis coloratione viridi, pallide marginatis, acheniis distincte pyramidatis, pyramide anguste cylindrica vel raro anguste subcylindrica longa praeditis.

Description: Flowers and leaves develop simultaneously. Plants usually delicate or small. Plant base whitish araneous or subglabrous to slightly araneous. Middle leaves sparsely araneous or subglabrous. Leaf at hair base not swollen, leaf surface flat. Leaves undivided or shallowly lobate to deeply lobed, lobation usually uncomplicated. Midrib without striatulate pattern. Leaf blade unspotted. Petioles narrow, unwinged. Scapes unbranched, growing from the centre of leaf rosette, subglabrous, sparsely araneous, or araneous, particularly below the capitulum. Capitulum after flowering pointing upwards. Involucre usually narrow at the base, usually 5–9 mm wide. Flowers yellow. Florets usually ± numerous. Ligules flat. Pollen present. Stigma discoloured (usually pale green). Outer and inner involucral bracts flat, without corniculation or horns at the apex, rarely very slightly callose. Outer bracts 10 to 14, imbricate or of ±equal length, adpressed, lanceolate-ovate, Prevailing colour of exterior bracts: pale green to deep green. Outer bracts narrowly bordered, almost glabrous or sparsely ciliate. Achenes pale greyish straw brown or of various coloration, brown, fulvous, reddish or deep red, with numerous, conspicuous or inconspicuous, longitudinal ridges, ±densely or sparsely spinulose above 3.5–6.0 mm long, gradually narrowing into the cone. Cone cylindrical to slightly subcylindrical, thin, 1.0–1.6 mm long. Rostrum thin, 5.0–9.0 mm long. Pappus 5.0–7.0 mm long, white or whitish-yellow, not deciduous. Receptacle glabrous. Plants sexual (diploid). Main flowering season: late spring to early summer or summer (under lowland conditions).

The new section includes at least three species: *Taraxacum cygnorum* HAND.-MAZZ., *T. aristum* MARKL. and *T. zealandicum* DAHLST. (syn.: *T. glabratum* (BANKS et SOL. ex

KIRK) COCKAYNE). Chromosome number 2n=16 was reported for *T. aristum* by HUGHES & RICHARDS (1989).

It should be emphasized that not all the specimens of native dandelions from New Zealand belong to the new section. Considerable morphological variation is described for New Zealand native Taraxaca by GARNOCK-JONES (1988). There are plants clearly deviating from the character combination of the representatives of the section *Australasica*. A number of these are currently in cultivation and await further study; for the time being, we cannot exclude that they will be found to belong to the vicinity of the section *Antarctica* (i.e., *T. magellanicum* auct.).

TARAXACUM SECT. *ANTARCTICA* HAND.-MAZZ.

T. sect. *Antarctica* HAND.-MAZZ., Monogr. Gatt. *Taraxacum* [XI] (1907).
≡ T. subsect. *Antarctica* (HAND.-MAZZ.) R. DOLL, Feddes Repert. 93: 533 (1982).

Lectotype (designated by DOLL 1974: 58): *T. melanocarpum* HAND.-MAZZ.; lectotype (designated by RICHARDS 1976: 701): Cordilleres de Maule (GERMAIN K); isolectotype (BM, W, see also KIRSCHNER & ŠTĚPÁNEK 1997).

The section *Antarctica* was described in the monograph of the genus *Taraxacum* (HANDEL-MAZZETTI 1907). The very short and insufficient diagnosis points to the ovate, bordered outer bracts and to fruits provided with a rostrum. The only character given that differentiated this section from the others is the geographical distribution: "Plantae hemisphaerae australis indigenae" (HANDEL-MAZZETTI 1907), is not a satisfactory criterion to decide which taxa are to be included in the section. Three species were mentioned as members of the section by Handel-Mazzetti: *T. melanocarpum* HAND.-MAZZ., *T. magellanicum* COMM. ex SCH. BIP. and *T. cygnorum* HAND.-MAZZ.

Later, the section *Antarctica* was included in the section *Arctica* DAHLST. by RICHARDS (1972), then it was regarded as a subsection of the section *Arctica* DAHLST. by DOLL (1982).

The plants from South America treated as members of the section *Antarctica* are morphologically close (particularly in achene characters), and undoubtedly related to the mainly circumarctic section *Arctica*. Both groups are quite variable in number of characters, and the characters of involucre (outer involucral bracts) are diagnostic: The section *Arctica* is characterized by callose to corniculate outer bracts, they are less numerous (usually 8–10) and are of ±equal length (not imbricate). In most representatives of the sect. *Arctica*, outer bracts lack a broad pale border (they are unbordered or have a very narrow paler border). Broadly and distinctly bordered outer bracts can sometimes be observed in the section *Arctica* in the Arctic of the Far East and Alaska where numerous agamosperms intermediate between the sections *Borealia* HAND.-MAZZ. (with common broadly bordered outer bracts) and *Arctica* are found.

It should be added that the plants found to belong to the sect. *Antarctica* reproduce sexually whereas the sect. *Arctica* comprises mainly agamospermous species; sexuals are rare (e.g., *T. holmenianum* SAHLIN ex KIRSCHNER et ŠTĚPÁNEK). The geographical isolation of the two sections is another fact to be mentioned (the nearest taxa of the sect. *Arctica* are known to

occur in California: *T. ammophilum* A. NELSON ex GREENE, *T. californicum* MUNZ et JOHNST.), which may be accounted for by a bipolar disjunction of a presumed common ancestors of the two groups.

Description of *Taraxacum* sect. *Antarctica*

Flowers and leaves develop simultaneously. Plants small, plant base subglabrous to slightly araneous. Middle leaves sparsely araneous or subglabrous. Leaf at hair base not swollen, leaf surface flat. Leaves undivided or shallowly lobate or deeply lobate but lobation uncomplicated and sparsely toothed, leaf lobes patent or pointing downwards, midrib without striatulate pattern, blade unspotted. Petioles unwinged to narrowly winged. Scapes unbranched, growing from the centre of leaf rosette, glabrous or subglabrous. Capitulum after flowering pointing upwards. Involucre with slightly subconical to rounded base. Flowers yellow. Florets usually ± numerous. Outer ligules flat. Pollen usually present, rarely absent. Stigma discoloured (usually pale green). Outer and inner involucral bracts flat, without corniculation or horns at the apex, rarely very slightly callose. Outer bracts 10–15 in well-developed plants, usually conspicuously imbricate or ±imbricate, adpressed or ±erect, lanceolate-ovate or ±ovate, ±short, almost glabrous, sparsely ciliate, or ciliate. Prevailing colour of exterior bracts: dark (dark green or black), borders distinct, usually medium broad to ±narrow, paler or reddish. Achenes straw brown, ochraceous or pale reddish or often blackish olivaceous to olivaceous, with numerous longitudinal ridges, often spinulose and tuberculate throughout, achene body 3.5–4.5 mm long, medium thick, usually 0.9–1.0 mm wide, gradually, subabruptly, or ± abruptly narrowing into the cone. Cone conical (-subcylindrical), thick, 0.4 to 0.9 mm long. Rostrum thin, 5.0–8.0 mm long. Pappus 5.0–6.5 mm long, white or whitish-yellow, not deciduous. Receptacle glabrous. Plants sexual. Main flowering season: summer (under lowland conditions).

Species concept in the section *Antarctica*

The most important accounts of South American dandelions (RICHARDS 1976, DAHLSTEDT 1907) recognize several (three to four) species within what is adopted as the section *Antarctica* in the present study: *T. magellanicum*, *T. andinum*, *T. gilliesii* and *T. rhusiocarpum*. Our species concept in *Taraxacum* does not principally differ from that of the above authors but there are substantial arguments in favour of the inclusion of all the populations of the South American *Antarctica* in a single taxon at the species level under the name *T. gilliesii*.

(a) Variability in natural populations

Field observations of native dandelion populations in Patagonia (for instance, Punta Arenas, Seno Otway, I. UHLEMANN 1999, unpubl.) showed a wide range of variation. As regards the leaf shape, the population was composed of a majority of plants with almost undivided leaves and a minority of individuals with inner or all leaves deeply lobed; the character was not found to correlate with other features (outer bracts, fruits, flowers). Grey fruits were the most common fruit colour variant in the population but a few plants (often the ones with divided leaves) yielded black fruits. In another population (Argentina, Patagonia,

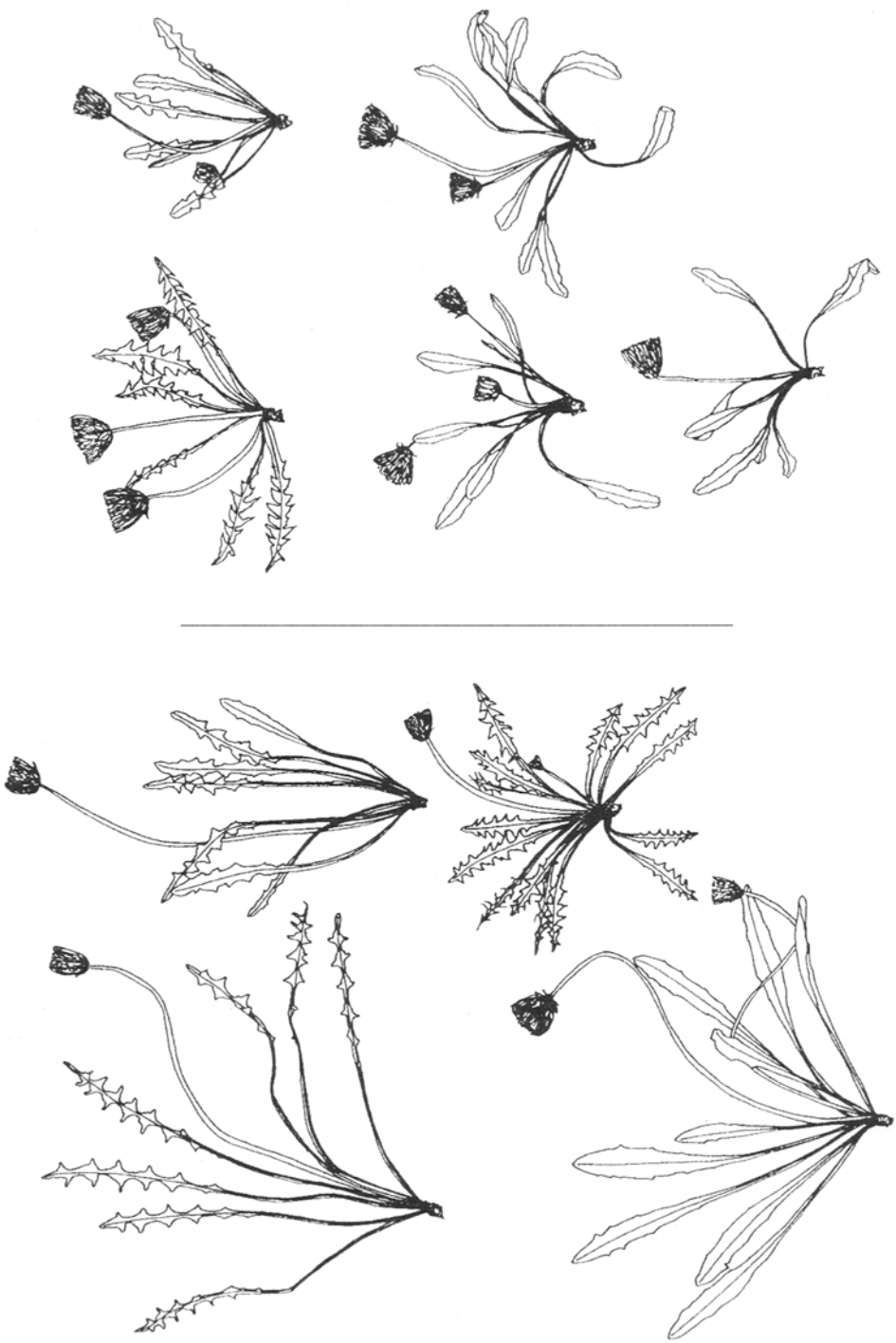

Fig. 1. *Taraxacum gilliesii* HOOK. et ARN.. Left: Bottom left plant from Puerto Natales, Torres del Paine; bottom right plant from Andes of Curico (all Chile). Upper two plants from Punta Arenas, Seno Otway. Right: All plants from Punta Arenas, Seno Otway.

Parc Nacional "Los Glaciares", El Chalten Laguna Torre) both leaf shape morphotypes had the fruit colour intermediate between black and grey. Herbarium collections also document an unusual variation within populations. Both main leaf shape types are found side by side on a herbarium sheet in many cases (e.g., specimens ARROYO et al. *2538*, GOODALL *108*, EYERDAM et al. *24145* or MEXIA *7929*). Fruit colours found in the southernmost Patagonia and in Tierra del Fuego include grey, black, intermediate between black and grey, reddish (PISANO *5163*), stramineous (MOORE *1315*, EYERDAM et al. *24041*, GAY *s.n.*), or even two fruit colours are found on one sheet, e.g., ochraceous and brownish-olivaceous (GOODALL *453*) or blackish and olivaceous (MOORE & GOODALL *385*) in otherwise indistinguishable plants.

(b) Analysis of type specimens

The type of *T. andinum* represents a high Andean morphotype with divided leaves and paler green leaves and involucres, small outer bracts and grey achenes. Original material of *T. melanocarpum* is distinguished from the former variant only by its black achenes, a character observed sporadically in a few plants in Patagonian populations (Punta Arenas N, Seno Otway) of grey fruited *T. gilliesii*. *T. rhusiocarpum* represents an autumn modification (March 31, 1899 !) with brown fruits and a very short rostrum. The inconspicuous border of outer bracts in the type of *T. ibari* represents only an extreme form in the variation pattern of this character. We conclude that the morphotypes represented by type specimens of the above names belong to the common within- and among-population variation of a single species.

(c) Reproduction system and variation

As documented below, all the examined plants of the section *Antarctica* proved to reproduce sexually. The evidence comes from chromosome numbers (diploids are exclusively sexual in *Taraxacum*), tetrad formation in megasporogenesis (dandelion agamosperms are characterized by dyad formation), regular pollen (a reliable indicator of sexuality) and a high within-population variation. In the taxonomy of *Taraxacum*, there is a general rule that a sexual assemblage within a group (subsection, section, species aggregate or a geographic subdivision of a group) is treated as a single species despite the unusually broad variation range. *Taraxacum parvulum* DC. (= *T. himalaicum* SOEST) of the section *Parvula* HAND.-MAZZ., *T. linearisquamum* SOEST of the section *Ruderalia*, or *T. erythrospermum* BESS. of the section *Erythrosperma* may be given as examples. In most cases, the variable sexual exhibits variation in traits found invariable in asexual taxa, which particularly concerns the achene colour, size and shape.

When the same concept is adopted for the evaluation of the South American plants belonging to the section *Antarctica*, and the above arguments are considered, the only sound conclusion is to treat them as a single, variable species.

***Taraxacum gilliesii* HOOK. et ARN., Companion Bot. Mag. 1: 31 (1835).**

Lectotype (designated by RICHARDS 1976: 702): Las Guindas, Andes of Mendoza (s.a. GILLIES K, photo PRA); isolectotype (E, photo PRA).

= *Taraxacum andinum* DAHLST., Arkiv Bot. 6(12): 12 (1907).

Lectotype (**designated here**): [Argentina], Argentinae prov. Mendoza: in viciniis montis Aconcagua, ad ostium conv. Horcones versus conv. Las Cuevas, 3000–31000 m s.m. (31.I.1903, MALME S), other authentic material: cultivated material from this collection (S* – Fig. 6).

= *Taraxacum ibari* PHIL., Anal. Univ. Chile 87: 324 (1894).
Lectotype (designated by RICHARDS 1976: 701) [Chile, Patagonia, Punta Arenas N, Puerto Natales NE] Cord. de los Baguales (1879 H. IBAR K, not seen), isolectotype (SGO 065215* – Fig. 9).

= *Taraxacum magellanicum* COMM. ex SCH. BIP., Flora 38: 122 (1855) .
Lectotype (designated by RICHARDS 1976: 701): Chile, Magellan, Sandy Point [Punta Arenas] (XI.1852 LECHLER *1103* S*, Fig. 7), isolectotypes (SGO 065214, W 7555).

= *Taraxacum magellanicum* f. *lobatum* DAHLST., Arkiv Bot. 6(12): 6 (1907).
Lectotype (**designated here**): Patag[onia] australis, Camp VI ad fl. Rmo Sta Cruz (12.I.1905, P. DUSIN S).

= *Taraxacum melanocarpum* HAND.-MAZZ., Monogr. Gatt. *Taraxacum* 54 (1907).
Lectotype (designated by RICHARDS 1976: 701) [Chile, VII Region, Andes d. Maule], Cordillieres de Maule (1855 PH. GERMAIN K), isolectotype (W 7554* – Fig. 8, BM).

= *Taraxacum rhusiocarpum* DAHLST., Arkiv Bot. 6(12): 15 (1907).
Holotype: [Chile, Patagonia, Punta Arenas N, Puerto Natales N], Patagonia australis: Inter Kark et Eberhardt, in silva (31.III.1899 O. BORGE, Sv. Exp. Till Patagonien 1899, no. 354 S).

– [*Leontodon lycodon* SOL. ex DIMENT et al., Cat. Nat. Hist. Draw. J. Banks Endeav. Voy. 1768–1771, vol. 2: 177, fig. TF 49 (1987), nom. inval. – Authentic material: Tierra del Fuego (I.1769 SOLANDER, Fig. TF 49, op. c.)]

– [*Leontodon chilensis* DON ex HOOK. & ARN., Companion Bot. Mag. 1: 31 (1835), nom. inval.]

– [*Taraxacum integrifolium* PHIL., in sched. – Authentic material: Magallanes (1894 D. DOMINGO SGO 076380).]

Note: In most cases, we have accepted the lectotypes designated by RICHARDS (1976) although he uses a term "Type locality" combined with a citation of a single specimen. Lectotypes are selected here for several names where Richards overlooked other nomenclaturally important specimens and his approach might lead to nomenclatural confusion. Asterisked (*) specimens are documented by photographs available as Figs. 6–9 at http://www.ibot.cas.cz/folia.

Description (Figs 1, 2, 4, 6*–9*). Plants small and delicate, (2–) 5–15 (–22) cm. Leaves glabrous, erect, mid-green, unspotted, oblanceolate, entire, dentate, lobulate or deeply lobed. Lobes lingulate to deltoid, hamate-reflexed-patent, blunt to acute, usually entire. Petiole narrow, unwinged, green or very slightly pink. Scapes green, glabrous. Involucrum usually dark bluish-green and pruinose or very seldom (in the highest parts of the Andes) pale green. Outer involucral bracts (5–) 8–12, erect or adpressed to the inner bracts, green to bluish green, ovate to broad lanceolate, (1.5–)3–4 mm wide and 4–6 (–8) mm long, usually with a distinct white or pink border (0.2–1.0 mm wide); rarely in single plants without border. Capitulum

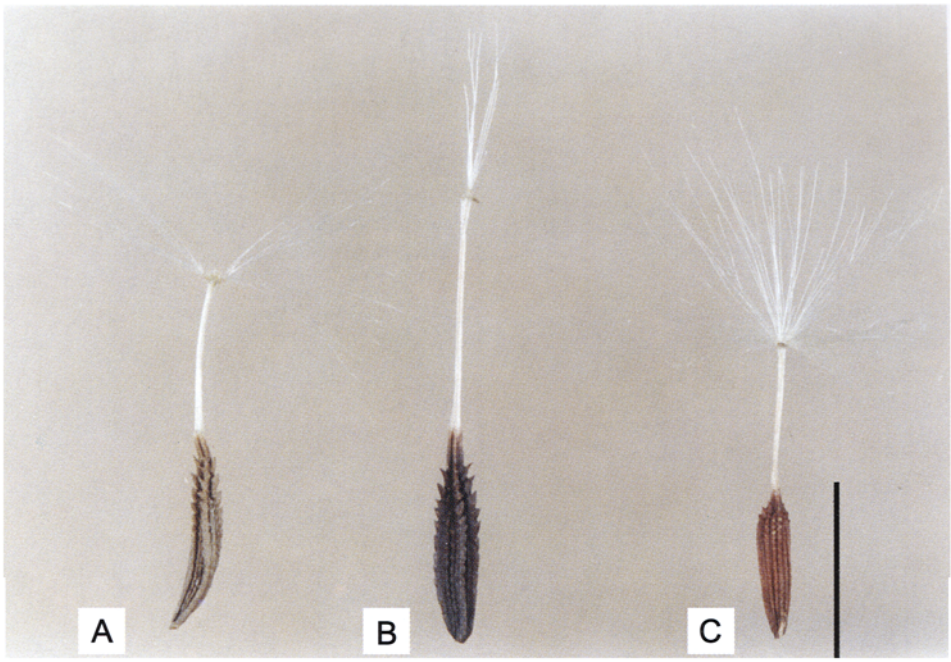

Fig. 2. *Taraxacum gilliesii* HOOK. et ARN. Variation in morphology and coloration of fruits. A – Torres del Paine (HAHN, DR 001578), B – Seno Otway (HAHN, DR 001576), C – Rio Grande (MEXIA, B 33/99-14).

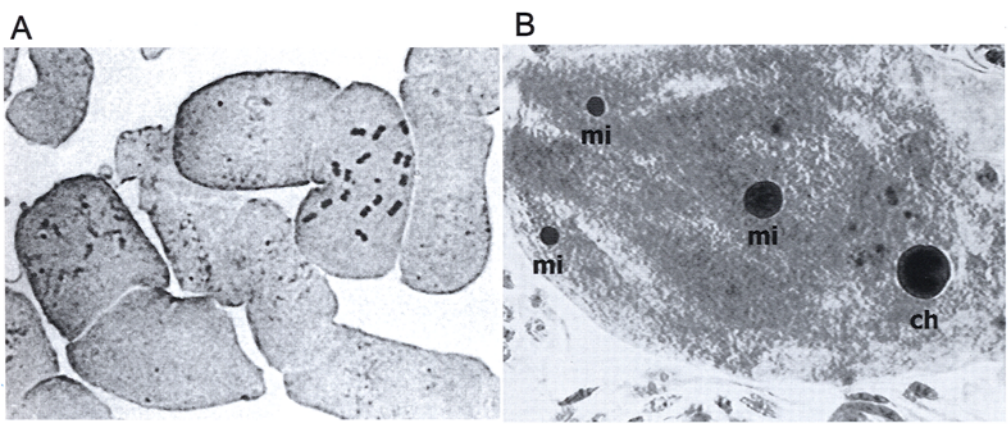

Fig. 3. *Taraxacum gilliesii* HOOK. et ARN. (Chile, Patagonia, Seno Otway, 1999) A. Mitotic metaphase plate, acetocarmine staining, 2n=2x=16. B. Megasporogenesis, tetrad stage. Chalazal (ch) megaspore functional, three degenerating micropylar (mi) megaspores.

Fig. 4. *T. gilliesii* HOOK. et ARN. Outer involucral bracts. A – Chile, Patagonia, Punta Arenas W, Cerro Mirador. B – Chile, Andes of Curico. C – Habit and habitat. Chile, Patagonia, Punta Arenas, Cerro Mirador.

0.8–1.7 cm in diameter. Flowers yellow, striped pale to dark grey beneath. Styles black, pollen is produced (uniform in diameter), rarely absent. Achenes (3.8–) 4.5–5 mm long (incl. the cone), often grey, more seldom black, in rare cases reddish, or of a intermediate type between these colours, gradually elongated into the cone; cone subconical, seldom almost subcylindrical, 0.4–0.9 mm long. Rostrum short (3–) 4–6 (–7) mm. Pappus 5.0–6.5 mm long.

The extraordinary variation in the morphological characters of *T. gilliesii*, which concerns mainly the leaf shape, the involucrum and the achenes, completely unknown in agamospermous dandelions is based on its sexual reproduction documented below.

Megasporogenesis and the reproductive behaviour. *Taraxacum gilliesii* reproduces sexually, which is exceptional in Northern Hemisphere dandelions (the vast majority of the approximately 2500 validly described dandelions are, or are supposed to be, obligate agamosperms), but seems to be the prevailing mode of reproduction among native *Taraxacum* species of the Southern Hemisphere. The megasporogenesis in agamospermous dandelions results in the forming of an unreduced dyad (*Taraxacum* Type) instead of a reduced tetrad as in sexual dandelions (IKENO 1910, JOHRI et al. 1992). Evidence for a sexual reproduction in *Taraxacum gilliesii* comes from the observation of a tetrad stage during the megasporogenesis (Fig. 3B).

The absolute majority of specimens examined in herbarium collections at K and RNG is polliniferous with pollen grains of regular size, which also reliably indicates sexuality. However, about 8% of plants (morphologically indistinguishable from the others) proved to be male sterile (apolline). Because the proportion of male-sterile plants is too high to be accounted for by a mutation event, we might assume that it is a genetically controlled mechanism that is responsible for this phenomenon. We do not know whether *T. gilliesii* is self-compatible (cultivation attempts soon failed) – if so, there may be an unlinked two-locus nuclear control. Autogamy is probable because of a homogeneity of seed set within a capitulum. In a population of self-sterile plants, a system similar to that found in *Plantago lanceolata* L. may operate (RICHARDS, 1986, and in litt.). The problem remains to be solved in South America because of serious difficulties in cultivating *T. gilliesii*.

Chromosome number. *Taraxacum gilliesii* proved to be diploid (2n=2x=16) (Fig. 3A). In *Taraxacum*, the basic chromosome number is x=8. Diploids reproduce sexually whereas a higher ploidy level corresponds to an agamospermous mode of reproduction in most cases (e.g., GUSTAFSSON 1932, 1937, SÖRENSEN & GUDJONSSON 1946, TSCHERMAK-WOESS 1949, FÜRNKRANZ 1960, MAŁECKA 1961, 1964, RICHARDS 1968).

Habitat. *Taraxacum gilliesii* occurs from the Patagonian lowlands to the Andean zone. In Patagonia, *T. gilliesii* is confined to sandy soil in open grassland, heathland and *Nothofagus*-copses. It often grows on lake or sea shores. On its outpost localities in the archipelago of Cape Horn it has been found behind dunes that consist of foraminifers (DOLLENZ, pers. comm.) where it finds shelter from the strong storms. In the Andes it occurs in wet, short-grass communities at an altitude up to 4000 m s.m.

Geographical distribution (Fig. 5). *Taraxacum gilliesii* is restricted to the southwestern part of South America where it has, generally spoken, an Andean-Patagonian disjunction. The northernmost localities are situated in the Andes somewhat north of Mendoza (Argentina) in the vicinity of the Aconcagua massif (type localities of *T. gilliesii* and "*T. andinum*").

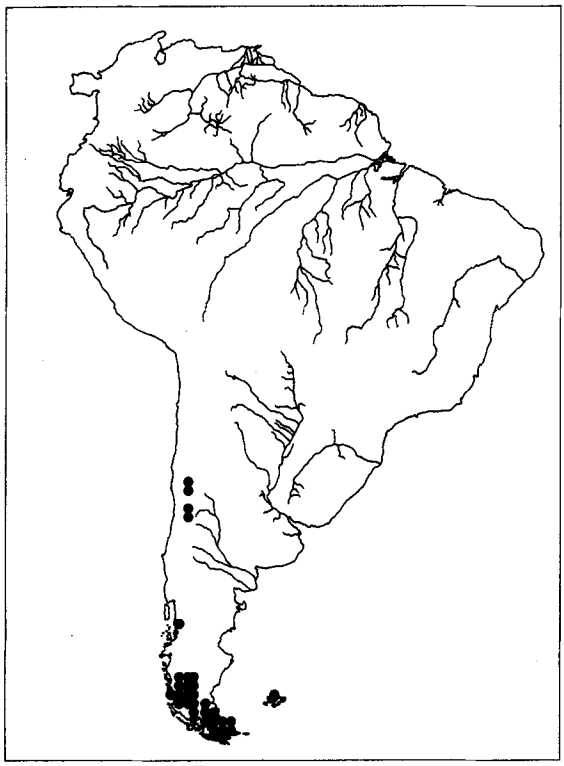

Fig. 5. Geographical distribution of *T. gilliesii* HOOK. et ARN.

Southwards, it occurs rarely in moist, grassy places in the highest parts of the Andes (-4000 m s.m.) up to the VII Region of Chile (Maule Region). It starts to occur again up from the XI Region of Chile (Aysen) and becomes more frequent in Patagonia. The Southernmost localities known are in the archipelago of Cape Horn where it has been recorded from the isles of Bayly and Grevy. Outpost localities are known from the archipelago of the Falkland Islands.

Relatives of *Taraxacum gilliesii*

Due to its delicate habit and the achene characters (gradually elongated into the cone, short rostrum), *T. gilliesii* is clearly differentiated from all other *Taraxacum* taxa occurring in Latin America. Superficially, in its habit and outer bracts it resembles species of the European *T.* sect. *Palustria* (LINDB.) DAHLST., but the achene characters are quite different. One of the nearest relatives of *T. gilliesii* in Latin America is *T. patagonicum* (UHLEMANN 2002) which takes a morphologically intermediate position to *T.* sect. *Ruderalia*. On the other hand, a few undescribed species from South America, however, probably belonging to *T.* sect. *Celtica* resemble *T. gilliesii* in general habit and outer bracts. Some members of the sect. *Arctica* are very similar to *T. gilliesii*, particularly plants from the Arctic parts of Asiatic Russia (for instance, some morphotypes of *T. kamtchaticum* DAHLST.). The nature of the relationships remains to be studied.

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REFERENCES

ALLAN H.H. (1961, reprinted 1982): *Flora of New Zealand 1*. P.D. Hasselberg, Wellington. [*Taraxacum* on pp. 763–764].

CANDOLLE DE A.P. (1838): *Prodromus systematis naturalis regni vegetabilis 8*. Geneve.
DAHLSTEDT H. (1907): Ueber einige südamerikanische Taraxaca. *Ark. Bot.* 6(12): 1–19.
DOLL R. (1974): *Die Gattung* Taraxacum. (Neue Brehm-Bücherei, 473), Wittenberg-Lutherstadt.
DOLL R. (1976): Eine neue *Taraxacum*-Sippe aus Peru. *Feddes Repert.* 87: 447–448.
DOLL R. (1982): Grundriss der Evolution der Gattung *Taraxacum* ZINN. *Feddes Repert.* 93: 481–624.
FÜRNKRANZ D. (1960): Cytogenetische Untersuchungen an *Taraxacum* im Raume von Wien. *Österr. Bot. Z.* 107: 310–350.
GARNOCK-JONES P.J. (1988): *Taraxacum*. In: WEBB C.J., SYKES W.R. & GARNOCK-JONES P.J. (eds.), *Flora of New Zealand 4*, Botany Division, DSIR, Christchurch, pp. 345–347.
GUSTAFSSON E. (1932): Zytologische und experimentelle Studien in der Gattung *Taraxacum*. *Hereditas* 16(1,2): 41–62.
GUSTAFSSON Å. (1937): Över förekomsten av en sexuell population inom *Taraxacum vulgare*-gruppen (On the occurrence of a sexual population in the *Taraxacum vulgare* group). *Bot. Not.* 1937: 332–336.
HANDEL-MAZZETTI H. VON (1907): *Monographie der Gattung* Taraxacum. Leipzig und Wien.
HANDEL-MAZZETTI H. VON (1923): Nachträge zur Monographie der Gattung *Taraxacum*. *Österr. Bot.* Z. 72: 254–275.
HOOKER W.J. & ARNOTT G.A.W. (1835): Contributions towards a flora of South America and the islands of the Pacific. *Companion Bot. Mag.* 1: 29–31.
HUGHES J. & RICHARDS A.J. (1988): The genetic structure of populations of sexual and asexual *Taraxacum* (dandelions). *Heredity* 60: 161–171.
HUGHES J. & RICHARDS A.J. (1989): Isozymes, and the status of *Taraxacum* (*Asteraceae*) agamospecies. *Bot. J. Linn. Soc.* 99: 365–376.
IKENO S. (1910): Sind alle Arten der Gattung *Taraxacum* parthenogenetische? *Ber. Deutsch. Bot. Ges.* 28: 394–397.
JOHRI B.M., AMBEGAOKAR K.B. & SRIVASTAVA P.S. (1992): *Comparative embryology of angiosperms*. Springer Verlag, Berlin & Heidelberg.
KIRSCHNER J. & ŠTĚPÁNEK J. (1997): A nomenclatural checklist of supraspecific names in *Taraxacum*. *Taxon* 46: 87–98.
MAŁECKA J. (1961): Studies in the mode of reproduction of the diploid endemic species *Taraxacum pieninicum* PAWŁ. *Acta Biol. Cracov., Ser. Bot.* 4: 25–42.
MAŁECKA J. (1964): Multinucleate pollen grains in *Taraxacum serotinum*. *Acta Biol. Cracov., Ser. Bot.* 7: 107–116.
MARTICORENA C. & RODRIGUEZ R. (1995): *Flora de Chile 1*. Pteridophyta – Gymnospermae. Universidad de Concepcion, Concepcion.
PHILIPPI R. A. (1894): Plantas nuevas chilenas. *Anal. Univ. Chile* 87: 299–330.
RICHARDS A.J. (1968): *The biosystematics of* Taraxacum. PH.D. Thesis, University of Durham, Durham.
RICHARDS A.J. (1972): Taxonomic and nomenclatural notes on *Taraxacum* (*Compositae*). *Bot. J. Linn. Soc.* 65: 37–45.
RICHARDS A.J. (1976): An account of some neotropical *Taraxacum* species. *Rhodora* 78: 682–706.
RICHARDS A.J. (1986): *Plant breeding systems*. George Allen & Unwin Publishers Ltd., London.
SCARLETT N.H. (1999): *Taraxacum*. In: WALSH N.G. & ENTWISLE T.J. (eds.), *Flora of Victoria 4, Dicotyledons*, Cornaceae *to* Asteraceae, Royal Botanic Gardens, Melbourne / Royal Botanic Gardens, Sydney, pp. 68–70.
SCHULTZ-BIPONTINUS C.H. (1855): Ueber die von Lechler an der Magellans-Strasse gesammelten, von Hohenacker herauszugebenden Cassiniaceen. *Flora (Regensburg)* 38: 113–123.
SKOTTSBERG C. (1922): *The natural history of Juan Fernandez and Easter Island 2*. Botany, Stockholm.
SÖRENSEN T. & GUDJONSSON G. (1946): Spontaneous chromosome-aberrants in apomictic Taraxaca. *Kongel. Danske Vidensk. Selsk. Biol.* Skr. 4(2): 1–48.
TSCHERMAK-WOESS E. (1949): Diploides *Taraxacum vulgare* in Wien und Niederösterreich. *Österr. Bot. Z.* 96: 56–63.
UHLEMANN I. (2002): A new species of the genus *Taraxacum* F.H. WIGG. (*Asteraceae, Lactuceae*) from South America. *Feddes Repert.* 113: 329–334.

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APPENDIX

Taraxacum gilliesii – Specimens seen

(the division of Chile after MARTICORENA & RODRIGUEZ (1995))

Falkland Islands (22.XI.1907 SKOTTSBERG SGO 058677); New Island (29.XI.1907 SKOTTSBERG *25* S); Falkland Isl. (J. D. HOOKER K); **Argentina:** Patagonia, Killikark (BROWN NY); Sta. Cruz, Rio Gallegos (BROWN NY); Sta. Cruz (12.XI.1928 DERCADO NY); Sta. Cruz, Lago Argentino, norte orilla Brazo, Rico-Ventisquero Moreno, ca. 270 m s.m. (17/18.XII.1950 H. SLEUMER US 2055898); Sta. Cruz, Ea. Fitzroy (Rio de las Vueltas), 450 m s.m. (24.XII.1950 H. SLEUMER US 2055969); Sta. Cruz, Rio Gallegos, alrededores (25.XI.1950 H. SLEUMER US 2055702); Sta Cruz, Margen de la Meseta arriba de la Perez (Rio de las Vueltas), ca. 1100 m s.m. (28.XII.1950 H. SLEUMER US 2056093); Sta. Cruz: Rio Gallegos, Estancia Chimen-Aike (16.III.1940 R. SANTESSON S); Sta. Gruz, in campo graminoso prope lac. Lago Argentino (20.I.1905 P. DUSEN S); Santa Cruz, Puerto San Julian (1.XII.1927 M. E. BLAKE *95* K); Santa Cruz, Estancia Las Vegas, Los Vascos (D.M. MOORE *1315* K, RNG); Santa Cruz, Rio Gallegos, Estancia Stag River (25.XI.1957, 3.I.1958 TWEEDIE K); Santa Cruz, Güer Aike, 25 km S of Puerto Coyle (2.I.1939 EYERDAM et al. *24041* K); Santa Cruz, Güer Aike, Ensenada de Riques (31.I.1977 ARROYO et al. *2682* RNG); Estancia Cullen, Bahma San Sebastian, 53°04′ S, 68°27′ W (6.I.1972 D.M. MOORE & GOODALL *385* RNG); Estancia Cullen (6.XII.1968 C. GOODALL & R.N. GOODALL *1888* RNG); Sta. Cruz, Güer Aike, En las Viscachas, Ensenada de Riques, al pu del Co Si Nombre, 50°45′ S, 72°12′ W C *152* (s. coll. HIP 7415); Sta Cruz, Rio Gallegos, Ea. Güer Aike (28.XI.1950 H. SLEUMER US 2055759); Sta. Cruz, Güer Aike, En las Viscachas Pto., La Piedra, 50°43′ S, 72°8′ W (26.I.1977 ARROYO et al. *2538* HIP 6469, RNG); Güer Aike, Estancia Cabo Buen Tiempo (4.XII.1975 ARROYO et al. *71* RNG); **Tierra del Fuego**, Cabo San Vincente, N of Bahia Thetis (23.XI.1969 GOODALL *2345* RNG); Sierra Almanza, W side of Lashifashaj Valley, 54°50′ S, 67°29′ W (11.I.1968 D. M. MOORE *1419* K, RNG); Cambaceres Bay, Inner Harbor (4.I.1967 GOODALL *453* RNG); Cabo Domingo (18.XI.1971 GOODALL *3918* RNG); (D.M. MOORE *2503a* RNG); Canal Beagle. Lapataia, in a thin wood (19.II.1940 R. SANTESSON S); Beagle Channel, Harberton Peninsula, SW end (11.XI.1965 GOODALL *108* RNG); Canal Beagle, Estancia Harberton, Twins, island off mouth of Río Lashifashaj, 54°53′ S, 67°23′ W (6.II.1968 D.M. MOORE *1793* RNG); Sierra Beuvoir E of Estancia Sarmiento (17.XII.1972 GOODALL *4378* RNG); Estancia Josi Menendez, between Cauchicol and Arroyo Guanaco (19.XI.1971 D.M. MOORE *2516* RNG); Estancia Las Hichas (16.I.1972 GOODALL *4366* RNG); Tierra del Fuego, Ushuaia, ca. 7 km NW, zwischen Stadt und Glaciar Marital, 300 m s.m. (17.I.2001 K. BRÄUTIGAM GLM 157052); Ushuaia, Río Olivia (16.II.1940 R. SANTESSON *504* S); Tierra del Fuego: Sierra Alvear, the southern slope, above Las Cotorras (about 20 km ENE of Ushuaia), in a meadow above the forest limit, 650 m s.m. (7.II.1940 R. SANTESSON S); Tierra del Fuego, Sierra Sorondo, the northern slope above Las Contorras (about 20 km ENE of Ushuaia), in a meadow above the forest limit, 600 m s.m. (6.II.1940 R. SANTESSON S); Tierra del Fuego, Lago Fagnano, Cabezera Lago at the eastern end of Lago Fagnano, on the shore of the lake (27.III.1940 R. SANTESSON S); Tierra del Fuego, Eastern coast, near Rio Grande, pampa near ocean (9.III.1936 Y. MEXIA S, US 2796784, US 1705301, NY); Tierra del Fuego, Beagle-Kanal, Yendogaia (7.III.1909 C. SKOTTSBERG S, SGO 058891); Tierra del Fuego, eastern cost, near Rio Grande, pampa near ocean, 213 m (9.III.1936 Y. MEXIA *7929* B 33/99-14, K); Estancia Moat, at head of Río Chico (D.M. MOORE *1634* K, RNG); Estancia Harberton, campo Rancho Tambo, Bahma Cambaceres (8.I.1968 D.M. MOORE *1367* K, RNG); Estancia Harberton, Campo Afuera, Cerro Flat Top, 54°48′ S, 67°27′ W (9.I.1968 D.M. MOORE *1390* K, RNG); Estancia Harberton, Harberton Peninsula (26.II.1968 [D.M. MOORE] RNG); Estancia Harberton, Moat Bay (13.XI.1965 GOODALL *118* RNG); **Andes of Mendoza**, Prov. Mendoza, Puente del Inca, La Bandera, 3200 m (21.II.1946 E. WALL S; B. SPARRE *1656bis* S); Puente del Inca, 3000 m (22.XII.1946 B. SPARRE *1613* S; B. SPARRE *1577* S); Prov. Mendoza, between Est. Las Cuevas and Christo Redentor, in gravel at about 4000 m s.m. (22.XII.1946 B. SPARRE S); In horto bot. Bergiana prope Stockholm annis 1904 et 1905 cultum e fructibus e conv. Horcones in vic. monte Aconcagua Argentina a G.O. MALME anno 1903 collectis (H. DAHLSTEDT S); Las Guindąs, Andes of Mendoza (Dr. GILLIES K) [= type of *T. gilliesii*]; Santa Rosa de Los Andes to Uspallato Pass (MOSELEY K). **Chubut**, Río Chubut, P. Chica ad fontes fl. Río Tecka (14.XI.1908 SKOTTSBERG S); Valle de la Laguna Blanca, 45°52′ S, 71°15′ W (J. KOSLOWSKY *111* K).

Chile: V Reg., Prov. Santiago, Cord. de los Pirquenes (XI.1865 PHILIPPI SGO 044722); **VII Reg.**, Andes of Curico, Tal des Rio Teno, Paso de Vergara, Hochebene, ca. 2500 m s.m. (18.I.2002 UHLEMANN herb. Uhlemann); Cordillieres de Maule (1855 PH. GERMAIN K, W 7554); **XI Reg.**, Terr. Aysen: Estancia Coyhaique,

Alto (near Cerro Coyhaique). In a very thin wood (18.XI.1940 R. SANTESSON S); **XII Reg.**, Cerro Donoso, Sector Rio de las Chinas, 1050 m s.m. (50°44′ S, 72°31′ W) (9.-11.II.1987 M.T.K. ARROYO, C. VELOSO & A. PENALOZA CONC 86615); Est. Cerro Payne, Cordillera, bajo rocas (24.II.1974 PISANO HIP 00364); Est. S de Enero (7.I.1959 O. MAGENS B 33/99-19); Estancia Tita-Isla Piesco-Seno Skyring, en terreno arenoso de la playa (5240/7130), 20 m s.m. (5.I.1952 PFISTER-RICARDI CONC 11911); Est. Dos Delenero, Valle de las Chinas, monte de nire y llanuras, en sitos claros del monte (8.XII.1978 E. PISANO & R. CARDENAS HIP 6505); Est. Dos Delenero, Valle de las Chinas, 350–600 m a.s.l. (7.XII.1978 E. PISANO & R. CARDENAS HIP 6304); Estacio experimental Kampenaike, en vega esteparia (12.II.1975 O. DOLLENZ HIP 3511); Cerro Cono, 725 m a.s.l., 50°41′ S, 72°23′ W, (s. coll. HIP 4722); Prov. Ultima Esperanza., Est. Cerro Castillo, 51°13′ S, 72°23′ W (13.XII.1975 BOELCKE et al. *444* HIP 4518, 4959, RNG; BOELCKE et al. *503* RNG); Prov. Ultima Esperanza., Sierra Baguales, Est. La Cumbre, Campo de la Tropilla, (50°44′ S, 72°22′ W), 750 m s.m. (15.I.1978 A. LANDERO CONC 93107); Sierra Baguales, Est. La Cumbre, Cerro Cono (BOELCKE et al. *795* RNG); Prov. Ultima Esperanza., Sierra Baguales, Est. La Cumbre, (PISANO & CARDENAS *4745* RNG); Est. Dos de Enero, Valle de las Chinas (7. & 8.XII.1978 PISANO & CARDENAS RNG); Prov. Ultima Esperanza., Sierra del Toro, (51°10′ S, 72°50′ W), 700–750 m s.m. (10.XI.1992 M.T.K. ARROYO, CH. VON BOHLEN, J. GARCIA & J. GIGOUX CONC 128393); Prov. Ultima Esperanza, Sierra Baguales, Est. La Cumbre, Campo de la Tropilla (500 444S 720 224W), 1300 m s.m. (22.I.1978 A. LANDERO CONC 93093); Prov. Ultima Esperanza., Sierra Baguales, Est. La Cumbre, Campo de la Tropilla, (50°44′ S, 72°22′ W, 850 m s.m. (25.XII.1986 A. LANDERO CONC 93264); Prov. Ultima Esperanza, Sierra Baguales, Est. La Cumbre, estepa al la y roquerios, 700–900 m a.s.l. (4.XII.1978 E. PISANO & R. CARDENAS HIP 6403); Parque Nacional Torres del Paine, Laguna el Lazo (13.XI.1985 M. ELGUETA SGO 104475); Campamento Base, Lago Tindall, Parque Nacional Torres del Paine, 51°13,6′ S, 73°10′ W (17.XI.1994 PISANO & DOMINGUEZ HIP 12954); Prov. Ultima Esperanza. Parque Nacional Torres del Paine, 1,5 km SE of Hosteriz las Torres, 50°99′ S, 72°51′ W, 250 m a.s.l. (14.XI.1995 A. ELVEBAKK HIP 14477); Parque Nacional Torres del Paine. Cerro Agudo, 650 m s.m. (50°49′ S, 73°03′ W) (15.17.I.1987 M.T.K. ARROYO & F. SQUEO CONC 86593); Puerto Natales N, Torres del Paine, Lago Pohoe (9.XII.1998 HAHN DR 001578); **Magallanes**, (I.1898 IBAR SGO 044720, SGO 076376); Magallanes, (PHILIPPI W 113739); Magallanes (1894 D. DOMINGO SGO 076380); Magallanes (II.1879 s. coll. SGO 044723); Magallanes, Rio Rubens near Hotel Rio Rubens, (about 50 km SE of Natales) (11.I.1941 R. SANTESSON S); Punta Arenas (1896 HATCHER NY); Punta Arenas, Rio Seco, in a very light *Nothofagus antarctica* forest (11.XII.1940 R. SANTESSON S); Punta Arenas, Rio Seco, in a dry unwooded hill (11.XII.1940 R. SANTESSON S); Punta Arenas (26.XI.1886 W.E. SAFFORD US 74746, NY; P. DUSIN *127* S); Strs. Magellan, Laredo Bay (22.I.1888 L.A.L. LEE US 25749); Strs. Magellan, Gregory Bay (18.I.1888 L.A.L. LEE US 25698); Strs. Magellan, Gregory Bay (23.XI.1886 W.E. SAFFORD US 1403052); Magallanes Land (1852 ANDERSSON S); Magallanes, Punta Delgada (5.XII.1921 A. VALENTIN S); Magallanes, (s. coll. S); Penisula Brunswick, Laguna el Parrillar (al norte), 550 m a.s.l. (14.I.1982 O. DOLLENZ HIP 9244); Seno, Otway, Playa de Rio Grande (15.XI.1972 PISANO HIP 00366); Cerro Guido-Estancia, Guido Magallanes, 700–900 m s.m., (5054/7228) (16.I.1952 PFISTER-RICARDI CONC 12170); Patagonia, Lago Viedma (I.1916 WITTE NY); Patagonia, Rio Cruces (1874 R. VIDAL SGO 076374); Patag. Australis: Tweedie (23.III.1899 O. BORGE S); Punta Arenas 10 km W, Reserva Forestal Magallanes, Cerro Mirador (12.XII.1998 HAHN herb. Uhlemann); Punta Arenas 30 km NW, Seno Otway (11.XII.1998 HAHN DR 001576); 78 km NW of Punta Arenas, road to Puerto Natales (7.I.1939 EYERDAM et al. *24145* K); Isla Magdalena (13–15.XII.1940 R. SANTESSON *1458* S); Sandy Point [Punta Arenas] (II.1882 COPPINGER K; 19.XI.1867 CUNNINGHAM K); Estancia Maria Cristina 80 km NE of Punta Arenas (5.XII.1971 GOODALL *4038* RNG); **Tierra del Fuego**, Sierra Carmen Silva, N side of Río Chico Valley, 53°50′ S, 68°39′ W (16.XII.1971 D.M. MOORE & GOODALL 221 RNG); Canal Whitside, Puerto Yartou, on a little island near Puerto Yartou (31.I.1941 R. SANTESSON S; 9.I.1971 D.M. MOORE *2381* RNG); Isla Tres Mogotes (21.III.1968 D.M. MOORE RNG); Tierra del Fuego, Isla Navarino, in pratis maritimis communis (4.III.1902 C. SKOTTSBERG S; US 1340210); Navarino Island, Puerto Williams (7.I.1959 GODLEY K); Punta Catalina (9.XI.1971 D.M. MOORE *2381* RNG); Eldslandee, (s.n. S); Tierra del Fuego, Puerto Arturo, en el piso del bosque, lugares abiertos (13.XI.1971 E. PISANO HIP 00368); Tierra del Fuego, Aserradero Lago Blanco, en sitos claros del bosque *Nothofagus pumilio* (2.III.1975 O. DOLLENZ HIP 3575); Tierra del Fuego, Sector Condor, Forestal Trillium, bosque de lenga, fin camino nuevo 53°58′ S, 70°03′ W (15.II.1995 PISANO, HENRIQUEZ & DOMINGUEZ HIP 13395); Tierra del Fuego, Sector Vicuna, Lote 12, Forestal Trillium, Vega, 54°07′ 54″S, 68°40′ 32″W (5.I.1995 PISANO, HENRIQUEZ & DOMINGUEZ HIP 13399); Tierra del Fuego, Sector

Vicuna, Lote 12, Forestal Trillium. Vega, (54°07′54″ S, 68°40′32″ W) (5.I.1995 PISANO, HENRIQUEZ & DOMINGUEZ CONC 139528); Tierra del Fuego, Sector Vicuna, Lote 12, Forestal Trillium. Vega, (54°08′ S, 68°42′ W) (10.I.1995 PISANO, HENRIQUEZ & DOMINGUEZ CONC 142630); Tierra del Fuego, Sector Vicuna, Lote 12, Forestal Trillium, Estepa, 54°08′ S, 68°42′ W (10.I.1995 PISANO, HENRIQUEZ & DOMINGUEZ HIP 13340); Tierra del Fuego, Cordon Baquedano, Sector Rio del Oro, 53°19′ S, 70°04′ W (19.XI.1993 PISANO & HENRIQUEZ HIP 12831); Tierra del Fuego, dumas rio Marazzi (10.XI.1971 PISANO HIP 00370); Tierra del Fuego, Estancia Cameron, sect. Russfin, Campo el Asserado, 53°44°S, 69°14′ W (19.II.1997 RODRIGUEZ CONC 145983); Porvenir (7.I.1941 R. SANTESSON *1586b* S; *1520* S); **Archip. Cabo de Hornos**, Rada Norte, Ba. Gretton, en arena parte superior de la playa sitos claros (15.I.1982 E. PISANO HIP 9274); Isla Bayly, Bahia Beaufort 55°38′ S 67°37′ W (1.III.1980 O. DOLLENZ CONC 137957, HIP 8798); ibidem (PISANO HIP 8020); Isla Bayly, Arenal, costa del canal Victoria (3.III.1980 PISANO 5163 RNG); Isla Grevy, Punta Dillon, Paso Norte (18.I.1982 PISANO HIP 9341, RNG); Isla Grevy, Ba. Gretten (15.I.1982 PISANO *5368* RNG).