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ORIGINAL ARTICLE

The genus *Carex* (Cyperaceae) in Chile: a general update of its knowledge, with an identification key

El género *Carex* (Cyperaceae) en Chile: una actualización general de su conocimiento, con una clave de identificación

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ABSTRACT

The knowledge of the genus *Carex* L. (Cyperaceae) in South America is scattered, without recent comprehensive treatments for any country. Within the continent, Chile is the country that harbors the most diversity, being the second in species richness and the first in endemic taxa. However, Chilean botanists must resort to several Argentinian floras for species identification, although these works leave uncovered many Chilean species. This has led many researchers and amateurs to neglect the amazing diversity of the genus in the country. In this work, we summarize the results of several years of research on the genus *Carex* in Chile. We here formally report six new national records, including the reinstatement of the Nahuelbuta endemism *Carex reicheana* Boeckeler. Also, relevant changes (regional additions or significant distributional changes) are reported for another 33 species, and nomenclatural comments on problematic names are given. The catalogue of *Carex* for Chile is updated with our own findings and previous published reports from 82 to 96 species.

Keywords: *Carex*, Chile, identification key, taxonomy, *Uncinia*.

RESUMEN

El conocimiento sobre el género *Carex* L. (Cyperaceae) en América del Sur está muy fragmentado y no existen tratamientos comprehensivos para ningún país. En el continente, Chile es el país que contiene la mayor diversidad de especies, siendo el segundo en riqueza y el primero en endemismos; paradojalmente, los botánicos de Chile deben recurrir a floras argentinas para identificar las especies, a pesar de que en ellas obviamente no figuran los endemismos de Chile. Esto se ha traducido en un desconocimiento generalizado sobre la fascinante diversidad del género en Chile. En este trabajo, resumimos los resultados de varios años de investigación sobre el género y reportamos formalmente seis nuevas especies para Chile, incluyendo la restauración del endemismo de Nahuelbuta *Carex reicheana* Boeckeler. Además, se reportan modificaciones distribucionales para 33 especies, junto a comentarios nomenclaturales sobre algunos nombres problemáticos. En este trabajo, se actualiza el catálogo de taxones de *Carex* en Chile mediante nuestros propios hallazgos y reportes publicados anteriormente, lo que lleva el número de especies conocidas para el país de 82 a 96.

Palabras clave: *Carex*, Chile, clave de identificación, taxonomía, *Uncinia*.

INTRODUCTION

The genus *Carex* L., with around 2000 species, is one of the most species rich genera of vascular plants in the world (Roalson *et al.* 2021; POWO 2023). Morphologically is well characterized, with all of its species having unisexual flowers concealed by a sheathing bract-derived structure that in most cases fully encloses the female flower, forming a unique diaspora called utricle (Jiménez-Mejías *et al.* 2016a). The genus is greatly diversified in the temperate regions of the Northern Hemisphere, with multiple independent colonization events of the Southern Hemisphere landmasses and islands (Martín-Bravo *et al.* 2019). Because of both the lesser extent of continental surface in the southern hemisphere and the evolutionary history of the genus, its diversity is also reduced here. However, among the many lineages that have successfully colonized and established in temperate regions of South America and/or New Zealand, several exhibit unique cases of *in situ* radiations, resulting in a high number of endemic elements reported for these areas (Benítez-Benítez *et al.* 2021; García-Moro *et al.* 2022, Martín-Bravo *et al.* 2022). While in New Zealand and Australia the diversity of *Carex* has been relatively well studied from both a taxonomical and evolutionary approach (e.g., Hamlin 1959; Healy & Edgar 1980; Wilson 1993, 1994; Moar & Wilmshurst 2003; Vollan *et al.* 2006; Ford 2007), the diversity of South America has been neglected, with the knowledge of endemic species scattered and mostly lacking comprehensive systematic treatments.

In South America, Chile is one of the countries that harbors the largest *Carex* diversity, both in terms of species number and endemism (96 and 31, respectively, including results in this paper; also see Jiménez-Mejías *et al.* 2016b and updates), making into the third most speciose genus of the country after *Senecio* L. (ca. 235 spp. Compositae; Rodríguez *et al.* 2018; Calvo & Moreira-Muñoz 2020; Calvo & Saldivia 2022) and *Adesmia* DC. (134 spp. Leguminosae; Rodríguez *et al.* 2018). In Chile, *Carex* species can be dominant in certain environments (e.g., Hauenstein *et al.* 2002, 2009; Amigo & Castro 2015) or act as primary companions in other vegetation types (e.g., Amigo & Castro 2015). However, despite its diversity and abundance, the knowledge of the genus in Chile is quite fragmentary, as it is in the vast majority of South America. There has been only one major revision for the genus in Chile (Leveillé 1915), which recognized 44 species and provided a general key for the country. However, this work has been mostly neglected because it is written in French and is hard to find. So usually, for sedge identification, Chilean botanists and amateurs must resort to Flora Patagonica (Barros 1969) or other Argentinian floras (e.g., Genera et Species Plantarum Argentinarum (Barros 1943); Flora de la Provincia de Buenos Aires (Pedersen 1969); Flora de San Juan (Wheeler 2009)). However, these works are not directly related to Chile or leave uncovered a large area of it, thus many Chilean species may be not present in these. The problem is exacerbated considering the high endemism rate of *Carex* in the Pacific slopes of the Southern Cone. In addition, there is a number of recent taxonomic discoveries and taxonomic rearrangements (e.g., GCG 2015; Jiménez-Mejías *et al.* 2021a, 2021b; Ridley & Jiménez-Mejías 2022) that affect the treatment of the genus in Chile but remain beyond the reach of the unspecialized botanist or the amateur.

After years of taxonomic work including herbarium revision, literature search, and fieldwork, we present in this paper an update of the knowledge of the genus *Carex* in Chile -including the first exhaustive identification key in over 100 years- using as starting point the main floristic checklist of Chile (Catálogo de las plantas vasculares de Chile; Rodríguez *et al.* 2018).

MATERIALS AND METHODS

A 29-day fieldwork campaign from Coquimbo to Los Lagos (Chiloé) administrative regions was performed along the Coastal and Andes cordilleras, visiting areas where it was previously reported *Carex* species richness or may potentially harbor interesting records (see below). In addition, the full *Carex* collection of CONC, ULS, VALD and most of SI and LIL, were revised *in situ*, as well as type material housed in BAB and the online repository Global Plants JStor.

New or relevant chorological records were identified with respect to the information reported in the Catálogo de las plantas vasculares de Chile (Rodríguez *et al.* 2018) and its online updates. Distributions reported for South America and/or the rest of the World are based either in Flora del Cono Sur (Zuloaga *et al.* 2019), or Plants of the World Online (POWO 2023) checklist. To avoid redundancy and ease the reading, we will avoid continuously citing these works unless necessary. If additional distributional data from alternative sources are used, these are listed under the corresponding species epigraph.

Relevant specialized literature was consulted for systematics, taxonomic and chorological data. Each of these publications is cited under the corresponding species epigraph too.

For the presentation of comments in critical taxa, we follow the systematic arrangement provided by Roalson *et al.* (2021), with species grouped in formal sections or informal

clades as suggested by these authors.

An identification key is provided for the identification of the 96 *Carex* species of the flora of Chile. For the preparation of this key, the last author of this paper (PJ-M) studied *in situ* the full collections of South American *Carex* of MA, K, MICH, MO, NY, and US (acronyms according to Thiers 2020). This was complemented with primary observations by the first author (PM-S) on the materials housed at CONC, SI, and LIL, as well as from DP on the collection of VALD. All the other authors of this paper later provided comments. We considered as additional reference works Léveillé (1915), Barros (1947, 1969), Wheeler (1986, 1987, 1988a, 1989, 1990, 1994, 2007a, 2009), Wheeler & Guaglianone (2003) and Jiménez-Mejías *et al.* (2021a, 2021b).

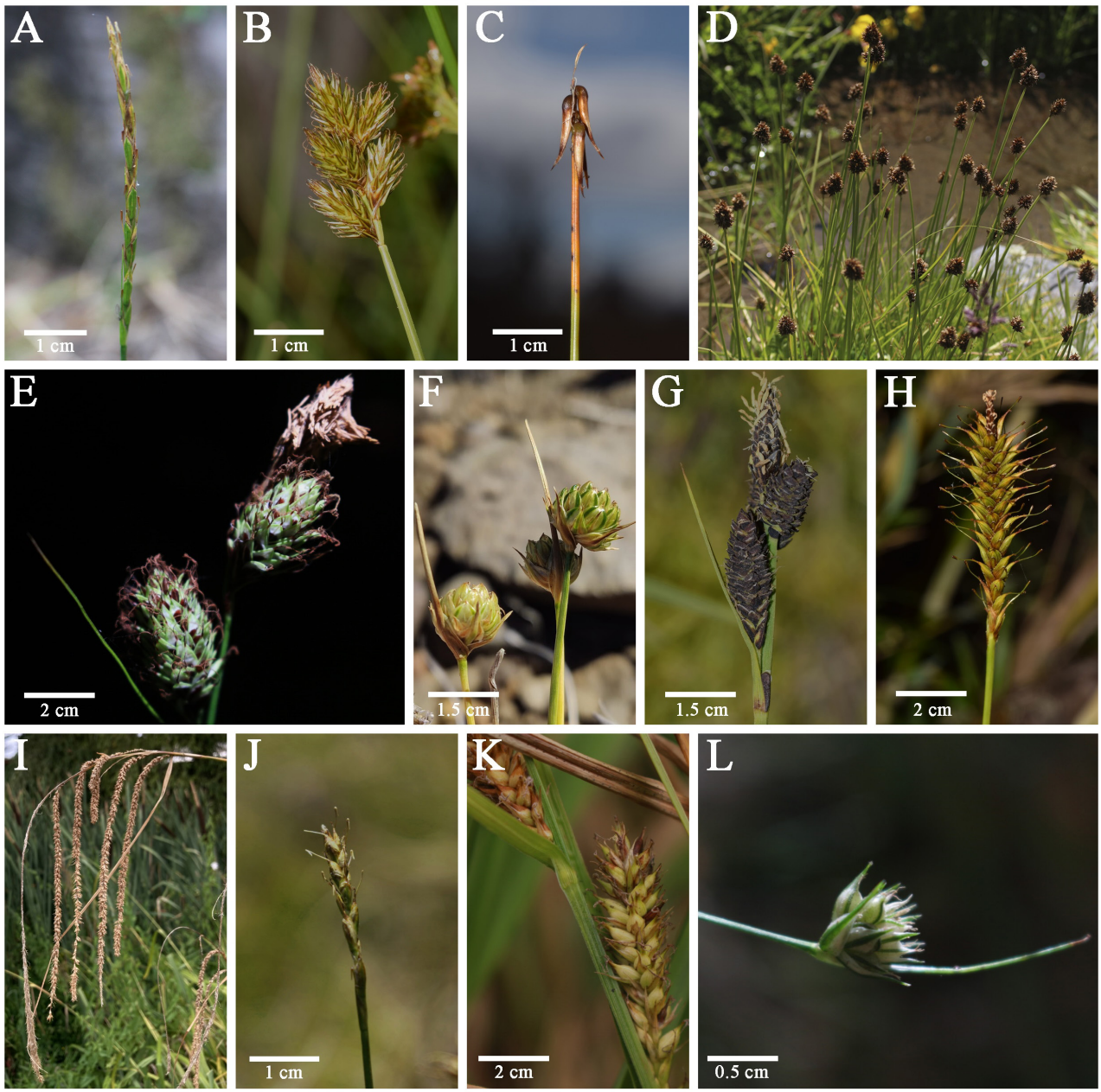

Figure 1. *Carex* species of Chile. A: *C. negeri* (Nahuelbuta range, Biobío Region); B: *C. leporina* (Puyehue National Park, Los Lagos Region); C: *C. microglochin* (Cordillera Pelada, Los Ríos Region); D: *C. firmicaulis* (Aguas Calientes valley, Ñuble Region); E: *C. banksii* (Nahuelbuta range, Araucanía Region); F: *C. boelckeiana* (Pino Hachado, Araucanía Region); G: *C. antucensis* (Aguas Calientes valley, Ñuble Region); H: *C. wheeleri* (Las Raíces range, Araucanía Region); I: *C. pendula* (Valdivia, Los Ríos Region); J: *C. turbaria* (Nahuelbuta range, Araucanía Region); K: *C. hookeri* (Chiloé, Los Lagos Region); L: *C. patagonica* (Las Trancas valley, Ñuble Region). Photos by: Paulo Muñoz-Schüler (A, D, E, I, J, K, L), José Ignacio Márquez-Corro (B, C, G, H), and Pedro Jiménez-Mejías (F).

RESULTS

Rodríguez *et al.* (2018) reported 71 species of *Carex* as it did not include the names for the 21 reported species of the former genus *Uncinia*, which would have increased the number to 92. After a thorough revision of the names listed in Rodríguez *et al.* (2018) a final number of 62 accepted names were pin down from this checklist, which increased to 82 when including the 20 valid names for sect. *Uncinia*. In addition, six species were newly reported for Chile in this paper: *Carex boelckeiana* Barros, *Carex dusenii* Kük, *Carex ecuadorica* Kük, *Carex leporina* L., *Carex pendula* Huds., and the reinstatement of *Carex reicheana* Boeckeler. This, together with the published five reports of *Carex skottsbergiana* Kük (Kükenthal 1910), *Carex nelmesiana* Barros (Wheeler 1986), *Carex patagonica* Speg. (Zuloaga *et al.* 2019), *Carex divisa* Huds. (Calvo & Jiménez-Mejías 2020), and *Carex phylloscirpoides* Saldivia, S.Gebauer, Martín-Bravo & Jim.Mejías (Jiménez-Mejías *et al.* 2021b), increases the species richness in Chile to 93. Additionally, three unpublished new species are added both in the general count and in the key (Morales-Alonso *et al.* under review; Muñoz-Schüler *et al.* under review). Comments on the updates of Table 2 are presented here below whenever it is a new report, if not, it is referenced in the table and not discussed further. When the name we accept here is different from the one used in Rodríguez *et al.* (2018), we listed it as a synonym. A summarized list of the taxa here accepted and their regional distribution in Chile is given in Supplementary Material.

A. *Carex* subg. ***Psyllophorae*** (Degl.) Peterm.

A.1. *Carex* sect. ***Junciformes*** (Boeckeler) Kük.

Carex argentina Barros, Darwiniana 8: 409. 1948.
A widely distributed species of steppe environments. It has been reported from Mendoza to Santa Cruz provinces in Argentina, marking the northern and southern limits of this species distribution. However, in Chile it has been barely collected and reported only for two administrative regions (Metropolitana and Maule; García 2007, 2010), probably being overlooked because of its small size and inflorescence consisting of an acaulescent spike burrowed among leaf bases. Here we report new collections from Valle Nevado, in the Metropolitana Region and Pino Hachado, in the Araucanía Region. This last record establishes a new southern limit for this species in Chile. Its presence on the Patagonian steppe of Aysén and Magallanes administrative regions might be confirmed in future prospects. The plants of both localities were growing on dry sandy and rocky soils.

SPECIMENS: CHILE. Región Metropolitana de Santiago: Prov. Santiago, Farellones, estación de esquí Valle Nevado, 3.210 m, 16-I-2023, 1PJM-CL23 (CONC 193498). Región de la Araucanía: Prov. de Cautín, Paso Pino Hachado, laderas inmediatamente al sur del paso internacional, 1.900 m, 21-I-2023, 21PJM-CL23 (CONC 193499).

Carex boelckeiana Barros, Colecc. Ci. Inst. Nac. Tecnol. Agropecu 8(2): 70 (1969)
A very rare species so far known for very few locations in the Argentinian Andes of Neuquén and Mendoza provinces. Here we report its presence in Chile, which constitutes its first record for the country. This rarely collected species was found growing on dry stony slopes, intermingled within grass tussocks. While chorologically relevant, this finding is not surprising, since the plant was reported from the highest altitudes of the Argentinian side of Pino Hachado pass.

SPECIMEN: CHILE. Región de la Araucanía: Prov. Malleco, paso del Pino Hachado, laderas inmediatamente al sur del paso internacional, comunidades de gramíneas sobre suelo arenoso-pedregoso, 38°39'49.5"S 70°53'57.7"W, 1.900 m, 21-I-2023, P. Jiménez Mejías, P. García Moro & J.I. Márquez Corro, 18PJM-CL23 (CONC 193500).

Carex camptoglochin V.I.Krecz., Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 7: 34. 1937.
A phylogenetically isolated species (Benítez-Benítez *et al.* 2021) sometimes subsumed as a variety or subspecies of the superficially similar *C. microglochin* Wahlenb. (Barros 1969; Wheeler & Guaglianone 2003), despite the fact that they actually belong to different *Carex* subgenera (Jiménez-Mejías *et al.* 2016c). The species is a South American endemism with a disjunct distribution in Patagonia and the Northern Andes, being absent from Central and Northern Chile and Argentina as well as from Bolivia. Here we report a new regional record and the northernmost limit of the Patagonian distribution of the species in Los Ríos Region. The species grows in boggy soils, usually associated with *Sphagnum*.

SPECIMEN: CHILE. Región de Los Ríos: Prov. Ranco, Cordillera Pelada. Parque Nacional Alerce Costero, turbera con *Nothofagus antarctica* en claro de bosque de *Fitzroya cupressoides* y *Nothofagus* sp., 40°09'56.9"S 73°30'18.1"W, 954 m, 1-II-2023, J.I. Márquez Corro, P. Muñoz Schüler, P. Jiménez Mejías, S. Martín Bravo, M. Sanz Arnal & P. García Moro, 71JMC23 (CONC 193502).

Carex chlorolepis Steud., Syn. Pl. Glumac. 2: 204. 1855.
Carex phalaroides auct. non Kunth, Enum. Pl. 2: 482. 1837.

The group of *Carex phalaroides* is a small and poorly understood taxonomic complex of species. Here we use the name *C. chlorolepis* as it is the prior one applying to the Chilean populations of the complex. The group of *Carex phalaroides* is distributed in temperate Chile (incl. Juan Fernández archipelago; Wheeler 2007), temperate Atlantic Argentina, Uruguay, and Brazil, as well as the Andes from Argentina to Venezuela. It reaches marginally Central America in Guatemala (Jiménez-Mejías *et al.* 2018). From Chile it has been reported discontinuously from Valparaíso to Los Lagos administrative regions. Remarkably, the group is known in Andean Argentina from La Rioja to Jujuy, just north of the Chilean populations, at the other side of the Arid Diagonal. The Chilean populations should be considered as an independent species, *C. chlorolepis*, as revealed by unpublished phylogenies that show them as an isolated lineage (see work in progress in Morales-Alonso *et al.* 2022). *Carex chlorolepis* is a mesophytic species that inhabits partly shadow understory in sclerophyllous forest and shrublands in the Mediterranean regions of Chile, as well as in exposed, open areas of the evergreen rainforests of southern Chile, and may even appear in disturbed (urban) habitats (pers. obs.).

We provide here new reports for O' Higgins, Maule and Los Ríos administrative regions. Still unknown from the Metropolitana and Ñuble Regions, the presence of *C. chlorolepis* there should be confirmed in future prospections. *Carex chlorolepis* is a rather inconspicuous, slender and grass-like plant that may have been overlooked by collectors and could probably be present in these areas.

SPECIMENS: CHILE. Región de O' Higgins: Prov. Cachapoal, Coltauco, Santuario de la Naturaleza Cerro Poqui, 34°12'32.148"S 71°3'31.752"W, 440 m, 23-IV-2019, N. García 5576 (EIF 15684); Prov. Colchagua, Nancagua, fundo Santa Elena, camino a cumbre del cerro Rucatalca, 34°36'20.772"S 71°11'44.376"W, 650 m, 21-IX-2019, N. García, D. Tapia, B. Navarrete & D. Van Sint Jan 5668 (EIF 15774). Región del Maule: Prov. Cauquenes, Cauquenes, Tiquel, cerros camino a Quirihue. En talud a orilla de camino vehicular que recorre pendiente de exposición S, 36°8'27.5''S 72°23'17.1''W, 426 m, 28-XI-2022, P. Muñoz Schüler & M. Mancilla Baeza, PMS-187 (CONC 193522). Región de los Ríos: Prov. Valdivia, Corral, 39°57'20.8''S 73°22'29.8"W, 24 m, 23-I-2023, J.I. Márquez Corro, P. Jiménez Mejías & M. Sanz Arnal, 26JMC23 (CONC 193523).

Carex nelmesiana Barros, Bol. Soc. Argent. Bot. 6(3-4): 209. 1957.
An endemic species from Patagonia, so far reported as endemic from Argentina.

In the revision of Patagonian species of sect. *Junciformes*, Wheeler (1986) gave an extensive discussion about the similarities between *C. nelmesiana* and three other species of the section and cited the material "Rio Nirehuao, 22 Nov 1908, *Skottsberg* (UPS!)" as coming from Argentina. However, this is a confusion, and this material comes from a locality within the limits of Chile. This material was collected by Skottsberg just a few years after the governments of Chile and Argentina signed an agreement in 1902, where they agreed to modify the limits of both countries between 40° and 52°S, along central Patagonia. This agreement directly affected the zone where the Ñirehuao river is located, passing from Argentine to Chilean sovereignty, and probably unnoticed on the official maps for some time.

SPECIMEN: CHILE. Región de Aysén: Prov. Aysén, río Ñirehuao, 22-XI-1908, Skottsberg (UPS!).

Carex patagonica Speg., Revista Fac. Agron. Univ. Nac. La Plata 32-33: 626. 1897.
A species primarily known from Argentinian Patagonia and reported marginally from Chile (Zuloaga *et al.* 2019; POWO 2023), not recorded in Rodríguez *et al.* (2018) or Zuloaga *et al.* (2019). Here we provide specific locations for Metropolitana, O'Higgins, Ñuble, and Biobío Regions. One specimen (*N. Lavandero* & *L. Santilli*, 958) was collected on El Roble Natural Sanctuary, just a few meters far from the Valparaiso regional limit, and its presence for this Region is highly probable but cannot be confirmed in this work. This species is an inhabitant of the understory of montane *Nothofagus* forests.

SPECIMENS: CHILE. Región Metropolitana de Santiago: Prov. Chacabuco, Tiltil, SN cerro El Roble, en el límite regional con Valparaíso, Ladera exposición S, 32°58'45.9''S 71°1'5''W, 2068 m, 28-X-2020, N. Lavandero & L. Santilli, NL-958 (CONC 193521). Región de O´Higgins: Prov. Colchagua, sierra s de Bellavista, Alto Huemul, 34°50'47.8794''S 70°40'51.8596''W, 1366 m, I-2006, García & al. 3289 (CONC 180616). Región del Ñuble: Prov. Diguillín, valle de Las Trancas, camino a termas de Chillán, cerca del estero Renegado, 36°55'0.1''S 71°27'11.8''W, 1307 m, 18-I-2023, S. Martín Bravo, P. García Moro, P. Jiménez Mejías, J.I. Márquez Corro, P. Muñoz Schüler & M. Sanz Arnal, 22SMB23 (CONC 193520). Región del Biobío: Prov. Biobío, Antuco, valle del Polcura, 37°12'56.5''S 71°26'24.1''W, 1000 m, XI-2016, Macaya & al. 394 (CONC 185922).

Carex pungens Boeckeler, Linnaea 39: 46. 1875.
Carex berteroana É.Desv. in C.Gay, Fl. Chil. 6: 198. 1854[1853]. nom. illeg., non *C. berteroniana* Steud., Flora 25: 604. 1842.

Carex setifolia Kunze var. *berteroana* (É.Desv.) Gunckel, Rev. Chil.Hist. Nat. 11: 145. 1954.
The name *Carex berteroana* É.Desv. was published in 1854 and it is to be considered a later homonym of *C. berteroniana* Steud. (1842) (see ICN: Arts. 53.2, 61.1 and 61.2). Both parahomonymous names honour the same person, are very similar orthographically and both apply to species of *Carex* (N. Turland, pers. comm.). The earliest legitimate name at species rank is *C. pungens* Boeckeler. Despite often being treated as a variety of *C. setifolia* Kunze (*C. setifolia* var. *pungens* (Boeckeler) Kük.), the available phylogenetic data seems to support its species status (Benítez-Benítez *et al.* 2021), and thus we consider it as such.

Carex reicheana Boeckeler, Allg. Bot. Z. Syst. 2: 173. 1896.
TYPE: Chili [CHILE], in locis altiss. Cordillerae de Nahuelbota [Nahuelbuta] invenit Karl Reiche (B, destroyed). NEOTYPE designated here: CHILE. Región de la Araucanía: Prov. Malleco, Parque Nacional Nahuelbuta, cerca del límite regional con la Región del Biobío, en suelos secos y sombríos en sotobosque de *Araucaria araucana-Nothofagus pumilio*, 37°18'07.31''S 73°01'02.60''W, 1264 m, 21-1-2023, S. Martín-Bravo, P. Muñoz-Schüler & M. Sanz-Arnal, 38SMB23, CONC 193526; isoneotypes EIF 16579; UPOS sn).

An interesting species overlooked to date as an independent taxon. *Carex reicheana* was synonymized by Kükenthal (1909) to *C. trichodes* Phil. (=*C. lateriflora* Boot; see Penneckamp 2022). Since the type, housed at B, was destroyed during WWII, it was subsequently listed as a synonym by Wheeler (1989), who just followed Kükenthal's opinion ("I have not seen a duplicate of Reiche's collection, but Boeckeler's description of *C. reicheana* fits very closely the features of *C. lateriflora*"). *Carex reicheana* was described from what is today the Nahuelbuta National Park, in the Coastal Range, isolated and far from the other reported populations of the closely related *C. trichodes* by at least, 150 km., all in the Andes range (Wheeler 1989; Penneckamp 2022). During our fieldtrip in January-February 2023, we collected specimens similar to *C. trichodes* in Nahuelbuta National Park. The plants matched the description of *C. reicheana* protologue. Moreover, these displayed clear differences from Andean specimens of *C. trichodes*. In Table 1 we provide a detailed comparison of features between *C. reicheana* and *C. trichodes* according to the descriptions provided in Wheeler (1989), Penneckamp (2022) and our own observations. The differences found between the two species (Fig. 2) are notable regarding the discriminant characters employed for species distinction in sect. *Junciformes* (= sect. *Aciculares* G.A.Wheeler; Wheeler 1989) and clearly justify the reinstatement of the name *C. reicheana* and its treatment as an independent species.

Since the type material of *C. reicheana* is lost, we here proceed to neotypify the name on our own collection.

Carex setifolia Kunze ex Kunth
Uncinia setifolia Kunze ex Rodríguez *et al*., Cat. Pl. Vasc. Chile: 59 (2018), nom. inval.
The name *Uncinia setifolia* Kunze is listed in the Catálogo de las plantas vasculares de Chile (Rodríguez *et al.* 2018), but it seems to be a mistranscription of *Carex setifolia* Kunze ex Kunth. We did not find this name in any of the major plant nomenclatural databases (Zuloaga *et al.* 2019; POWO 2023; IPNI 2023), nor it appears in *C. setifolia* protologue. Accordingly, this name should be removed.

Table 1. Character comparison of *C. trichodes* and *C. reicheana*, two morphologically close species of sect. *Junciformes*. / Comparación de caracteres entre *C. trichodes* y *C. reicheana*, dos especies morfológicamente próximas de la sect. *Junciformes*.

	Carex trichodes	***Carex reicheana***
Plant habit	Culms erect at maturity, bearing the inflorescence well-above the ground.	Culms erect to strongly curved at maturity, often decumbent, bearing the inflorescence at ground level.
Number of utricles per spike	(3)4-6(8)	(1)2-3
Utricle coloration	Reddish-brown, stramineous or yellowish	Blood-like red to reddish-brown
Utricle shape	Flattened, plano-convex or slightly biconvex	Inflated, strongly biconvex
Distribution	*Nothofagus pumilio* forests of southern Chile's Andean range	*Araucaria araucana-Nothofagus pumilio* forests in the Nahuelbuta range

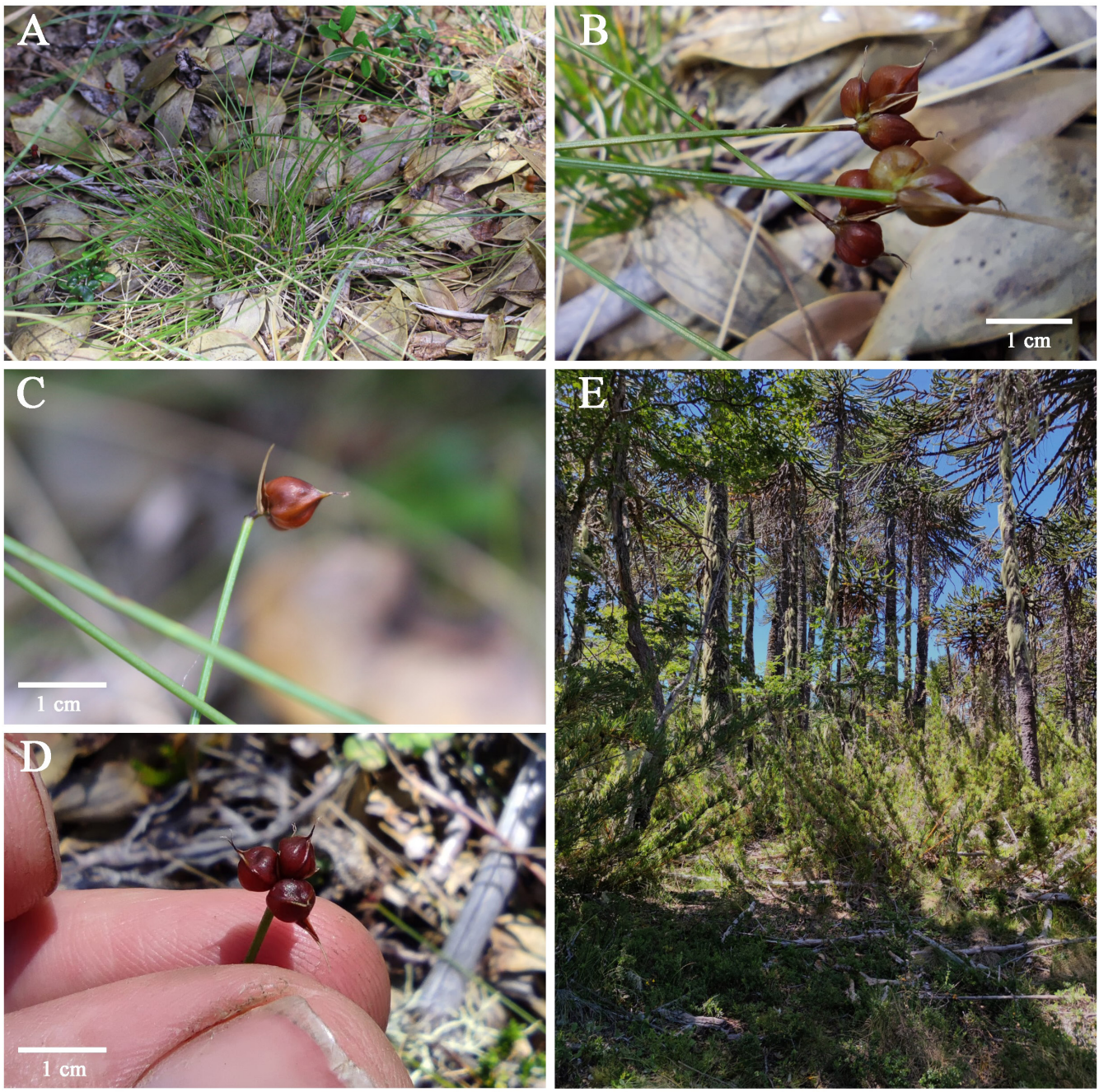

Figure 2. *Carex reicheana*. A. Growing habit; B-D: Detail of the spike and utricles; E: Habitat, the material studied was collected in the shady areas within the picture. Photos by: Paulo Muñoz-Schüler (A, C, E) and Santiago Martín-Bravo (B, D). / *Carex reicheana*. A. Hábito de crecimiento; B-D: Detalle de la espiga y los utrículos; E: Hábitat, el material estudiado se recolectó en las zonas sombreadas dentro de la foto. Fotos de: Paulo Muñoz-Schüler (A, C, E) y Santiago Martín-Bravo (B, D).

Table 2. Additions, name changes, and distributional changes updated from the Catálogo de las plantas vasculares de Chile (Rodríguez *et al.* 2018). The abbreviations used for administrative regions are according to Rodríguez *et al.* (2018). / Adiciones, cambios de nombre, y cambios distribucionales actualizados a partir del Catálogo de las plantas vasculares de Chile (Rodríguez *et al.* 2018). Las abreviaciones para las regiones administrativas son las utilizadas en Rodríguez *et al.* (2018)

Taxon name	Update regarding Rodríguez *et al.* (2018)	References
A. Subg. *Psyllophorae*		
A.1. Sect. *Junciformes*		
Carex argentina Barros	Addition to ARA	This paper
Carex austroamericana G.A.Wheeler	Addition to RME	This paper
Carex berteroana É.Desv.	Illegitimate name (later homonym). The earliest legitimate name to be considered is *Carex pungens* Boeckeler	-
Carex boelckeiana Barros	Addition to Chile (ARA)	This paper
Carex camptoglochin V.I.Krecz.	Addition to LRI	This paper
Carex lateriflora Phil.	To be synonymized to *C. trichodes* Boot and addition to LRI	Penneckamp 2022
Carex nelmesiana Barros	Addition to Chile (AIS)	Wheeler 1986; this paper
Carex patagonica Speg.	Addition to Chile (RME, LBO, NUB, BIO)	POWO 2023; Zuloaga *et al.* 2019; this paper
Carex phalaroides Kunth	To be treated as *Carex chlorolepis* Steud., an endemic species from Chile. Addition to LBO, MAU and LRI	This paper
Carex reicheana Boeckeler	Upgrade as an independent species from *C. lateriflora* and added as an endemism from ARA	This paper
Carex toroensis G.A.Wheeler	Addition to AIS	Jiménez-Mejías *et al.* 2016b
Uncinia setifolia Kunze	Invalid name	This paper
B. Subg. *Vignea*		
B. 1. Sect. *Divisae*		
Carex divisa Huds.	Addition to Chile (VAL), and new regional report (RME)	Calvo & Jiménez-Mejías 2020; this paper
B.2. Annectens Clade		
Carex firmicaulis Kalela	Addition to BIO	Jiménez-Mejías *et al.* 2016b
Carex gayana É.Desv.	Intraspecific treatment to be withdraw	-
Carex nebularum Phil.	To be considered endemic from Chile. Addition to BIO	Jiménez-Mejías *et al.* 2016b; this paper
Carex ecuadorica Kük.	Addition to Chile (ANT) as native species.	This paper
Carex pycnostachya É.Desv	To be synonymized to *Carex pleioneura* G.A.Wheeler	Jiménez-Mejías *et al.* 2021a
B.3. Sect. *Cyperoideae*		
Carex leporina L.	Addition to Chile (BIO, ARA, LRI, LLA)	This paper
B.4. Sect. *Glareosae*		
Carex canescens L.	To be considered native in Chile and Argentina.	This paper
Carex skottsbergiana Kük	Addition to Chile (AIS) as an endemism.	Kükenthal 1910; POWO 2023
B.5. Sect. *Bracteosae*		

Taxon name	Update regarding Rodríguez *et al.* (2018)	References
Carex bracteosa Kunze ex Kunth	Addition to MAU	This paper
Carex trachycystis Griseb.	To be synonymized to *Carex bonariensis* Desf. ex Poir.	Jiménez-Mejías *et al.* 2021a
B.6. Disticha clade		
Carex maritima auct. non Gunnerus	To be synonymized to *Carex melanocystis* É.Desv. Addition to RME	Jiménez-Mejías *et al.* 2021a
B.7. *Vulpinae-Multiflorae* alliance		
Carex brongniartii Kunth	Addition to LRI	Ramírez *et al.* 1980; Teillier *et al.* 2013
C. Subg. *Uncinia*		
C.1. Sect. *Uncinia*		
Carex aspericaulis (G.A.Wheeler) J.R.Starr	New combination from *Uncinia aspericaulis* G.A.Wheeler	Global Carex Group 2015
Carex delacosta Kuntze	New combination from *Uncinia macloviana* Gaudich. Distribution on JFE must be withdrawn	Global Carex Group 2015
Carex dolichophylla J.R.Starr	New combination from *Uncinia macrophylla* Steud.	Global Carex Group 2015
Carex erinacea Cav.	New combination from *Uncinia erinacea* (Cav.) Pers.	Global Carex Group 2015
Carex fernandesiana (Nees ex Boeckler) J.R.Starr	New combination from *Uncinia douglasii* Boott	Global Carex Group 2015
Carex firmula (Kük) J.R.Starr	New combination from *Uncinia tenuis* Poepp. ex Kunth	Global Carex Group 2015
Carex firmula subsp. *tenuis* (Poepp. ex Kunth) Jim.Mejías & R.Ridl.	New combination. Addition to Chile (JFE) as an endemism	Ridley & Jiménez-Mejías 2022
Carex lechleriana (Steud.) J.R.Starr	New combination from *Uncinia lechleriana* Steud.	Global Carex Group 2015
Carex macloviformis (G.A.Wheeler) J.R.Starr	New combination from *Uncinia macloviformis* G.A.Wheeler	Global Carex Group 2015
Carex macrotrichoides J.R.Starr	New combination from *Uncinia chilensis* G.A.Wheeler	Global Carex Group 2015
Carex meridensis (Steyerm.) J.R.Starr	New combination from *Uncinia macrolepis* Decne.	Global Carex Group 2015
Carex multifaria (Nees ex Boott) J.R.Starr	New combination from *Uncinia multifaria* Nees ex Boott. Distribution on JFE must be withdrawn	Global Carex Group 2015
Carex negeri (Kük.) J.R.Starr	New combination from *Uncinia negeri* Kük.; addition to BIO	Global Carex Group 2015; this paper
Carex phleoides Cav.	New combination from *Uncinia phleoides* (Cav.) Pers.	Global Carex Group 2015
Carex plurinervata J.R.Starr	New combination from *Uncinia costata* Kük.	Global Carex Group 2015
Carex quinquin Jim.Mejías & Dorr	New combination from *Uncinia trichocarpa* C.A.Mey.	Jiménez-Mejías & Dorr 2018
Carex salticola J.R.Starr	New combination from *Uncinia andina* G.A.Wheeler	Global Carex Group 2015
Carex scabrida J.R.Starr	New combination from *Uncinia scabriuscula* G.A.Wheeler. Distribution on JFE must be withdrawn	Global Carex Group 2015; Wheeler 2007; this paper
Carex triangula J.R.Starr	New combination from *Uncinia triquetra* Kük.	Global Carex Group 2015
Carex turbaria J.R.Starr	New combination from *Uncinia austroamericana* G.A.Wheeler. Addition to ARA, and LLA	Global Carex Group 2015; this paper
Carex wheeleri J.R.Starr	New combination from *Uncinia araucana* G.A.Wheeler	Global Carex Group 2015

Taxon name	Update regarding Rodríguez *et al.* (2018)	References
D. Subg. *Carex*		
D.1. Hirta Clade		
Carex acutata Boott	Misused name for *Carex multispicata* Kunze	Jiménez-Mejías *et al.* 2020
Carex aematorhyncha É.Desv.	Intraspecific treatment to be withdrawn	This paper
Carex excelsa Poepp. ex Kunth	Addition to ATA and LRI	Ramírez *et al.* 1980; Teillier *et al.* 1980; this paper
Carex pumila Thunb.	Addition to NUB	This paper
Carex werdermannii Gross	Addition to LRI and reinstate its presence in LLA	This paper
D.2. Flacca clade		
Carex banksii Boott	Intraspecific treatment to be withdrawn	This paper
Carex dusenii Kük.	Addition to Chile (LLA, MAG)	Barros 1969; this paper
Carex ochrostachya Phil.	To be synonymized under *Carex banksii* Boott	This paper
D.4. Sect. *Spirostachyae*		
Carex fuscula d'Urv	Intraspecific treatment to be withdrawn	This paper
Carex araucana Phil.	To be subsumed under *Carex fuscula* d'Urv	Escudero *et al.* (2009); this paper
Carex distenta Kunze ex Kunth	To be subsumed under *Carex fuscula* d'Urv	Escudero *et al.* (2009); this paper
Carex inconspicua Steud.	To be subsumed under *Carex fuscula* d'Urv	Escudero *et al.* (2009); this paper
Carex lamprocarpa Phil.	Addition to LRI and distribution in BIO and LLA must be withdrawn	This paper
Carex trifida Cav.	Addition to LLA	This paper
D.5. Sect. *Rhynchocystis*		
Carex pendula Huds.	To be considered as a naturalized species	This paper
D.6. Sect. *Phacocystis*		
Carex chillanensis Phil.	To be synonymized to *Carex antucensis* Kunth	This paper
D.7 Sect. *Racemosae*		
Carex phylloscirpoides Saldivia, S.Gebauer, Martín-Bravo & Jim.-Mejías	Addition to Chile (ANT) as an endemism	Jiménez-Mejías *et al.* 2021b
E. Subg. *Euthyceras*		
E.1. Capitata Clade		
Carex arctogena Harry Sm.	To be used as the correct name for Southern Hemisphere populations ascribed to *Carex capitata* L.	Villaverde *et al.* 2015

B. *Carex* subg. ***Vignea*** (P. Beauv. ex T. Lestib.) Heer

B.1. *Carex* sect. ***Divisae*** H.Christ ex Kük.

Carex divisa Huds., Fl. Angl. 348. 1762.
A Western Palearctic native recently added to South America (Jiménez-Mejías *et al.* 2018, 2021a) and Chile (Calvo & Jiménez-Mejías 2020) from the coasts of Valparaíso Region. Here we provide a new report from the Metropolitan Region of Santiago in the Central Valley for this introduced species.

SPECIMEN: CHILE. Región Metropolitana de Santiago: Prov. Chacabuco, Batuco, 33°16'S 70°47'W, 475 m, IX-1994, Bliss, 554 (CONC 145201).

B.2. Annectens Clade

Carex gayana E. Desv., Fl. Chil. 6: 205, t. 73, f. 3. 1853[1854]
A species widely distributed in South America (from Perú to Tierra del Fuego), with a highly variable morphology (Jiménez-Mejías *et al.* 2021a). We advise not to consider infraspecific variants until biosystematic data are available. Published studies on the genetic variation of the species (Pfeiffer *et al.* 2018) do not seem to clearly match morphologic variation, but geographic structuring, which is in line with our proposal.

Carex nebularum Phil., Anales Univ. Chile 93: 492. 1896.
An endemism from montane forest and Andean streams from the central regions of Chile. Here we report it for Biobío Region. Records from Argentina are actually confusions with other species of the group such as *Carex firmicaulis* Kalela or *Carex hypoleucos* É.Desv. (Jiménez-Mejías *et al.* 2016b, 2021a). Identically, reports from Aysén need to be confirmed.

SPECIMEN: CHILE. Región del Biobío: Prov. Biobío, Reserva Nacional Ralco, Pelado Mallín, 37°53'S 71°23'W, 1830 m, I-2022, M. Mihoc *et al.*, 4240 (CONC 158895).

Carex ecuadorica Kük., Beibl. Bot. Jahrb. Syst. 78: 7. 1904.
Carex macrorrhiza auct., non Boeckeler
A Tropical Andean species, known from NW Argentina to Ecuador (Jiménez-Mejías *et al.* 2021a). In the southern part of its distribution it has been mistakenly reported as *C. macrorrhiza* Boeckeler (Jiménez-Mejías *et al.* 2016b, 2021a). It inhabits wet meadows and pastures at high altitudes. The material we report here is an unequivocal individual from *C. ecuadorica* and constitutes the first record of the species for Chile. The species was collected on Andean bofedales (peatbogs) in the Antofagasta Region.

Collections of similar plants from the more northern Region of Tarapacá are morphologically adscribed to *C. macrorrhiza* (Jiménez-Mejías *et al.* 2021). These populations (as well as the entire group of *C. ecuadorica*, *C. macrorrhiza* and the Patagonian *C. subfuegiana* G.A.Wheeler) need further study to clarify the biosystematics scenario.

SPECIMEN: CHILE. Región de Antofagasta: Prov. El Loa, vegas de Turi, 22°15'S 68°19'W, 3025 m, 1980, Villagrán & Armesto, 2309 (CONC 68822).

B.3. *Carex* sect. ***Cyperoideae*** G.Don

Carex leporina L., Sp. Pl. 2: 973. 1753.
Carex macloviana auct. p.p., non d'Urv.
A Western Palearctic species whose introduction has been reported already in North America (Mastrogiuseppe *et al.* 2002) and New Zealand (Dawson 2014). This species inhabits wet and mesic meadows. Its presence in South America (Chile and Argentina) was already noted by us (but not explicitly reported) in the multiaccession phylogenetic tree in Martín-Bravo *et al.* (2019). Here we formally report the presence of this species in Chile, in Biobío, Araucanía, Los Ríos, and Los Lagos administrative regions. The species has been mistaken for *C. macloviana* and considered as a particular form of it (*Carex macloviana* var. *pseudoleporina* Kük).

Remarkably, the Argentinian and Chilean populations seem to grow in undisturbed habitats, not as *C. leporina* does in North America and New Zealand, where it behaves as invasive. Despite this is not a clear sign of their native status, other *Carex* species that occur naturally in South America have their closest counterparts in Europe (W Palearctic-Neotropic disjunction, e.g., *C. riparia* Curtis-*C. chilensis* Brong., *C. punctata* Gaudin-*C. fuscula* d'Urv). Conversely, there are at least two introduced species of W Palearctic *Carex* in South America (*C. divisa* and *C. divulsa* Stokes.; Jiménez-Mejías *et al.* 2021a) Additional studies are necessary to unravel the true status of these apparently introduced populations of *C. leporina* in South America.

SPECIMENS: CHILE. Región del Biobío: Prov. Biobío, valle del río Laja, camino entre Polcura y salto del Abanico, margen de pantano de *Cyperus eragrostis* y *Juncus* sp., sobre suelo seco, 37°18'13.4"S 71°39'20.8"W, 154 m, 20-I-2023, P. Muñoz Schüler, P. García Moro & S. Martín Bravo, PMS-244 (CONC 193508). Región de la Araucanía: Prov. Malleco, Curacautín, ruta 181, cunetas temporalmente inundadas, 38°27'40.2"S 71°42'23.0"W, 600 m, 21-I-2023, P. Jiménez Mejías, P. García-Moro & J.I. Márquez-Corro, 17PJM-CL23 (CONC 193509). Prov. Malleco, Lonquimay, salto Alaska, estero La Cascada, 38°30'°16.8''S 71°24'45.2''W, 1003 m, 22-I-2023, P. García Moro, J.I. Márquez Corro & P. Jiménez Mejías, 4pgm2023 (CONC 193514). Prov. Malleco, Lonquimay, Galletué, 38°41'33.45''S 71°20'18.38''W, 1156 m, 06-II-2022, D.

Penneckamp, 771 (UPOS). Región de Los Ríos: Prov. Valdivia, cerro entre Santa Elvira y Cayumapu, bosque de *Nothofagus obliqua*, a orilla de camino, 39°44'54.1"S 73°09'22.9"W, 118 m, 23-I-2023, P. Muñoz Schüler, P. García-Moro & S. Martín-Bravo, PMS-265 (CONC 193510). Prov. Valdivia, Corral, pradera-juncal en borde de carretera, 39°56'59.5"S 73°18'50.2"W, 8 m, 23-I-2023, J.I. Márquez Corro, P. Jiménez Mejías & M. Sanz Arnal, 24bisJMC23 (CONC 193511). Prov. Valdivia, Corral, sendero Darwin, Parque Nacional Alerce Costero, Catrileufu, en la orilla del sendero, 39°59'9.62"S 73°25'16.37"O, 630 m, 19-XII-2022, D. Penneckamp, 927 (UPOS). Región de los Lagos: Prov. Osorno, Parque Nacional Puyehue, 40°43'54.5''S 72°18'40.5''W, 513 m, 26-I-2023, J.I. Márquez Corro, P. Jiménez Mejías & M. Sanz Arnal, 48JMC23 (CONC 193513). Prov. Osorno, Parque Nacional Puyehue, 40°46'51.5''S 72°12'39.6''W, 993 m, 26-I-2023, J.I. Márquez Corro, P. Jiménez Mejías & M. Sanz Arnal, 59JMC23 (CONC 193512).

B.4. *Carex* sect. *Glareosae* G.Don

Carex canescens L., Sp. Pl.: 974. 1753.

A circumpolar species widely distributed in the temperate northern hemisphere but also reported for the Pacific Southwest (New Guinea and SE Australia) and Southern South America. It has been considered as an exotic species in most South American checklists (Rodríguez *et al.* 2018; Zuloaga *et al.* 2019). However, this species usually inhabits undisturbed and often remote places such as moorlands or mountain trails, pointing to a long-stand interaction with its environments. In addition, the available molecular data is compatible with the native status of the species in South America, with samples forming exclusive clades in phylogenies and displaying exclusive unique plastidial haplotypes (Villaverde *et al.* 2017a). Bipolar distributions in *Carex* are known in a few species and depicts the dispersal and colonization ability of this genus (Márquez-Corro *et al.* 2017; Villaverde *et al.* 2017b). We strongly suggest the consideration of *C. canescens* in Argentina and Chile as a native species.

Carex skottsbergiana Kük., Repert. Spec. Nov. Regni Veg.: 8: 7. 1910.

Very little is known about this species, apparently endemic from southern Chile and apparently distinct from the visually similar *C. canescens*. So far it has only been collected from its type locality at lago O' Higgins, in the Aysén Region, as in the original Kükenthal cited it from "*Chilenisches Patagonien: Lago San Martin*" (Kükenthal, 1910). It is not reported for Chile neither in Rodríguez *et al.* (2018) nor in Zuloaga *et al.* (2019).

B.5. *Carex* sect. *Bracteosae* Pax

Carex bracteosa (Kunze ex Rchb.) Kunth, Enum. Pl. 2: 379. 1837.

Despite being one of the most common species in Chile, *C. bracteosa* has not been reported for Maule earlier. *Carex bracteosa* is an endemic species, fairly common in the central valley and the Coastal Cordillera, distributed continuously from Valparaiso to Los Ríos Regions and associated with temporal or permanently wet meadows, often near the mouth of rivers or in the sclerophyllous vegetation of central Chile (Wheeler & Muñoz-Schick 2007).

SPECIMENS: CHILE. Región del Maule: Prov. Curicó, Hualañé, El Cobre, fundo La Palma, 34°55'32.89"S 71°35'34.57"W, 130 m, 17-XII-2020, D. Penneckamp 467 (UPOS). Prov. Curicó, Sagrada Familia, cerros hacia el suroeste de Villa Prat, 35°7'39.55"S 71°38'50.47"W, 214 m, 22-X-2021, D. Penneckamp & E. Picero, 739 (CONC).

B.6. Disticha clade

Carex melanocystis É.Desv., Fl. Chil.: 6: 203, t. 73, f. 5. 1853[1854].

Carex maritima auct. non Gunnerus

A species usually subsumed under the similar *C. maritima* Gunn. but recently segregated due to the South American plants having closer phylogenetic relationships with other related species than to *C. maritima s.s.* (Jiménez-Mejías *et al.* 2021a). The species is an Andean endemic found from Ecuador (Jiménez-Mejías *et al.* 2023) to Tierra del Fuego. In the Southern Cone it is disjunctly distributed in the Northern and Central regions at high altitudes, and then in Magallanes Region, where it can be found at much lower elevations. It is usually found growing at the margins of high-altitude wetlands in its northern distribution in Chile (Teillier, pers. com.). We report here as new for Metropolitana Region of Santiago.

SPECIMEN: CHILE. Región Metropolitana de Santiago: Prov. Santiago, Farellones, estación de esquí Valle Nevado, Tres Puntas, 33°11'48.3''S 70°8'56.8''W, 3210 m, 16-I-2023, P. Jiménez Mejías, J.I. Márquez Corro, S. Martín Bravo & P. Muñoz Schüler, 3PJM-CL23 (CONC 193515).

C. *Carex* subg. *Uncinia* (Pers.) Peterm.

C.1. *Carex* sect. *Uncinia* (Pers.) Baill.

Formerly treated as an independent genus (*Uncinia* Pers.), the hooked sedges were transferred into *Carex* according to long-discussed molecular evidence that indicates the position

of the former genus *Uncinia* as deeply nested within *Carex* (GCG 2015). Later molecular works reinforce its inclusion in *Carex* (Jiménez-Mejías *et al.* 2016c; Martín-Bravo *et al.* 2019; Villaverde *et al.* 2020). Recently, a clade-focused study (García-Moro *et al.* 2022) clarified the position of the species of the former genus *Uncinia* as sect. *Uncinia* and within the recently named subgenus *Uncinia* (Villaverde *et al.* 2020; Roalson *et al.* 2021), which included other sectional groups traditionally included in *Carex*. A more detailed discussion will be given in an upcoming revision of subgenus *Uncinia* in South America (Muñoz-Schüler *et al.* in prep). Accordingly, the change in the generic status of the hooked sedges caused all the names in use to be transferred to *Carex*. The list of the accepted names and their corresponding synonyms is given in Table 2.

Carex delacosta Kuntze, Revis. Gen. Pl. 3(3): 332. 1898.
Uncinia macloviana Gaudich., Voy. Uranie: 412. 1829.
The name *Uncinia macloviana* has been widely used as a hotchpotch to refer to similar looking species outside its range. It has been cited as occurring in the Juan Fernández archipelago both in Rodríguez *et al.* (2018) and Zuloaga *et al.* (2019), referring to other endemic species in the islands. Its presence in the archipelago was already dismissed by Wheeler (2007).

Carex multifaria (Nees ex Boott) J.R.Starr, Bot. J. Linn. Soc. 179: 34. 2015.
Uncinia multifaria Nees ex Boott in J.D.Hooker, Fl. Antarct. 2: 369. 1846.
Mistakenly reported as occurring in the Juan Fernández archipelago both in Rodríguez *et al.* (2018) and Zuloaga *et al.* (2019), as already noted by Wheeler (2007). It was probably confused with the robust specimens of *C. phleoides* Cav. (= *Uncinia phloides* (Cav.) Pers.) growing in the archipelago (see Jiménez-Mejías & Dorr 2018).

Carex negeri (Kük.) J.R.Starr, Bot. J. Linn. Soc. 179: 34. 2015.
Uncinia negeri Kük., Bot. Centralbl. 76: 210. 1898.
Endemic from the temperate forests of Southern-Central Chile, with marginal occurrences in adjacent Argentina (Wheeler 1997). It is one of the few species of sect. *Uncinia* that inhabits *Araucaria araucana* (Molina) K.Koch forests but is also very typical in *Nothofagus pumilio* (Poepp. & Endl.) Krasser forests (Amigo & Castro 2015). We report it as new for the Biobio Region, on the Nahuelbuta range, which becomes its northernmost known location. The species must be searched in Los Ríos Region, where it is very probably present.

SPECIMEN: CHILE. Región del Biobío: Prov. Arauco, Parque Nacional Nahuelbuta, estacionamiento del mirador Piedra del Águila, en el límite regional con la Araucanía, 37°49'21.4''S 73°2'7.6''W, 1411 m, 21-I-2023, S. Martín Bravo, P. Muñoz Schüler & M. Sanz Arnal, 41SMB23 (CONC 193518).

Carex scabrida J.R.Starr, Bot. J. Linn. Soc. 179: 36. 2015.
Uncinia scabriuscula G.A.Wheeler, Hickenia 2(45): 215. 1997.
Mistakenly reported as occurring in the Juan Fernández archipelago both in Rodríguez *et al.* (2018) and Zuloaga *et al.* (2019), as already noted by Wheeler (2007). This species is an endemic element of the temperate forests of southern Chile and Argentina (Wheeler 1997), and resembles the insular endemism of the Alejandro Selkirk island *Carex aspericaulis* J.R. Starr (G.A.Wheeler), to which it is also phylogenetically related (Wheeler 2007; Muñoz-Schüler *et al.* in prep.). Further notes on its taxonomy and chorology are given in the upcoming revision of the subgenus *Uncinia* in South America.

Carex turbaria J.R.Starr, Bot. J. Linn. Soc. 179: 34. 2015.
Uncinia austroamericana G.A.Wheeler, Darwiniana 43: 271. 2005.
A recently described species, initially considered a Subantarctic element and restricted to Magallanes Region in Chile (Wheeler 2004). Here we present novel reports for Araucanía and Los Lagos administrative regions, greatly expanding its distributional range and setting a new northernmost limit for the species. This species was collected growing on boggy soils in the highest areas of the Nahuelbuta coastal range and in subandean wet meadows at the Puyehue National Park. In its northernmost limit it was found very near to the regional limit with Biobío. Further fieldwork might confirm its presence in contiguous bogs at the Biobío part of Nahuelbuta range.

SPECIMENS: CHILE. Región de la Araucanía: Prov. Malleco: Parque Nacional de Nahuelbuta, en el límite regional con la Región del Biobío, 37°48'07.01"S 73°01'04.87"W, 1265 m, 21-1-2023, S. Martín-Bravo, P. Muñoz-Schüler & M. Sanz-Arnal, 28SMB23 (CONC 193526). Región de Los Lagos: Prov. Palena: volcán Hornopirén, 41°53'S 72°25'W, 500 m, III-1993, Godoy *et al.*, 111 (CONC 145778).

Carex wheeleri J.R.Starr, Bot. J. Linn. Soc. 179: 37. 2015.
Uncinia araucana G.A.Wheeler, Aliso 15: 3. 1996[1997].
A rare species currently known only from two locations at the cordillera de Las Raíces, in the Andean mountains of Araucanía Region. We present here additional collections from the type locality that confirm its persistence there. Further fieldwork might confirm its presence on contiguous mountain ranges in the Biobío Region.

SPECIMEN: CHILE. Región de la Araucanía: Prov. Malleco, Lonquimay, salto Alaska, estero La Cascada, 38°30'16.78"S 71°24'45.22"W, 1003 m, 22-1-2023, P. García-Moro, J.I. Márquez-Corro & P. Jiménez-Mejías, 1pgm23 (CONC 193531).

D. *Carex* subg. ***Carex***

D.1. *Carex* Hirta Clade

Carex aematorhyncha É.Desv., Fl. Chile 6: 224, t. 73, f. 22. 1853.

One of the most singular species of subg. *Carex* in the Southern Cone. It is readily recognized from any other species by its densely tomentose utricles with prominent nerves and an obscurely bifid and red colored beak that contrasts with the rest of the body. Philippi (1864) described *Carex corralensis* Phil., which was later combined by Kükenthal (1909) as *C. aematorhyncha* var. *corralensis* (Phil.) Kük. It was reportedly distinguished by the type variety by having a shorter culm and narrower leaves and spikes (*Culmus humilior gracilior. Folia spiculaeque angustiora*). Barros (1969) accepted this treatment in Flora Patagonica, essentially recording Kükenthal's synopsis for the varieties distinction and not extending further with measurements. In addition, the description made by Barros (1969) for the type variety overestimates the measure of some characters, and might have been partially taken on material referable to the similar *Carex hookeri*, as the culm and utricle length, as well as the leaves width are greater than the size exhibited by the materials of *C. aematorhyncha* that we have studied, and no reference to the distinctive red colored beak is mentioned. After a thorough revision in the studied herbaria, we strongly suggest not to consider an infraspecific treatment for *Carex aematorhyncha* as it seems to be an artificial segregation of the wide natural variation that this species exhibits.

Carex excelsa Poepp. ex Kunth, Enum. Pl. 2: 502. 1837.

A widely distributed species formerly treated as *Carex pseudocyperus* L. is here newly reported for Atacama Region and consequently expanding its northernmost distributional range. We also confirm its presence for Los Ríos Region, where it has been previously reported in floristic works (Ramírez *et al.* 1980; Teillier *et al.* 2013), but surprisingly not reported in Rodríguez *et al.* 2018.

SPECIMENS: CHILE. Región de Atacama: Prov. Huasco, río Chollay, crece en suelo húmedo, junto a otras malezas, 29°00'S 70°09'W, 1.900 m, I-1994, A.S.L., 94083 (ULS 4457). Región de Los Ríos: Prov. Valdivia, Panguipulli, mirador Rucatrehua, orillas del lago Panguipulli, 39°45'2.98"S 72°9'45.36"W, 147 m, 21-XI-2019, D. Penneckamp 162 (CONC). Prov. Ranco, lago Maihue, río Pillanleufú, cerca de la desembocadura, humedal en sitio sombrío de la orilla, junto a *Cyperus eragrostis*, 40°11'50.5"S 72°00'22.4"W, 154 m, I-2023, P. Muñoz Schüler, P. García Moro & S. Martín Bravo, PMS-272 (CONC 193505). Prov. Ranco, Río Bueno, carretera de Crucero a Entre Lagos, cunetas inundadas, 40°35'35.0"S 72°38'34.8"W, 210 m, 26-I-2023, J.I. Márquez Corro, P. Jiménez Mejías & M. Sanz Arnal, 40JMC23 (CONC 193506).

Carex hookeri Kunth, Enum. Pl. 2: 490. 1837.

A poorly understood taxon of intermediate appearance between *Carex chilensis* Brongn. and *C. aematorhyncha*. It was described in the 19th Century, and to date it was known from a few collections (Kunth 1837; and as *C. beecheyana* in Boott (1858)). Here we present the first recent record for this species in more than 100 years, a population that constitutes a dominant stand on brackish waters in Chiloé island (Los Lagos Region). Despite the morphological similarity to the two above-cited species may indicate a hybrid origin, in the reported population only a few isolated individuals of *C. aematorhyncha* were found but no *C. chilensis*. In addition, all the collected specimens were fully fertile and had no signs of malformation. The distribution of this species according to Rodríguez *et al.* (2018) is far larger than expected for such a rare species, and it might be overestimated because of misidentification with the resembling *C. chilensis* or *C. aematorhyncha*. Further revision of herbarium collections of this group of *Carex* might correct this distribution.

SPECIMEN: CHILE. Región de Los Lagos: Prov. Chiloé, camino a la playa Mar Brava, río Pudeyi, pastos estacionalmente inundados dominados por *Schoenoplectus* cf. *pungens* y *Carex hookeri*, acompañadas de *C. aematorhyncha*, 41°55'04.6"S 73°59'45.3"W, 0 m, 29-I-2023, P. Jiménez Mejías, P. García Moro, J.I. Márquez Corro, S. Martín Bravo, P. Muñoz Schüler & M. Sanz Arnal, 42PJM-CL23 (CONC 193507).

Carex pumila Thunb. ex Murray, Syst. Veg., ed. 14.: 846. 1784.

A western Pacific species widely distributed on the coasts of NE Asia as in Australia and New Zealand (POWO 2023). It has been reported as introduced in Chile, where it is widely distributed and may form dominant communities on coastal dune fields. We present a new report for Ñuble. We consider that the introduced status of the species should be re-evaluated.

SPECIMEN: CHILE. Región del Ñuble: Prov. Itata, Trehuaco, Boca Itata, 36°22'S 72°51'W, 15 m, I-2011, José L. Solís B., s.n. (VALD 696).

Carex werdermannii Gross, Notizbl. Bot. Gart. Berlin-Dahlem, 10: 763. 1929.
An endemic from southern Chile that inhabits peatlands of the Coastal and Andean ranges up to 1000 m. Previously reported only from its type locality, in Llanquihue on Los Lagos Region, it was erroneously reported by Rodríguez *et al.* (2018) as exclusive from Los Ríos Region. Here we provide additional locations from Los Ríos and rectify its presence in Los Lagos by providing new collections from Chiloé, thus effectively expanding its southernmost range limit.

SPECIMENS: CHILE. Región de los Ríos: Prov. Valdivia, Corral, 39°56'54.60"S 73°27'35.12"W, 517 m, 23-1-2023, J.I. Márquez-Corro, P. Jiménez-Mejías & M. Sanz-Arnal, 30JMC23 (CONC 193528). Prov. Ranco, cordillera Pelada, Parque Nacional Alerce Costero, 40°09'56.87"S 73°30'18.13"W, 954 m, 1-2-2023, J.I. Márquez-Corro, P. Muñoz-Schüler, P. Jiménez-Mejías, S. Martín-Bravo, M. Sanz-Arnal & P. García-Moro, 73JMC23 (CONC 193529). Prov. Ranco, cordillera Pelada, Parque Nacional Alerce Costero, 40°10'04.69"S 73°30'28.87"W, 965 m, 1-2-2023, J.I. Márquez-Corro, P. Muñoz-Schüler, P. Jiménez-Mejías, S. Martín-Bravo, M. Sanz-Arnal & P. García-Moro, 67JMC23 (CONC 193530). Región de los Lagos: Prov. Chiloé, cordillera de Piuchué, San Pedro, 42°19'24.20"S 73°53'42.32"W, 620 m, 30-1-2023, P. Muñoz-Schüler, P. García-Moro, P. Jiménez-Mejías, J.I. Márquez-Corro, S. Martín-Bravo & M. Sanz-Arnal, PMS-276 (CONC 193527).

D.2. *Carex* Flacca Clade

Carex banksii Boott, Trans. Linn. Soc. London 20: 119. 1846.
Carex fonkii Phil., Linnaea 29(1): 83. 1858.
Carex banksii Boott var. *fonkii* (Phil.) Kük., Bot. Jahrb. Syst. 27(4): 522. 1899.
A very characteristic and widely distributed species in Chile and adjacent Patagonian Argentina. The taxonomy of *C. banksii* and allied names is highly problematic, with several infraspecific taxa differently subsumed or divided depending on the author (Leveillé 1915; Barros 1969). Wheeler (2007) created the sect. *Pellucidae* G.A.Wheeler to accommodate *C. banksii* together with what he considered other two closely related but independent species: *C. odontolepis* and *Carex stuessyi* G.A.Wheeler. However, while Wheeler performed a comparison between *C. banksii* and *C. stuessyi*, he did not provide any information about the differences among these species and *C. odontolepis*. Unpublished data by Benítez-Benítez *et al.* show that samples assignable to sect. *Pellucidae* are grouped in three clades: one from Patagonia, another from the central Andes from Maule to Valparaíso, and a last one from Juan Fernández. The identity of the plants in each clade corresponds with the three names considered by Wheeler, namely, *C. banksii*, *C. odontolepis* and *C. stuessyi*.

The examination of specimens regarded by Wheeler as *C. odontolepis* readily reveals some characters that allow the distinction of this species from the more widely distributed *C. banskii*. Those characters are the ones we include in our identification key (see below).

Although we have not seen the type of *C. fonkii*, given the geographic origin of the type in the Andes of Los Ríos Region, we provisionally consider it to be a synonym of *C. banksii*.

Carex dusenii Kük., Ark. Bot. 7(2): 13, pl. 4, 7. 1907.
A very poorly understood species described from Argentinian Patagonia (lago San Martín, Santa Cruz; Dusén 1907) and so far, known only from the type collection. This species was compared by Kükenthal to *C. macrosolen* Steud., pointing to a relationship with the acaulescent species placed in former sect. *Abditispicae* G.A.Wheeler. Remarkably, this affinity is supported by unpublished data by Benítez-Benítez *et al.*, which makes *C. dusenii* the only species of this group with well-developed stems.

We present the second and third known record for the species, first ones for Chile and also first ones in about 100 years. These constitutes a large disjunction of more than 600 km South and 700 North from the type locality, setting its new northermost and southernmost distribution limits. Very probably, this species could be present in the vast area between the three locations, but it has been so far neglected by collectors.

SPECIMEN: CHILE. Región de Los Lagos: Prov. Palena, comuna de Hualaihué, San Ignacio de Huinay, subida al cerro Tambor, 12-XII-2013, R. Fitzek, LM7347 (CONC, MA). Región de Magallanes: Prov. Tierra del Fuego, valle de Los Castores, turbera pulvinada en el bosque, 54°5'1.33"S 68°52'8.53"W, 420, 7-III-1995, M.T.K. Arroyo & A.M. Humaña, 95-1946 (CONC).

Carex odontolepis Phil., Linnaea 29: 82. 1858.
Carex banksii Boott var. *gilliesii* (Phil.) Kük., Pflanzenr. IV. 20: 555. 1909.
Carex dessaueri Phil., Anales Univ. Chile 93: 496. 1896.
Carex gilliesii Phil., Anales Univ. Chile: 556. 1873.
Carex ochrostachya Phil., Anales Univ. Chile 93: 500. 1896.
After the examination of the type material of the names listed here, stored in JStor Global Plants, we found them to be a better match to *C. odontolepis* than to *C. banksii*, thus creating a reliable synonymy for the first. For further information on *C. odontolepis* and its relationship with *C. banksii*, see the text under this latter.

D.3. *Carex* sect. ***Fecundae*** Kük.

Carex catamarcensis C.B. Clarke ex Kük., Bot. Jahrb. Syst. 27(4): 518. 1899.

An extremely rare and poorly collected species, described from Argentina and with a single and old report from Chile based on an immature collection from Coquimbo Region (*C. latibracteolata* Kük., Bot. Jahrb. Syst. 27(4): 518 (1899); río Torca, *Philippi*, SGO digital image!). It is the southernmost occurring member of sect. *Fecundae*, a group of *Carex* with tropical affinities endemic to the Americas. Here we report a new collection of several well-developed specimens, the first recent report of the species in Chile, not far from the original collection in the country. Since the vegetation and climate in this part of the Cordillera does not seem to be similar for other species of sect. *Fecundae*, nor resembles the areas where *C. catamarcensis* has been reported in Argentina (P.J.-M. pers. obs.), we presume that the reported population must be restricted to very specific environments. Accordingly, the persistence of the reported population must be confirmed in the immediate future and measures for its preservation taken if necessary.

SPECIMEN: CHILE. Región de Coquimbo: Prov. Limarí, El Polvo, 31°08'S 70°35'W, 2.300 m, XII-1976, Jiles, 6393 (CONC 103461).

D.4. *Carex* sect. ***Spirostachyae*** Drej. ex L.H.Bailey

Carex fuscula d'Urv., Fl. Iles Malouin.: 28. 1825.
Carex araucana Phil., Anales Univ. Chile 93: 495. 1896.
Carex distenta Kunze ex Kunth, Enum. Pl. 2: 449. 1837.
Carex inconspicua Steud., Syn. Pl. Glumac. 2: 221. 1855.

A widely distributed species in South America, spanning across the Andes from South Bolivia to Tierra del Fuego. A closely related species, *C. catharinensis* Boeckeler, appears in the Atlantic highlands of S Brazil, Uruguay, and the Argentinian province of Buenos Aires (Jiménez-Mejías *et al.* 2016b).

In the most strict sense, *C. fuscula* is a Patagonian plant. Specimens from temperate Chile has been variously described as different taxa (see synonyms listed here below). Our observations show that *C. fuscula s.l.* is extremely polymorphic, and that within a same stand, forms assignable to different taxa can be found. This raises doubts about the taxonomic validity of such syntopic morphs. Accordingly, we strongly suggest treating all these names under a broadly conceived *C. fuscula* until a thorough biosystematic study unravels this intricate situation.

Carex lamprocarpa Phil., Anales Univ. Chile 93: 497. 1896.

A very rare species from mainland Chile whose closest affinities seems to be with the Juan Fernandez endemic *C. berteroniana* Steud.

Carex lamprocarpa is only known from two old collections in southern central Chile: "Valdivia, *Philippi*, Feb 1888" (K!) from Los Ríos Region; and "Temuco, Maquehue, *R. Morton Middleton*, Dec 1905" (BM013822604!) from Araucanía Region. In the original protologue, Philippi provides additional information that places the type locality at the southern side of the Valdivia river: "*In praedio meo San Juan (prov. Valdivia) loco dicto Paso de las Piedras in umbrosis humidis inverni*"). We extensively searched the species in remnants of original vegetation at both locations (Temuco and caleta de San Juan) without success. According to the indications, this species must grow in shady river forests.

The affinities of the mainland *C. lamprocarpa* with the island *C. berteroniana* were discussed by Wheeler (1988b, 2007), and previously noted in herbarium labels by the determination of the Los Ríos material as the Juan Fernández species (under the name *C. paleata* Boott). Preliminary results show that *C. berteroniana* is deeply nested within a clade of New Zealand taxa (Míguez *et al.* 2022), supporting a long-distance dispersal event from the western to the eastern Pacific. According to morphological evidence, the presence of *C. lamprocarpa* in mainland Chile should be also related to this colonization event.

Wheeler (1988b, 2007) proposed the independence of *C. lamprocarpa* and *C. berteroniana* mainly on the basis of their different distributions. Implicitly, he also presumably relied on differences on utricle morphology, as showed in the utricle comparison performed in the accompanying figure: a suborbicular utricle abruptly constricted in the beak and base in *C. berteroniana* vs. a broadly fusiform utricle, attenuated towards both the beak and the base, in *C. lamprocarpa*. However, he studied a very limited amount of material, which may have biased this observation. The study of a larger number of collections of *C. berteroniana* by the last author of this paper (P.J.-M.) revealed that, sometimes, the utricle morphology of the insular species approaches that of the mainland one, blurring this presumed limit between the two taxa. This opens a window to the possibility of *C. lamprocarpa* populations being an accidental introduction of *C. berteroniana* in the continent. Indeed, Philippi visited the archipelago a few years before the description of the mainland plant as *C. lamprocarpa*, which -curiously- he found in a land of his property: "in maeo predio", it is, "in my land". It seems to us necessary to search and study material from the mainland *C. lamprocarpa* in order to address its independence, discard a possible human introduction, and urge conservation measures if necessary.

The alien *C. pendula* superficially resembles *C. lamprocarpa*.

It is an introduced species recently naturalized in Valdivia town environs. *Carex pendula* is much larger than *C. lamprocarpa*, and the utricles are smaller, duller, and lack red spots.

After the thorough revision performed by the authors of this paper, and the almost total absence of vouchers, we consider the reports of *C. lamprocarpa* from Los Lagos and Biobío erroneous.

Carex poeppigii C.B.Clarke ex G.A.Wheeler, Aliso 12(1): 97. 1988.

A mysterious species known from a single collection from the Antuco area (Biobío Region). Duplicates of this collection are found in BM (digital image!), K(!), LE (digital image!), and P (digital image!). This species is closely related to *C. berteroniana* and *C. lamprocarpa* (Wheeler 1988b; see above).

The label of the original material (*Poeppig* 247) only bears the label "Antuco", handwritten by Poeppig. There is an additional collection from the area (cordillera de Polcura, *Zoellner* 2913, 1968, CONC), labeled as *C. lamprocarpa* and currently unlocated, that could potentially belong to this species. The labeling of material by Poeppig has been regarded by some as problematic (S. Teillier, pers. comm.). However, Poeppig seemed to be fairly constant when naming places (D. Alarcón, pers. comm.). During his visit to the valley of the Laja river in the year 1828, Poeppig distinctly indicated when he visited the volcano ("*mont. Igniv. Antuc.*", see below *C. antucensis*) or other places such as the surrounding mountains of Antuco (e.g., "*In Chil. Austr. Rupib. Cacuminis Pico de Pilque [Cerro Pilque]*", in the syntype of *Azara alpina* Poepp. & Endl.). Whether the indication "Antuco" in *C. poeppigii* original label refers to the volcano or the town in the valley is unclear to us. According to Poeppig (1960) himself, only one particular place not far from Antuco town was explicitly mentioned: Quillailebu river, a stream on the south side of Laja valley that goes upslope Sierra Velluda volcano. That may well be the location where Poeppig may have found the plant, although there seem not to be other Poeppig's collections from this area.

During our 2023 campaign we failed in finding *C. poeppigii* on the slopes over Polcura town. We were unable to enter Sierra Velluda from the Laja valley or go upstream of the Polcura river. Much additional fieldwork in the area is needed to locate this taxon or discard a possible mislabeling by Poeppig.

Carex trifida Cav., Icon. 5: 41, t. 465. 1799.

A Circumantarctic large sedge species known from the southernmost tip of the South Cone, the Malvinas, as well as from New Zealand and its satellite archipelagos. It is a species or maritime affinities, known from rocky shores and cliffs, often growing associated with seabird colonies (Martín-Bravo pers. comm.; also see Johnson 1976; Bergstrom *et al.* 2006). In Chile it was reported from Magallanes and Aysén administrative regions. Here we report two surprising records from Chiloé (Los Lagos Region), which becomes the northernmost records of the species in its entire area.

SPECIMENS: CHILE. Región de los Lagos: Prov. Chiloé, isla Guafo. 43°36'S 74°44'W, 100 m, II-1986, Villagrán & Leiva, 7492 (CONC 75926). Prov. Chiloé, isla Quilán, 43°24'S 74°15'W, 25 m, X-2-1986, Villagrán & Leiva, 7214 (CONC 76722).

D.5. *Carex* sect. ***Rhynchocystis*** Dumort.

Carex pendula Huds., Fl. Angl.: 352. 1762.

A mainly European species widely cultivated, naturalized in certain areas of North America, New Zealand (Míguez *et al.* 2017, 2018) and China (as *C. tenuirostrata* X.F.Jin & D.F.Wu; Jin *et al.* 2012). Here we present the first reports of the species growing escaped from cultivation in Chile and South America.

SPECIMENS: CHILE. Región de los Ríos: Prov. Valdivia, 39°48'35.59"S 73°15'27.83"W, P. Muñoz Schüler, P. García-Moro & S. Martín-Bravo, PMS-268 (CONC 193532). Prov. Valdivia, Valdivia, 39°50'S 73°14'W, 15 m, 12-1961, Gunckel, 37566 (CONC 67878).

D.6. *Carex* sect. ***Phacocystis*** Dumort.

Carex antucensis Kunze ex Kunth, Enum. Pl. [Kunth] 2: 412.1837.

LECTOTYPE here designated: "N° 29, *Carex* N° 3 // *Poeppig* Coll. pl. Chil. III. 248. (29) In mont. igniv. Antuc., Chil. austr. Febr. lecta" (P-00304419 digital image!)

= *Carex chillanensis* Phil., Anales Univ. Chile 21: 384. 1862.

HOLOTYPE: CHILE: "Valle de las Aguas Calientes, 27 Feb 1862" *R.A.Philippi* 46 (SGO-37602 digital image!)

Carex goodenoughii sensu Barros (1969), non *Carex goodenoughii* Asch. & Graebn., Mitteleurop. Fl. ii. pt. 11. 94.

Section *Phacocystis* is one of the most problematic groups of *Carex*, whose taxonomy is much affected by the faint morphological limits between species and hybridization events (Benítez-Benítez *et al.* 2021). The group in South America makes no exception.

On the one hand the name *Carex chillanensis* Phil. was described by R.A. Philippi in 1862 (Philippi 1862) based on material collected in Chillan (valle de las Aguas Calientes, *Philippi*, 27 Feb 1862; SGO-37602 digital image!). Barros (1969) recorded the species as *C. goodenoughii* Asch. & Graeb. (a synonym of the Western Palearctic *C. nigra* (L.) Reichard),

due to the superficial similitude between both species. On the other hand, *C. antucensis* Kunth was described in 1837 (Kunth 1837) based on material collected by E. Poeppig in Antuco. The inspection of the protologue and type material of *C. antucensis* revealed that the original material of that latter is indistinguishable from that of *C. chillanensis*, which makes *C. antucensis* the prior name for the species. Remarkably, Philippi already noticed in the protologue of *C. chillanensis* the similitude between it and *C. antucensis*. Despite this, he still proceeded with the formal description of the new species after mistaking the number of stigmas between them (reporting three in *C. chillanensis* vs. two in *C. antucensis*). To help stabilize the correct identity of the two names, we proceed to lectotypify *C. antucensis* here.

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Supplementary Material. Regional distribution of *Carex* species in Chile (Excel file).

IDENTIFICATION KEY TO THE SPECIES OF *CAREX* GROWING IN CHILE

1. Inflorescence a single spike at the end of the stem.
   2. Utricles with an exserted rachilla protruding from the beak, the rachilla ending in a hook or conspicuously widened at its tip ..... **GROUP A** (subg. *Uncinia*, sect. *Uncinia*).
   2'. Utricles without exserted rachilla, the rachilla absent or contained within the utricle, or if rachilla protruding, then it does not form a hook at its tip nor is widened..... **GROUP B**.

1'. Inflorescence with > 1 spike.
   3. All spikes ± similar in appearance, all with staminate and pistillate flowers, or inflorescence with all spikes unisexual.
      4. Spikes and/or inflorescence with at least some well-developed peduncles and visible internodes, the whole inflorescence appearing racemose or paniculate.
         5. Inflorescence racemose; plants < 50 cm tall; spikes globose, elliptical or oblong, < 2 cm long; glumes hyaline to greenish. Species from the Central Valley and Coastal cordillera of Chile ..... *C. chlorolepis* (*C. phalaroides*).
         5'. Inflorescence paniculate; plants > 60 cm tall; spikes oblong to longly elliptical, > 2 cm long; glumes blackish. Species from sub-Andean riverbanks of Norte Chico ..... *C. catamarcensis*.
      4'. Spikes sessile or subsessile, often separated by short internodes giving the appearance of a single terminal spike ..... **GROUP C**.
   3'. Spikes clearly dimorphic, distal-most one(s) entirely staminate or gynaecandrous, proximal-most ones entirely pistillate or androgynous (with pistillate flowers proximally and a few staminate flowers distally).
         6. Stigmas 2 ..... **GROUP D**.
         6'. Stigmas 3 ..... **GROUP E**.

GROUP A.

1. Inflorescence capituliform, up to 1 cm long, the axis shorter than the utricles; rachilla inconspicuously hooked at tip, variously widened in a spoon-like shape that is usually reflexed ..... *C. kingii* (*U. kingii*).

1.' Inflorescence spike-like, usually > 1 cm long, the axis longer than the utricles; rachilla tipped by a conspicuous hook.

2. Utricle glabrous, with the beak smooth; filament of the stamens filiform, much narrower than the anthers.

3. Spikes ovoid, > 1 cm wide ..... *C. dolichophylla* (*U. macrophylla*).

3.' Spikes linear to narrowly cylindrical, up to 3.5 mm wide.

4. Glumes not articulated, not divided into a basal coriaceous persistent portion, and a deciduous distal blade .... *C. turbaria* (*U. austroamericana*).

4.' Glumes articulate, differentiated into a coriaceous portion persistent on the spike rachis, and a deciduous distal blade ..... *C. firmula* (*U. tenuis*).

2.' Utricle with hairs or prickles at least at the apex or the beak; filament of the stamens filiform and narrower than the anthers or flat and as wide as or wider than the anthers.

5. Exserted portion of the rachilla > 2× as long as utricle body, usually > 10 mm long.

6. Glumes awned, at least those of the proximal half of the spike, filaments filiform and narrower than the anthers ..... *C. macrotrichoides* (*U. chilensis*).

6.' Glumes acute, filaments flat and as wide as or wider than the anthers ..... *C. erinacea* (*U. erinacea*).

5.' Exserted portion of the rachilla < 2× as long as the utricle body, often < 10 mm long.

7. Anther filaments filiform, narrower than the anthers.

8. Spikes 3.5-9.7 mm wide (excluding rachillas); glumes from the lower half of the spike with the pale central part wider than the contrasting dark-colored margins on each side ... *C. lechleriana* (*U. lechleriana*).

8.' Spikes < 5 mm wide (excluding rachillas); glumes from the lower half of the spike with dark-colored margins inconspicuous or absent, or only the tip margin differentially dark-colored, if the glume margin conspicuously colored then the pale middle strip is ± as wide or narrower than the contrasting-colored margin on each side.

9. Utricle beak differentially colored, dark reddish- brown, contrasting with the greenish to stramineous utricle body ..... *C. triangula* (*U. triquetra*).

9.' Utricle beak not differentially colored, the entire utricle greenish, stramineous or brownish.

10. Utricles > 6 mm long ..... *C. negeri* (*U. negeri*).

10.' Utricles 3.2-6 mm long.

11. Spikes with > 20 utricles; stems scabrid on its upper third.

12. Utricles 3.7-6 mm long, without conspicuous nerves on the adaxial face or weak nerves reaching up to the middle ..... *C. scabrida* (*U. scabriuscula*).

12.' Utricles 3.2-4 mm, with 2-3 pale nerves running through most of the adaxial face length ..... *C. aspericaulis* (*U. aspericaulis*).

11.' Spikes with < 20 utricles; stems smooth or scabrid.

13. Persistent style base conspicuously thickened, paler than the achene body; lowermost glume blade often > 5.5. mm; utricles 1.2-1.6 mm wide .... *C. turbaria* (*U. austroamericana*).

13.' Persistent style base shortly cylindric, not or slightly thickened, not differentially colored from the achene body; lowermost glume bade up to 5.5 mm; utricles 1.4-1.9 mm wide .....*C. meridensis* (*U. macrolepis*).

7.' Anther filaments flat at least proximally, the entire filament or the flat portion as wide as or wider than the anthers.

14. Spike very dense, elliptical to rotund, usually > 1cm wide at its central part ..... *C. multifaria* (*U. mutlifaria*).

14.' Spike dense or lax, elliptical, cylindric, oblong or claviform, usually < 1cm wide at its central part.

15. Utricle body elliptical, ≥ 1.5 mm wide.

16. Utricles 1.5-2.6 mm wide, with the beak up to 2 mm long; exserted portion of the rachilla 2.8-6 mm ..... *C. salticola* (*U. andina*).

16.' Utricles (1.5)2-3 mm wide, with the beak > 2 mm long; exserted portion of the rachilla 5.5-8.5 mm ..... *C. wheeleri* (*U. araucana*).

15.' Utricle body elliptical or oblong, ≤ 1.5 mm wide.

17. Spikes cylindric, claviform or oblong, > 5(4.5) mm at its widest point (excluding rachillas); utricles elliptic, narrowly elliptic, or narrowly oblong, usually > 5 mm long.

18. Utricles 3.8-5.2 mm, with raised nerves running from the utricle base to its middle or beyond it; exserted portion of the rachilla 1.5-2.7 mm; stem (1.4)1.6-2.3 mm wide .... *Carex plurinervata* (*U. costata*) (in part).

18.' Utricles 5.5-(9)8.4 mm, nerveless or faintly nerved (then nerves mostly conspicuous towards utricle base and not raised); exserted portion of the rachilla 2.5-5.2- mm; stems 0.7-1.7(2.5) mm wide.

19. Utricles (6.2)6.4-8.4(9) mm and pistillate glumes 6-7.4(7.5) × 1.8-2.4 mm; achenes narrowly elliptic to oblong, 1.7-1 mm wide; rachilla scabrid on the hook adaxial side or entirely smooth; spike rather lax, 4.5-9 mm at its widest, with the utricles ascendent-spreading ..... *C. quinquin* (*U. trichocarpa*).

19.' Utricles 5.5-7.3 mm and pistillate glumes 4.1-5.6 × 1.2-2 mm, achenes narrowly oblong to cylindrical, 0.6-1.1 mm wide; rachilla entirely smooth; spike rather dense, (4)5.8-11.9(14) mm at its widest, with the utricles appressed ..... (*Carex phleoides*) (*U. phleoides*).

17.' Spikes cylindric, up to 5 mm wide (excluding rachillas); utricles obovate, oblong-obovate, ovate or elliptic, up to 6 mm long.

20. Utricles with the nerves conspicuously raised most its length .... *C. plurinervata* (*U. costata*) (in part).

20.' Utricles nerveless or nearly so, when present, the nerves conspicuous at utricle base and rarely entering the upper half of the utricle.

21. Utricles 3-4.2 mm long, ± constricted proximally into a narrow substipitate base ..... *C. macloviformis* (*U. macloviformis*).

21.' Utricles 4-7 mm long, cuneate proximally.

22. Glumes nearly diamond-shaped, the apex abruptly constricted forming an acuminate tip ..... *C. fernandesiana* (*U. douglasii*).

22.' Glumes acute to obtuse, the apex progressively attenuated.

23. Empty portion between the achene top and the utricle beak < 1 mm long; exserted portion of the rachilla 1.5-2.5 mm long; pistillate glumes usually > 2 mm at its widest ..... "C. remotissima" (ined.).

23.' Empty portion between the achene top and the utricle beak 1.1-1.8 mm long; exserted portion of the rachilla (2.4)2.5-3.6 mm long; pistillate glumes usually < 2 mm at its widest ..... *C. delacosta* (*U. macloviana*).

GROUP B.

1. Spikes unisexual ..... *C. subantarctica* (in part).

1.' Spikes bisexual.

2. Spikes gynaecandrous, with staminate flowers proximally and pistillate ones distally ..... *C. malmei* (in part).

2.' Spikes androgynous, with pistillate flowers proximally and staminate ones distally.

3. Rachilla protruding from utricle beak.

4. Utricles conspicuously stipitate, when deflexed the stipe forming a conspicuous inverted U; pistillate glumes as long as or shorter than the utricles ..... *C. camptoglochin*.

4.' Utricles short stipitate, when deflexed the utricle appearing sessile on the inflorescence axis; pistillate scales shorter than utricles ..... *C. microglochin*.

3.' Rachilla absent or included within the utricle.

5. Stigmas mostly 2.

6. Spikes without proximal bracts surpassing the utricles ..... *C. arctogena*.

6.' Spikes with at least the proximal-most bract elongated, surpassing the lowermost utricles, sometimes as long as or longer than the entire inflorescence.

7. Utricles sparsely pubescent on sides or glabrous and with the margins hispidulous above middle; beak bidentate.

8. Utricles pubescent, 4-9(13) per spike, 3.2-4 x 1.6-2 mm ..... *C. moorei* (in part).

8.' Utricles glabrous, the margins hispidulous above middle, 2-6 per spike, 2.6-3.3 x 1.3-1.7 mm ..... *C. sorianoi*.

7.' Utricles glabrous, sometimes the beak scabrid; beak truncate.

9. Utricles attenuated at the apex into the beak, thus the upper half of the utricle long deltoid.

10. Utricle long-spititate, the stipe ca ¼ the total utricle length; spike 6-11 mm long; rachilla absent or extremely reduced ..... *C. caduca*.

10.' Utricle shortly stipitate, the stipe much less than ¼ the total utricle length; spike 4.5-6.5 mm ..... *C. toroensis*.

9.' Utricles constricted at apex into the beak, thus the upper half of the utricle bottle-shaped.

11. Spikes with 2-4 utricles; mucro of the lowermost glume < 5.5 mm; rachilla 1.5-2 mm, ciliate ..... *C. minutissima*.

11.' Spikes with 2-8 utricles; mucro of the lowermost glume up to 25 mm; rachilla up to 0.5 mm, smooth or ciliate.

12. Utricles flattened, plano-convex or narrowly biconvex, yellowish to reddish-brown when ripe ..... *C. trichodes*.

12.' Utricles inflated, strongly biconvex, vivid red when ripe ..... *C. reicheana*.

5'. Stigmas 3.

13. Plant acaulescent; spike concealed by the leaves; utricles with distal margins flattened, ± winged, surface minutely papillose or glabrous. Species from Andean bofedales between 4100 and 4350 m in Tarapacá Region ..... *Carex phylloscirpoides*.

13'. Without the above cited combination of characters.

14. Stem leaves bladeless, reduced to sheaths, or with a very short mucro-like blade < 5 mm long; inflorescence terminal, the subtending bract glume-like and not surpassing the inflorescence when ripe ..... *C. aphylla*.

14'. Stem leaves with blade usually > 5 mm long; inflorescence terminal, and the subtending bract not surpassing the inflorescence, or pseudolateral and the subtending bract surpassing the inflorescence.

15. Leaves much longer than flowering stems.

16. Utricles 4.3-6 x 1.8-2.5 mm, flocculent ..... *C. argentina*.

16'. Utricles 1.5-3.8 x 1.3-1.9 mm, glabrous or pubescent.

17. Utricles glabrous to hispidulous on the margins and distal half of the body, the 2 lateral nerves conspicuous and faintly to prominently 1-8 veined on the sides.

18. Leaves 0.5-5 cm long; spikes 3.5-6 mm wide; utricles strongly veined, obovoid, with a flattened or often conical stipitate base. Endemic to the Patagonian steppe, on a wide altitudinal range .... *C. austroamericana*

18'. Leaves 2.9-9 cm long; spikes up to 3.5 mm wide; utricles weakly veined, ellipsoid, obovoid or suborbicular, with a flattened stipitate base. Endemic to the Andes of the Metropolitana Region of Santiago, between 2700-3000 m a.s.l. ..... "C. recondita" (ined.)

17'. Utricles densely pubescent, only the 2 lateral nerves conspicuous, the sides nerveless, rarely only nerved at the base.

19. Leaves stiff, cylindrical, 0.3-0.8 mm wide; utricles subglobose, 1.4-1.8 mm wide .... *C. nelmesiana*.

19'. Leaves weak, canaliculate or flat distally, mostly < 0.6 mm wide; utricles obovate to elliptical, 0.7-1.8 mm wide ..... *C. patagonica*.

15'. Leaves shorter, equaling or a bit longer than flowering stems.

20. Utricles obovate, oblanceolate, broadly ovate, broadly elliptical or suborbicular, glabrous to puberulent.

21. Utricles 3.5-5.2 mm, glabrous, sometimes sparsely scabrid on the upper margin on nerves; rachilla with margins smooth or ciliate.

22. Utricles flattened, strongly appressed ..... *C. boelckeiana*.

22'. Utricles trigonous, ascendent to spreading ..... *C. molinae*.

21'. Utricles up to 3.5(4) mm, sparsely to densely pubescent at least on its upper half; rachilla with margins fringed to ciliate at least distally, rarely entirely smooth.

23. Utricle body (i.e. excluding the stipe) strongly obovate; beak minute or up to 0.5 mm.

23. Mature spikes ovate, acutish at apex; glume sides dark purplish brown, contrasting with the greenish midnerve; rachilla linear ..... *C. pungens* (in part).

23'. Mature spikes globose, blunt; glume sides brown to hyaline, contrasting or not with the greenish midnerve; rachilla oblong to deltoid.

24. Pistillate glumes with a 0.4–0.7 mm long arista; proximal part of the rachilla oblong, laciniate, with lacinia in multiple directions, of a length >½ the rachilla width ..... "C. manuelbarrosii" (ined.)

24'. Pistillate glumes shortly acuminate or with a 0.1–0.2 mm long mucro; proximal part of the rachilla deltoid, antrorsely scabrid, with the marginal prickle's length <½ the rachilla width ..... *C. andina*.

22'. Utricle body elliptic, oblong or ovate; beak (from the top of the achene to the beak teeth tips) > 0.4 mm.

24. Utricle body suborbicular, elliptic or oblong; stipe ca. 1 mm; beak ~0.5 mm; stems strongly curved; rachilla linear ..... *C. setifolia* (in part).

24'. Utricle body ovate to elliptic; stipe < 1 mm; beak 0.7-1.2 mm; stems straight or slightly curved; rachilla elliptical ..... *C. moorei*.

20'. Utricles lanceolate, glabrous or sparsely scabrid on the beak.

25. Utricles 2.5-3 mm; rachilla absent or < 0.5 mm long ..... *C. transandina*.

25'. Utricles 3.5-5 mm; rachilla setaceous, > 0.5 mm long.

26. Utricle beak slightly constricted at its base, thus the upper half of the utricle bottle-shaped; leaves and stems rigid, more or less straight ... *C. vallis-pulchrae* var. *vallis-pulchrae*.

26'. Utricle beak not constricted at its base, thus the upper half of the utricle long-deltoid; leaves and stems weak, usually flexuose ..... *C. vallis-pulchrae* var. *barrosiana*.

GROUP C.

1. Inflorescence unisexual ..... *C. gayana* (in part).

1'. Inflorescence with both pistillate and staminate flowers.

2. Spikes pistillate or gynecandrous.

3. Utricle margins rounded or with a flat portion < 0.1 mm wide (sect. *Glareosae*).

4. Utricles elliptic-ovate, ± abruptly contracted at top into a broadly deltoid beak < 1 mm long ..... *C. canescens*.

4'. Utricles ovate-lanceolate, attenuated into a triangular beak ± 1 mm long ..... *C. skottsbergiana*.

3' Utricle margins winged, the flat portions > 0.1 mm wide at least with at the beak base or the utricle base (sect. *Cyperoideae)*.

5. Utricles shorter than glumes, the wing abruptly constricted proximally forming a substipitate base; inflorescence elongate ..... *C. leporina*.

5'. Utricles longer than glumes, the wing not abruptly constricted proximally, thus the base cuneate to rounded, not or inconspicuously stipitate; inflorescence congested ..... *C. macloviana*.

2. Spikes androgynous.

6. Leaf sheaths transversely wrinkled at the top on the opposite side to blade insertion; inflorescence at least 2.5 cm long ..... *C. brongniartii*.

6.' Leaf sheaths not wrinkled; inflorescence shorter or longer than 2.5 cm long.

7. Proximal-most bract glume-like, shorter than to overtopping the whole inflorescence, utricles longer or shorter than the glumes, ovate, glabrous, with prominent nerves and a corky bulge at the base; species growing on the Central Valley of Mediterranean regions of Chile . ..... *C. divisa*.

7'. Without the above cited combination of characters.

8. Proximal-most bract bristle-like or glume-like, shorter than its spike to equaling the whole inflorescence, utricles longer or shorter than the glume blade (excluding mucro if present), smooth, if proximal-most bract surpassing the inflorescence, then utricle shorter than the glumes; species growing on the Andes from Chile and Argentina.

9. Leaves filiform, incurved; inflorescence globose, pyramidal or broadly ovate, often overtopped by the leaves ..... *C. melanocystis*.

9'. Leaves flat, rarely filiform and incurved; inflorescence globose to elliptical or oblong, overtopped by or surpassing the leaves.

10. Glume blade (excluding mucro if present) shorter than the utricles, thus most utricle beaks visible.

11. Utricles 0.8-1.2 mm wide, lanceolate (the widest near base), the adaxial side with (3)4-11 raised nerves ..... *C. pleioneura*.

11'. Utricles 1.2 mm wide or wider, elliptical, the adaxial side nerveless or with up to 3 faint nerves.

12. Inflorescence orbicular to ovoid, 7-12(-14) x 7-12 mm; widest utricles 1.4-1.6 mm .... *C. firmicaulis*.

12'. Inflorescence ovoid to oblong-ovoid, 15-40 x 10-20 mm; widest utricles 1.6-2.4 mm.

13. Achenes 1.3-1.5 x 0.7-0.9 mm; utricles ovate; glumes without hyaline margins, or if present, narrower than the contrasting dark-colored middle strip ..... *C. nebularum*.

13'. Achenes 1.5-1.8 x 1-1.5(2) mm; utricles obovate, elliptic or broadly ovate; glumes with hyaline margins broader than the dark-colored middle strip ..... *C. hypoleucos*.

10'. Glume blade (excluding mucro if present) longer than the utricles, thus most of the utricles not visible and entirely covered by the glumes.

14. Utricles up to 3 mm long, strongly ovate, widest towards the base; beak < 1.2 mm, long incised abaxially, the incision conspicuously entering the utricle body ..... *C. gayana* (in part).

14'. Utricles > 2.8 mm, from strongly ovate to elliptical, the widest towards the base or the middle; beak > 0.8 mm, not incised or incision not entering the utricle body.

15. Exserted portion of the flowering stems ex up to 3 cm long, usually much shorter; utricles elliptical, nerveless ..... *C. reichei*.

15'. Exserted portion of the flowering stems usually > 3 cm; utricles nerved at least towards the base, rarely nerveless.

16. Utricles deltoid, the body strongly ovate, thus widest towards the base, progressively attenuating into the beak, rarely the beak weakly constricted and not incised at its base; margins of the utricle upper half conspicuously scabrid ..... *C. macrorrhiza*.

16'. Utricles bottle-shaped, the body elliptical to oblong, thus the widest near the middle, rarely more or less ovate and the widest towards the base, the beak constricted and incised at its base; margins of the utricle upper half scabrid or smooth.

17. Glumes pale ferruginous ..... *C. subfuegiana**.

17'. Glumes brown, straw-colored or hyaline ..... *C. ecuadorica*.

8'. Proximal-most bract narrowly leaf-like, overtopping the inflorescence; utricles longer than the glume blade (excluding mucro if present), smooth or verrucose; if proximal-most bract shorter or equaling the inflorescence and/or utricles covered by the glumes, then utricles verrucose ..... species growing on the central valley of Chile (sect. *Bracteosae*).

18. Utricles verrucose at least adaxially ..... *C. bonariensis*.

18'. Utricles adaxially not verrucose ..... *C. bracteosa*.

GROUP D.

1. Terminal spikes gynaecandrous, clavate or ovate-subclavate, lateral ones entirely pistillate or nearly so; glumes blackish; utricles strongly flattened, nerveless except for two marginal nerves, and short-beaked.

2. Spikes 1-4, lateral ones as long as or at least ¾ as long as the terminal one; glumes without hyaline margin or sometimes with a narrow one ≤ 1 mm wide ..... *C. atropicta*.

2'. Spikes 1(2-3), lateral ones less than ¾ as long as the terminal one; glumes with broad hyaline margins > 0.5 mm or very rarely without it ..... *C. malmei* (in part).

1'. Without the above cited combination of characters.

3. Plants with a well-developed culm, the spikes well-above the leaves, if acaulescent, then inflorescence with a definite axis (sect. *Phacocystis*).

4. At least some spikes arising in groups of 2-3 from the same inflorescence node, pendulous or strongly spreading, some peduncles > ½ as long as their spike lengths and utricles with the nerves raised, yellow, entirely red-dotted .... *C. darwinii*.

4'. All spikes sessile or shortly peduncled, arising solitary from each internode, rarely in pairs, erect or inclined, all peduncles < ½ as long as their spike lengths, and utricles nerveless or nerved, the nerves raised or not, yellow, greenish, or blackish, if peduncles > ½ as long as their spike lengths or utricles red-dotted, then spikes always arising solitary.

5. Pistillate glumes 3.5-5 x 1.2-1.5 mm; pistillate spikes 5-6 mm wide; utricles 1.5-2 mm wide ..... *C. andersonii*.

5'. Pistillate glumes 1.9-2.8 x 1-1.3 mm; pistillate spikes up to 4(5) mm wide; utricles up to 1.5 mm wide.

6. Lowermost bract usually shorter than the inflorescence, often shorter or as long as the spike it underlies; second-to-last lowermost bract shorter than its spike; utricles suborbicular, elliptic or obovate, 1.9-2.1 mm long, the beak up to 0.2 mm long ..... *C. antucensis*.

6'. Lowermost bract longer or as long as the inflorescence, always longer than the spike it underlies; second-to-last lowermost bract usually longer than its spike; utricles usually ovate 2.3-3 mm long, the beak 0.2-0.5 mm long ..... *C. decidua*.

3'. Plants acaulescent, the spikes buried between the leaves, inflorescence axis inconspicuous (Flacca Clade; "sect. Abditispicae").

7. Utricles (8.6)10-24 mm long, beaks 3-5 mm long; achenes 2.8-3.8 mm long, 2-2.6 mm wide; lateral spikes 12-25 mm long; glumes 7-15 mm long ..... *C. macrosolen*.

7'. Utricles 3.2-8.5 mm long, beaks 0.3-2.5 mm long; achenes 1.9-2.5 mm long, 1.3-2.1 mm wide; lateral spikes 5.8-12.8 mm long; glumes 2.5-8 mm long.

8. Plants unisexual (rarely bisexual); the terminal spike entirely pistillate or entirely staminate (if the latter, then 12.5-28 mm long) ..... *C. subantarctica*.

8'. Plants bisexual; the terminal spike staminate, 6-10 mm long.

9. Utricles 6-8.5 mm long, beaks 1-2.5 mm long; glumes 5.6-8 mm long; lateral spikes 9-11 mm long ..... *C. pisanoi*.

9'. Utricles 3.2-5.4 mm long, beaks 0.3- 0.8 mm long; glumes 2.5-3.7 mm long; lateral spikes 5.8-9 mm long ..... *C. acaulis*.

GROUP E.

1. Utricles orbicular to broadly ovate, finely papillose, with a short inconspicuous beak; pistillate glumes acuminate and longer than the utricles; spikes long-pedunculate, proximal-most ones hanging ..... *C. magellanica*.

1' Without the above cited combination of characters.

2. Utricles >10 mm long ..... *C. dusenii*.

2' Utricles shorter.

3. Proximal-most bract without sheath or with a short, inconspicuous, up to 2 mm sheath.

4. Utricles pubescent.

4. Plant usually slender and short, with culms of 25-45 cm long. Utricles densely pubescent on most its surface; leaves 2.5-5.5 mm wide ..... *C. aematorhyncha*.

4'. Plants robust and tall, with culms of 60-90 cm long. Utricles loosely pubescent, glabrous or nearly so on its lower half; leaves 5-12 mm wide ..... *C. hookeri*.

3'. Utricles glabrous or rarely scabrid on the beak margins.

5. Utricle wall strongly coriaceous, the beak sinus U-shaped; achene filling the entire utricle cavity.

6. Plant > 40 cm tall; utricles greenish, ca. 2 mm wide; plants from wetlands and humid soils from central and southern Chile ..... *C. chilensis*.

6'. Plant < 30 cm tall; utricles brown, yellowish or reddish, > 3 mm wide; plants from coastal dunes of central and southern Chile ..... *C. pumila*.

5'. Utricle wall weak, the beak sinus V-shaped; the achene smaller than the utricle cavity.

7. Pistillate glumes hyaline, greenish or stramineous, acuminate and equal to larger than the utricles; utricles ovate or rarely elliptical, the beak with parallel teeth; lateral spikes longly pedunculate and pendulous, usually unisexual. Species growing on stream banks in central to southern Chile ..... *C. excelsa*.

7'. Pistillate glumes brownish, purple-reddish or dark-purple, contrasting with the utricles; utricles ovate, obovate or elliptical, the beak with divergent teeth; lateral spikes, shortly pedunculate and ascendent, usually androgynous.

8. Utricles always > 4 mm long, inflated, the beak up to 1 mm, often shorter; pistillate spikes with the utricles spreading to slightly reflexed, the most proximal at least 2.5 cm long. Species growing on stream banks and saturated soils from central to southern Chile ..... *C. multispicata*.

8'. Utricles usually < 4 mm long, inflated or not, the beak at least 1 mm; pistillate spikes with the utricles ascendent to slightly spreading, the most proximal one up to 2.5 cm long. Species growing on bogs at mid to high altitudes on Los Ríos and Los Lagos Regions ..... *C. werdermannii*.

3'. Proximal-most bract with a > 2mm long sheath.

9. Utricles flattened, with papery walls; pistillate glumes emarginate (sect. *Pellucidae*).

10. Utricles 0.8-2 mm wide, the beak 0.5-0.9 mm long; pistillate glumes 4-5.5 mm. Plants from canyon walls at the Juan Fernández archipelago ..... *C. stuessyi*.

10'. Without the above cited combination of characters. Plants from continental South America.

11. Utricles 3-6.5 x 2.5-3.5 mm, the empty sides around the achene 1-1.5 mm wide; distal 1(2) spike staminate or gynaecandrous, the terminal one obovate to elliptical, 10-35 x 2.5-12 mm; widest leaves up to 10 mm, often much narrower; pistillate glumes (excluding the mucro) 3.8-5.5. mm .... *C. banksii*.

11'. Utricles 2.8-3.8 x 1.5-2.7 mm, the empty sides around the achene 0.5-1 mm wide; distal 2-3 spikes staminate, terminal one oblong, 17-30 x 7-8 mm; widest leaves 8-15 mm; pistillate glumes 2.5-4 mm ..... *C. odontolepis*.

9'. Utricles trigonous; pistillate glumes apex entire.

12. Terminal spike entirely male or androgynous and lateral spikes elliptical, oblong or cylindrical, if terminal spike gynaecandrous then lateral spikes oblong.

13. Lateral spikes long-cylindrical, flexuose; leaves 8-15(20) mm wide; utricle beak irregularly truncate ..... *C. pendula*.

13'. Lateral spikes elliptical, oblong or cylindrical, straight; leaves up to 9 mm wide; utricle beak bidentate.

14. Lateral spikes subsessile or sessile, internodes very short and often concealed by the spikes; utricles without red dots; achenes obovate ..... *C. sagei*.

14'. Lateral spikes pedunculate or subsessile, internodes between spikes evident; utricle surface red-dotted; achenes elliptical.

15. Lateral spikes long-cylindrical, > 3 cm long; female glumes with the upper margin ciliolate, muticous or shortly mucronate, with the mucro not reaching the top of the utricles ..... *C. poeppigii*.

15. Lateral spikes oblong to cylindrical, usually < 2 cm long; female glumes with the upper margin entire, at least proximal ones aristate, with the arista reaching or surpassing the top of the utricles ..... *C. fuscula*.

12'. Terminal spike gynaecandrous and lateral spikes long-cylindrical.

15. Widest leaves > 15 mm wide. Plants from continental Chile ..... *C. lamprocarpa*.

15. Widest leaves up to 15 mm wide, usually narrower. Plants from the Juan Fernández archipelago.

16. Utricles 1.4-1.8 mm wide, with beaks 0.2-0.5 mm long; culms 50-110 cm tall ..... *C. berteroniana*.

16'. Utricles 0.8-1.3 mm wide, with beaks 0.6-0.9 mm long; culms 38-42 cm tall ..... *C. fernandezensis*.

REFERENCES

Amigo, J., Castro, E. 2015. Notas taxonómicas sobre la flora de los bosques orotemplados de la provincia biogeográfica valdiviana. Chloris Chilensis 18(1).

Barros, M. 1947. Cyperaceae: Scirpoideae, Rhynchosporoideae, Caricoideae. In: Descole, H.R. (Ed.), Genera et species plantarum Argentinarum, Tomus IV(II), pp. 259-539. Fundación e Instituto Miguel Lillo, Tucumán, Argentina.

Barros, M. 1969. Cyperaceae. In: Correa, M.N. (Ed.) Flora Patagónica, Parte II. Typhaceae a Orchidaceae (excepto Graminae), pp. 28-92. Colección Científica Instituto de Tecnología Agropecuaria, Buenos Aires, Argentina.

Benítez-Benítez, C., Otero, A., Ford, K.A., García-Moro, P., Donadío, S., Luceño, M., Martín-Bravo, S., Jiménez-Mejías, P. 2021. An Evolutionary Study of *Carex* Subg. *Psyllophorae* (Cyperaceae) Sheds Light on a Strikingly Disjunct Distribution in the Southern Hemisphere, With Emphasis on Its Patagonian Diversification. Frontiers in Plant Science 12: 735302.

Bergstrom, D.M., Turner, P.A.M., Scott, J., Copson, G., Shaw, J. 2006. Restricted plant species on sub-Antarctic Macquarie and Heard Islands. Polar Biology 29: 532-539.

Boott, F. 1858. Illustrations of the genus *Carex* 1, pp. 67. William Pamplin, London.

Calvo, J., Jiménez-Mejías, P. 2020. *Carex divisa*, una nueva ciperácea naturalizada en Chile. Collectanea Botanica 39: e008.

Calvo, J., Moreira-Muñoz, A. 2020. *Senecio festucoides* (Senecioneae, Compositae), a new species from northern Chile. PhytoKeys 149: 89-98.

Calvo, J., Saldivia P. 2022. Taxonomic and nomenclature notes on Chilean *Senecio* (Asteraceae, Senecioneae), including a new particular species. Phytotaxa 556(1): 76-86.

Dawson, M. 2014. On distant shores: New Zealand's natives as weeds abroad. New Zealand Garden Journal 17(1): 10-24.

Dusén, P. 1907. Neue und seltene Gefässpflanzen aus Ost- und Südpatagonien. Arkiv för Botanik 7(2): 13.

Escudero, M., Luceño, M. 2009. Systematics and evolution of *Carex* sect. *Spirostachyae* and *Elatae* (Cyperaceae). Plant Systematics and Evolution 279: 163-189.

Escudero, M., Valcárcel, V., Vargas, P., Luceño, M. 2010. Bipolar disjunctions in *Carex*: Long-distance dispersal, vicariance, or parallel evolution? Flora: Morphology, Distribution, Functional Ecology of Plants 205: 118-127.

Ford, K.A. 2007. *Carex* (Cyperaceae)—two new species from the calcareous mountains of North-West Nelson, New Zealand. New Zealand Journal of Botany 45(4): 721-730.

García, N. 2007. Cinco nuevos registros para la flora vascular de Chile continental. Gayana Botánica 64(2): 184-191

García, N. 2010. Caracterización de la flora vascular de Altos de Chicauma, Chile (33°S). Gayana Botánica 67(1): 65-112.

García-Moro, P., Otero, A., Benítez-Benítez, C., Costa, L., Martín-Bravo, S., Naczi, R.F.C., Reznicek, A.A., Roalson, E.H., Starr, J.R., Jiménez-Mejías, P. 2022. Biogeography and systematics of *Carex* subgenus *Uncinia* (Cyperaceae): A unique radiation for the genus *Carex* in the Southern Hemisphere. Taxon 71(3): 587-607.

Global Carex Group. 2015. Making *Carex* monophyletic (Cyperaceae, tribe Cariceae): a new broader circumscription. Botanical Journal of the Linnean Society 179: 1-42.

Hamlin, B.G. 1959. A Revision of the Genus *Uncinia* (Cyperaceae-Caricoideae) in New Zealand. Dominion Museum Bulletin 19.

Hauenstein, E., González, M., Peña-Cortés, F., Muñoz-Pedreros, A. 2002. Clasificación y caracterización de la flora y vegetación de los humedales de la costa de Toltén (IX región, Chile). Gayana Botánica 59(2): 87-100.

Hauenstein, E., Muñoz-Pedreros, A., Yáñez, J., Sánchez, P., Möller, P., Guiñez, B., Gil, C. 2009. Flora y vegetación de la Reserva Nacional Lago Peñuelas, Reserva de la Biósfera, Región de Valparaíso, Chile. BOSQUE 30(3): 159-179.

Healy, A.J., Edgar, E. 1980. Flora of New Zealand. Volume III: Adventive Cyperaceous, Petalous & Spathaceous Monocotyledons. P.D. Hasselberg, Government Printer, Wellington. Pp. 146-181.

IPNI. 2023. International Plant Names Index. The Royal Botanic Gardens, Kew, Harvard University Herbaria & Libraries and Australian National Herbarium. URL: http://www.ipni.org Accessed: July 5, 2023.

Jiménez-Mejías, P., Luceño, M., Wilson, K.L., Waterway, M.J., Roalson, E.H. 2016a. Clarification of the Use of the Terms Perigynium and Utricle in *Carex* L. (Cyperaceae). Systematic Botany 41: 519-528.

Jiménez-Mejías, P., Fabbroni, M., Donadío, S., Rodríguez-Palacios, G.E, Hilpold, A., Martín-Bravo, S., Waterway, M.J., Roalson, E.H. 2016b. Taxonomic and distribution notes on *Carex* (Cyperaceae) from the Neotropics. Boletín de la Sociedad Argentina de Botánica, 51(4): 727-739.

Jiménez-Mejías, P., Hahn, M., Lueders, K., Starr, J.R., Brown, B.H., Chouinard, B.N., Chung, K.-S., Escudero, M., Ford, B.A., Ford, K.A., Gebauer, S., Gehrke, B., Hoffmann, M.H., Jin, X.-F., Jung, J., Kim, S., Luceño, M., Maguilla, E., Martín-Bravo, S., Míguez, M., Molina, A., Naczi, R.F.C., Pender, J.E., Reznicek, A.A., Villaverde, T., Waterway, M.J., Wilson, K.L., Yang, J.-C., Zhang, S., Hipp, A.L., Roalson, E.H. 2016c. Megaphylogenetic Specimen-Level Approaches to the *Carex* (Cyperaceae) Phylogeny Using ITS, ETS, and *matK* Sequences: Implications for Classification. Systematic Botany 41: 500-518.

Jiménez-Mejías, P., Strong, M., Gebauer, S., Hilpold, A., Martín-

Bravo, S., Reznicek, A.A. 2018. Taxonomic, nomenclatural and chorological reports on *Carex* (Cyperaceae) in the Neotropics. Willdenowia 48(1): 117-124.

Jiménez-Mejías, P., Fabbroni, M., Haigh, A. 2020. Chorological, nomenclatural and taxonomic notes on *Carex* (Cyperaceae) from Bolivia and northern Argentina. Kew Bulletin 75: 24.

Jiménez-Mejías, P., Martín-Bravo, S., Márquez-Corro, J.I., Donadío, S., Roalson, E.H., Naczi, R.F.C. 2021a. A synopsis of the androgynous species of *Carex* subgenus *Vignea* (Cyperaceae) in South America. Botanical Journal of the Linnean Society 196: 188-220.

Jiménez-Mejías, P., Saldivia, P., Gebauer, S., Martín-Bravo, S. 2021b. A new remarkable dwarf sedge (*Carex phylloscirpoides*, Cyperaceae) from Northern Chile, with insights on the evolution of austral *Carex* section *Racemosae*. Systematic Botany 46(1): 34-47.

Jiménez-Mejías, P., Morales-Alonso, A., Oleas, N., Sánchez, E., Martín-Bravo, S., Masa-Iranzo, I., Meseguer, A.S. 2023. New relevant chorological and conservation data on *Carex* (Cyperaceae) and *Hypericum* (Hypericaceae) from Ecuador. Biodiversity Data Journal 11: e99603.

Jiménez-Mejías, P., Dorr, L.J. 2018. The Quinqun Sedges: Taxonomy of the *Carex phleoides* Group (Cyperaceae). Annals of the Missouri Botanical Garden 103: 591-603.

Jin, S.H., Zhao, Y.J., Shen, T.T., Wu, D.F., Jin X.F. 2012. *Carex tenuirostrata* (Cyperaceae), a new species of section *Confertiflorae* from Zhejiang, China. Brittonia 64: 325-329.

Johnson, P.N. 1976. Vegetation and flora of Womens Island, Foveaux Strait, New Zealand. New Zealand Journal of Botany 14: 327-331.

Kükenthal, G. 1899. Die Carexvegetatio des ausertropischen Südamerika (ausgenommen Paraguay and Südbrasilien). In: Engler, A. (Ed.) Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie 27(4): pp. 518, Leipzig.

Kükenthal, G. 1909. Cyperaceae: Caricoideae. In: Engler, A. (Ed.) Das Pflanzenreich, Teil IV, Abteilung 20, Heft 38, pp. 1-824. Leipzig: Wilhelm Engelmann.

Kükenthal, G. 1910. Cyperaceae novae. In: Fedde, F. (Ed.) Repertorium Specierum Novarum Regni Vegetabilis. Centralblatt für Sammlung und Veroffentlichung von Einzeldiagnosen neuer Pflanzen 8(7), Berlin.

Kunth, C.S. 1837. Enumeratio Plantarum Omnium Hucusque Cognitarum, Secundum Familias Naturales Disposita, Adjectis Characteribus, Differntiis et Synonymis 2, pp. 412, Stuttgart and Tübingen.

Leveillé, H. 1915. Les *Carex* du Chile. Revista Chilena de Historia Natural 19: 93-117.

Márquez-Corro, J.I., Escudero, M., Martín-Bravo, S., Villaverde, T., Luceño, M. 2017. Long-distance dispersal explains the bipolar disjunction in *Carex macloviana*. American Journal of Botany 104: 663-673.

Martín-Bravo, S., Jiménez-Mejías, P., Villaverde, T., Escudero, M., Hahn, M., Spalink, D., Roalson, E.H., Hipp, A.L., Group, the G.C., Benítez-Benítez, C., Bruederle, L.P., Fitzek, E., Ford, B.A., Ford, K.A., Garner, M., Gebauer, S., Hoffmann, M.H., Jin, X., Larridon, I., Léveillé-Bourret, É., Lu, Y., Luceño, M., Maguilla, E., Márquez-Corro, J.I., Míguez, M., Naczi, R., Reznicek, A.A., Starr, J.R. 2019. A tale of worldwide success: Behind the scenes of *Carex* (Cyperaceae) biogeography and diversification. Journal of Systematics and Evolution 57: 695-718.

Martín-Bravo, S., Márquez-Corro, J.I., Sanz-Arnal, M., McCarthy, J., Ford, K.A. 2022. The genus *Carex* (Cyperaceae) in New Zealand: a southern hemisphere diversity hotspot in a boreotemperate genus. Botany 2022. 24-27 November 2022, Anchorage Alaska.

Mastrogiuseppe, J., Rothrock, P.E., Dibble, A.C., Reznicek, A.A. 2002. *Carex* L. section *Ovales* Kunth. In: Flora of North America Editorial Committee (ed.) Flora of North America and North of Mexico, Vol. 23, Magnoliophyta: Commelinidae (in part): Cyperaceae, pp. 332-378. Oxford University Press, New York.

Míguez, M., Gehrke, B., Maguilla, E., Jiménez-Mejías, P., Martín-Bravo, S. 2017. *Carex* sect. *Rhynchocystis* (Cyperaceae): a Miocene subtropical relict in the Western Palaearctic showing a dispersal-derived Rand Flora pattern. Journal of Biogeography 44: 2211-2224.

Míguez, M., Martín-Bravo, S., Jiménez-Mejías, P. 2018. Reconciling morphology and phylogeny allows an integrative taxonomic revision of the giant sedges *Carex* section *Rhynchocystis* (Cyperaceae). Botanical Journal of the Linnean Society 188(1): 34-58.

Míguez, M., Benítez-Benítez, C., Sanz-Arnal, M., Ford, K., Jiménez-Mejías, P., Martín-Bravo, S. 2022. Filogenia preliminar de una radiación evolutiva única: *Carex* sect. *Echinochlaenae* (Cyperaceae) en Nueva Zelanda. III Simposio Anual de Botánica Española. Sociedad Española de Botánica (SEBOT) e Institut Botànic de Barcelona (CSIC). Participación mediante comunicación póster. Barcelona.

Moar N.T., Wilmshurst, J.M. 2003. A key to the pollen of New Zealand Cyperaceae. New Zealand Journal of Botany, 41(2): 325-334.

Morales-Alonso, A., Jiménez-Mejías, P. 2021. Revisión del grupo *Carex phalaroides* (Cyperaceae): una aproximación morfométrica. Primer Congreso Español de Botánica-SEBOT. 8-10 Septiembre 2022, Toledo, España. Libro de Resúmenes, 199 pp.

Pedersen, T.M. 1968. Cyperaceae. In: Cabrera, A.L. (Ed.) Flora de la Provincia de Buenos Aires, parte I Pteridófitas – Gimnospermas y Monocotolidóneas (excepto gramíneas),

pp. 315-421. Colección científica del INTA, Buenos Aires, Argentina.

Penneckamp, D. 2022. Identity of *Carex trichodes* Steud. ex Boott and *Carex lateriflora* Phil. (subgen. *Psyllophorae*, sect. *Junciformes*, Cyperaceae) from Southern South America. Phytotaxa 530(2): 230-236.

Pfeiffer, V.W., Ford, B.M., Housset, J., McCombs, A., Blanco-Pastor, J.L., Gouin, N., Manel, S., Bertin, A. 2018. Partitioning genetic and species diversity refines our understanding of species–genetic diversity relationships. Ecology and Evolution 8: 12351-12364.

Philippi, R.A. 1862. Viaje a los baños i al nuevo volcán de Chillán, Tercera Parte. Anales de la Universidad de Chile 21: 384.

Philippi, R.A. 1864. Plantarum Novarum Chilensium. Linnaea 33(3-4): 273.

Poeppig, E. 1960. Un testigo en la alborada de Chile (1826-1829), traducción de C. Keller. Editorial Zig-Zag, Santiago, Chile. 507 pp.

POWO. 2023. Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. URL: http://www.plantsoftheworldonline.org Accessed: July 3, 2023.

Ramírez, C., Romero, M., Riveros, M. 1980. Lista de cormófitos palustres de la región valdiviana. Boletín Museo Nacional de Historia Natural, Chile 37: 153-177.

Ridley, R., Jiménez-Mejías, P. 2022. Incipient insular differentiation of *Carex firmula* (Cyperaceae, former genus *Uncinia*) in the Juan Fernández archipelago (Chile). Phytotaxa 533: 267-286.

Roalson, E.H., Jiménez-Mejías, P., Hipp, A.L., Benítez-Benítez, C., Bruederle, L.P., Chung, K., Escudero, M., Ford, B.A., Ford, K., Gebauer, S., Gehrke, B., Hahn, M., Hayat, M.Q., Hoffmann, M.H., Jin, X., Kim, S., Larridon, I., Léveillé-Bourret, É., Lu, Y., Luceño, M., Maguilla, E., Márquez-Corro, J.I., Martín-Bravo, S., Masaki, T., Míguez, M., Naczi, R.F.C., Reznicek, A.A., Spalink, D., Starr, J.R., Uzma, Villaverde, T., Waterway, M.J., Wilson, K.L., Zhang, S. 2021. A framework infrageneric classification of *Carex* (Cyperaceae) and its organizing principles. Journal of Systematics and Evolution 59: 726-762.

Rodríguez, R., Marticorena, C., Alarcón, D., Baeza, C., Cavieres, L., Finot, V.L., Fuentes, N., Kiessling, A., Mihoc, M., Pauchard, A., Ruiz, E., Sanchez, P., Marticorena, A. 2018. Catálogo de las plantas vasculares de Chile. Gayana Botánica 75(1): 1-430.

Teillier, S., Macaya-Berti, J., Bonnemaison, C., Delaunoy, J., Marticorena, A. 2013. Contribución al conocimiento de la flora vascular de la Reserva Biológica Huilo Huilo, Región de Los Ríos, Chile. Gayana Botánica 70(2): 194-234.

Thiers, B. 2020. Index Herbariorum: A global directory of public herbaria and associated staff. New York Botanical Garden's virtual Herbarium. http://sweetgum.nybg.org/ih/

Villaverde, T., Escudero, M., Martín-Bravo, S., Bruederle, L.P., Luceño, M., Starr, J.R. 2015. Direct long-distance dispersal best explains the bipolar distribution of *Carex arctogena* (*Carex* sect. *Capituligerae*, Cyperaceae). Journal of Biogeography 42: 1514-1525.

Villaverde, T., Escudero, M, Martín-Bravo, S., Luceño, M. 2017a. Two independent dispersals to the Southern Hemisphere to become the most widespread bipolar *Carex* species: biogeography of *C. canescens* (Cyperaceae), Botanical Journal of the Linnean Society 183(3): 360-372.

Villaverde, T., González-Moreno, P., Rodríguez-Sánchez, F. and Escudero, M. 2017b. Niche shifts after long-distance dispersal events in bipolar sedges (*Carex*, Cyperaceae). American Journal of Botany 104: 1765-1774.

Villaverde, T., Jiménez-Mejías, P., Luceño, M., Waterway, M.J., Kim, S., Lee, B., Rincón-Barrado, M., Hahn, M., Maguilla, E., Roalson, E.H., Hipp, A.L., Global Carex Group, Wilson, K.L., Larridon, I., Gebauer, S., Hoffmann, M.H., Simpson, D.A., Naczi, R.F.C., Reznicek, A.A., Ford, B.A., Starr, J.R., Park, J., Escudero, M., Martín-Bravo, S. 2020. A new classification of *Carex* (Cyperaceae) subgenera supported by a HybSeq backbone phylogenetic tree. Botanical Journal of the Linnean Society 194(2): 141-163.

Vollan, K., Heide, O.M., Lye, K.A., Heun, M. 2006. Genetic variation, taxonomy and mountain-hopping of four bipolar *Carex* species (Cyperaceae) analysed by AFLP fingerprinting. Australian Journal of Botany 54: 305-313.

Wheeler, G.A. 1986. Two new species of *Carex* (Cyperaceae) from austral South America and additional taxonomic and phytogeographical notes on the genus. Brittonia 38: 317-324.

Wheeler, G.A. 1987. The taxonomy of *Carex* sect. *Abditispicae* sect. nov. (Cyperaceae) from austral South America. Systematic Botany 12: 573-585.

Wheeler, G.A. 1988a. A new species of *Carex* sect. *Junciformes* (Cyperaceae) from austral South America and notes on the sectional placement of *C. sorianoi*. Systematic Botany 13: 202-206.

Wheeler, G.A. 1988b. Taxonomic notes on *Carex* (Cyperaceae) from austral South America. Aliso 12: 97-102.

Wheeler, G.A. 1989. The taxonomy of *Carex* sect. *Aciculares* (Cyperaceae) in South America. Systematic Botany 14: 168-188.

Wheeler, G.A. 1990. Taxonomy of the *Carex atropicta* complex (Cyperaceae) in South America. Systematic Botany 15: 643-659.

Wheeler, G.A. 1994. The *Uncinia* (Cyperaceae) of Tierra del Fuego, the Falkland Islands, and South Georgia. Anales Instituto de la Patagonia, Ciencias Naturales 22: 21-31.

Wheeler, G.A. 1997. Two new species of *Uncinia* (Cyperaceae) from austral South America and a first report of *U. negeri*

in Argentina. Hickenia 2: 215-222.

Wheeler, G.A. 2004. A new species of *Uncinia* (Cyperaceae) from the New World and the first report of *U. chilensis* from Argentina. Darwiniana 43(1-4): 268-276.

Wheeler, G.A. 2007. *Carex* and *Uncinia* (Cyperaceae) from the Juan Fernández Archipelago, Chile. Darwiniana 45: 120-141.

Wheeler, G.A. 2009. *Carex*. In: Kiesling, R., Guaglianone, E.R., Cialdella, A.M., Rúgulo de Agrasar, Z.E. (Eds.) Flora de San Juan: República Argentina, Volumen IV: Monocotiledóneas, pp. 323-338. Editorial Fundación Universidad Nacional de San Juan, San Juan, Argentina.

Wheeler, G.A., Guaglianone, E.R. 2003. Notes on South American *Carex* (Cyperaceae): *C. camptoglochin* and *C. microglochin*. Darwiniana 41(1-4): 193-206.

Wheeler, G.A., Muñoz-Schick, M. 2007. *Carex bracteosa* (Cyperaceae) from Chile and its lectotypification. Noticiario Mensual, Museo Nacional de Historia Natural (Chile) 358: 17-21.

Wilson, K.L. 1993. Cyperaceae. In: Harden, G.J. (Ed.) Flora of New South Wales 4, pp. 293-396. New South Wales University Press, Kensington, New Zealand.

Wilson, K.L. 1994. Cyperaceae. In: Walsh, N.G., Entwisle, T.J. (Eds) Flora of Victoria 2, pp. 238-356. Inkata Press, Melbourne, Australia.

Zuloaga, F.O., Belgrano, M.J., Zanotti, C.A. 2019 Actualización del Catálogo de las Plantas Vasculares del Cono Sur. Darwiniana, Nueva serie 7(2): 208-278.

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