

HICKENIA

Boletín del Darwinion

Instituto de Botánica Darwinion, Labardén 200, C.C. 22, (1642) San Isidro. Argentina.
TEL. (541) 743-4800. FAX (541) 747-4748, (541) 742-8534



ACADEMIA NACIONAL DE CIENCIAS
EXACTAS, FÍSICAS Y NATURALES

Y

CONSEJO NACIONAL DE INVESTIGACIONES
CIENTÍFICAS Y TÉCNICAS

VOLUMEN II

SAN ISIDRO, 1 DE AGOSTO DE 1996

Nº 41

THREE NEW SPECIES OF *CAREX* (CYPERACEAE) FROM ARGENTINA AND A RANGE EXTENSION FOR *C. ECUADORICA*

GERALD A. WHEELER

University of Minnesota. Department of Plant Biology, Herbarium. St. Paul, Minnesota, 55108-1095, U.S.A.

ABSTRACT: "Three new species of *Carex* (Cyperaceae) from Argentina and a range extension for *C. ecuadorica*". *Hickenia* 2 (41): 189-200. 1996.

Three new species of *Carex* (Cyperaceae) are described from southern South America. *Carex andicola* G.A. Wheeler (sect. *Foetidae*) occurs in the Andes of Argentina and Chile, with a disjunct population also known from the Sierra de Córdoba in southwestern Córdoba Province (Argentina). *Carex pseudomacloviana* G.A. Wheeler (sect. *Ovales*) is known from a few sites in Salta and Tucumán provinces, Argentina, and *C. tucumanensis* G.A. Wheeler (sect. *Pseudocypereae*) is known only from the type locality in Tucumán Province. Additionally, *C. ecuadorica* Kük. (sect. *Foetidae*) is reported for the first time in Argentina and Bolivia.

INTRODUCTION

It is estimated that over 200 species of *Carex* L. (Cyperaceae) occur in South America, with most of them growing in the mountains and cooler regions of the continent. Slightly under 100 species and some 30-40 infraspecific taxa in about 32 sections are known from austral South America (Wheeler, 1989). In this paper, three new species of *Carex* are described from Argentina, one of which also occurs in Chile. In addition, *Carex ecuadorica* Kük. [sect. *Foetidae* (L. Bailey) Kük.] is here reported for the first time from Argentina and Bolivia.

1. *Carex tucumanensis* G.A. Wheeler, sp. nov. (Fig. 2).

Herbae caespitosae; culmi 60-170 cm alti; vaginae basales rufescentes, glabrae. Folia ca. 5-10; laminae 25-53 cm longae, 5-9 mm latae; vaginae 4-21 cm longae, glabrae vel hispidulae; zonae interiores vaginarum glabrae, hyalinae vel pallide brunneae, apicibus concavus; ligulae 8-13 mm longae. Inflorescentiae 21-28 cm longae; spicae ca. 5; spica terminalis staminata (ceterum interdum cum perigynia medium); spicae laterales pistillatae, pendulae; bractee infimae laminis 19-35 cm longis et 3-6 mm latis, hispidulae. Perigynia 3.5-4 mm longa, 0.7-1 mm lata, glabra, venis 9-13 prominentibus percursis; rostra 0.8-1.4 mm longa, marginibus laevis, apice bidentata, dentibus rigidus 0.3-0.7 mm longis. Achenium 1.5-1.7 mm longum, 0.6-0.9 mm latum. Stigmata 3. Antherae 3, 1.8-2.4 mm longae.

Type: ARGENTINA. PROV. TUCUMÁN: Dpto. Chicligasta, Estancia Las Pavas, 2500 m, en la barranca del Río de la Cascada, 15-III-1924, Venturi 3193 (Holotype: LIL; Isotypes: BAB, SI).

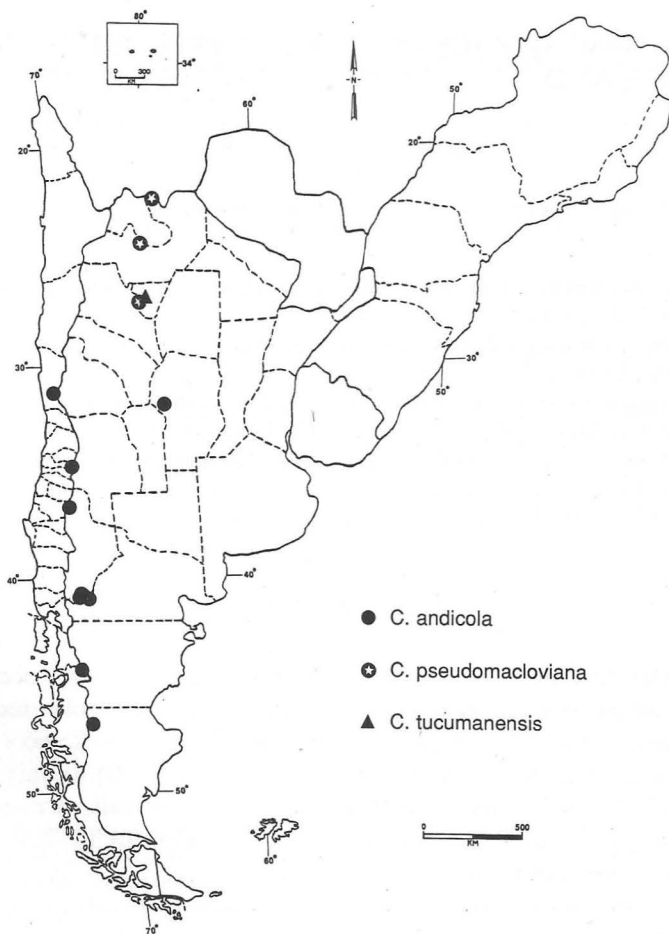


Fig. 1: Map of southern South America showing the distributions of *Carex andicola*, *C. pseudomacloviana*, and *C. tucumanensis*.

Plants caespitose with short rhizomes. Fertile culms 60-170 cm tall, more or less trigonous, antrorsely scabrous, with glabrous, reddish-tinged basal sheaths. Leaves ca. 5-10; blades 25-53 cm long, 5-9 mm wide, plicate, glabrous or hispidulous, septate-nodulose, the margins antrorsely scabrous (at least distally), terminating in a 3-angled, long acuminate and hispidulous tip; leaf sheaths 4-21 cm long, more or less loosely enveloping culm, glabrous, septate-nodulose; inner band of sheaths glabrous, hyaline or pale brown, the apex concave; ligules 8-13 mm long, rounded to subacute, the free portion brownish. Vegetative shoots unknown. Inflorescences 21-28 cm long, upper 3 or 4 spikes slightly to greatly overlapping, the lowest spike 15-20 cm distant; lowermost spikes on antrorsely-scabrous peduncles 3.5-7.5 cm long; the uppermost lateral spikes on antrorsely-scabrous peduncles 0.5-4.5 cm long; lowermost bracts hispidulous, with leaf-like blades 19-35 cm long and 3-6 mm wide and sheathless or nearly so. Spikes ca. 5, the terminal staminate (but sometimes with perigynia in the middle), the lateral pistillate. Terminal spikes ca. 6-6.5 cm long, 4-6 mm wide (however, up to 9 mm wide with perigynia present), ca. 120-160-flowered; peduncles antrorsely scabrous, 1-3.5 cm long. Lateral spikes 3.5-6 cm long, 6-10 mm wide, ca. 80-140-flowered; peduncles antrorsely scabrous, 0.5-7.5 cm long. Pistillate scales 3.2-5.5 mm long, 0.9-1.6 mm wide, slightly shorter than to about equaling the perigynia, lanceolate, more or less hispidulous, pale brown center with broad, reddish brown margins, 3-veined, the apices acute to acuminate and ciliolate, with a scabrous-ciliate awn up to 1.5 mm long. Staminate scales 4-7.5 mm long, 0.8-1.5 mm wide, lanceolate, more or less hispidulous, stramineous or pale brown center with broad, pale reddish brown margins, 1 (-3)-veined, the apices obtuse to subacute and ciliolate, awn less or with a scabrous-ciliate awn up to 1 mm long. Perigynia 3.5-4 mm long, 0.7-1 mm wide, ascending to wide spreading, obscurely trigonous with convex, lanceolate sides, somewhat inflated, glabrous, subcoriaceous, stramineous to reddish brown, prominently 9-13-veined, short-stipitate, tapered distally into a distinct beak; beaks 0.8-1.4 mm long, stramineous and often reddish-tinged, the margins smooth, bidentate with stiff teeth 0.3-0.7 mm long. Achenes 1.5-1.7 mm long, 0.6-0.9 mm wide, trigonous with more or less flat, elliptical sides, loosely enveloped by the perigynium, brownish, sessile. Stigmas 3. Anthers 3, 1.8-2.4 mm long.

Carex tucumanensis is known only from the type locality, where it was collected in a ravine near Río de la Cascada, at about 2500 m (Fig. 1). The plants bear ripe fruit in March. The epithet refers to the Argentina province in which the species was discovered.

These plants were annotated by the eminent Argentine cyperologist Manuel Barros as "*Carex acutata*", a species well known from central Chile. However, Venturi's plants differ considerably from those of *C. acutata* Boott by having narrower perigynia and achenes, shorter and differently-shaped pistillate scales, and shorter lateral spikes. Moreover, the scales and basal sheaths of *C. tucumanensis* are reddish-tinged, whereas those of *C. acutata* are strongly reddish-purple.

Carex tucumanensis belongs in section *Pseudocypereae* (L. Bailey) Kük., a group consisting of mostly tall, caespitose perennials of wet sites, with pendant unisexual spikes, awned scales, and prominently-veined perigynia with distinct beaks and stiff teeth. See Figs. 2-5. A morphological comparison of 12 characters for the four Argentine members of section *Pseudocypereae* is given in Table 1, and a key is given immediately below. (In the key, the perigynium beak is measured from where the prominent veins of the body terminate to the tip of the teeth).

Table 1. A selected morphological comparison of four species of sect. *Pseudocypereae* from Argentina.

Characters	<i>C. excelsa</i>	<i>C. niederleiniana</i>	<i>C. polysticha</i>	<i>C. tucumanensis</i>
Terminal spike	staminate	gynaecandrous	staminate	staminate (or with perigynia in the middle)
Uppermost lateral spike length (mm)	20-55	10-15	30-50	35-40
Perigynium length (mm)	(5-)5.5-7.6	3.5-4	3.8-5.5(-6)	3.5-4
Perigynium width (mm)	1.1-1.3	1.1-1.5	(1.2-)1.5-2	0.7-1
Perigynium beak length (mm)	1.6-3	0.8-1.4	1-1.5	0.8-1.4
Perigynium beak (and teeth) color	greenish or yellowish brown	strongly reddish-tinged	whitish green or pale greenish brown	reddish-tinged
Perigynium shape	lanceolate	ovoid-elliptic	ovoid-elliptic to lanceolate	lanceolate
Bract vestiture	glabrous	hispidulous	glabrous	hispidulous
Pistillate scale vestiture	glabrous	more or less hispidulous	glabrous	more or less hispidulous
Staminate scale vestiture	glabrous	more or less hispidulous	glabrous	more or less hispidulous
Achene length (mm)	1.6-2	1.6-1.8	2-2.4	1.5-1.7
Achene width (mm)	0.8-1	0.9-1.2	1.1-1.3	0.6-0.9

A. Perigynium beak 1.6 mm long or longer; perigynia mostly (5.5-) 6 mm long or longer.

C. excelsa Poepp. ex Kunth

A'. Perigynium beak less than 1.6 mm long; perigynia less than 6 mm long.

B. Achenes 2 mm long or longer, bracts glabrous; perigynia (1.2-) 1.5-2 mm wide, beak not reddish-tinged.

C. polysticha Boeck.

B'. Achenes less than 2 mm long; bracts hispidulous; perigynia less than 1.5 mm wide, beak reddish-tinged.

C. Perigynia 0.7-1 mm wide, lanceolate; achenes 0.6-0.9 mm wide, brown; terminal spike staminate (or with perigynia in the middle).

C. tucumanensis G. A. Wheeler

C'. Perigynia 1.1-1.5 mm wide, ovoid-elliptic; achenes 0.9-1.2 mm wide, yellowish brown; terminal spike gynecandrous.

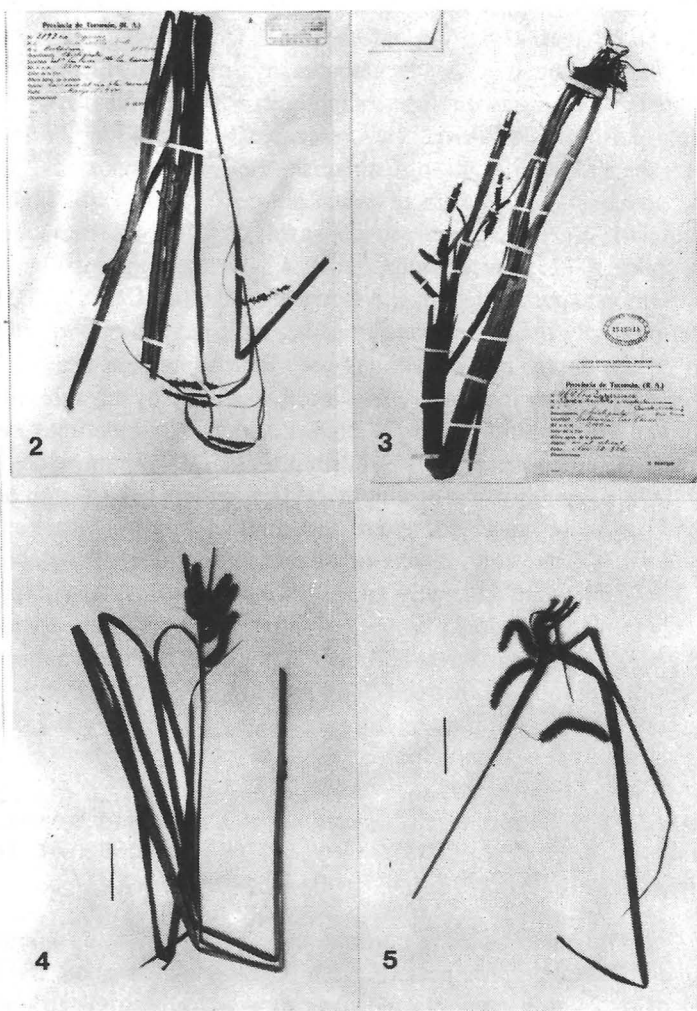
C. niederleiniana Boeck.

In regard to distributions, *Carex niederleiniana* and *C. tucumanensis* are endemic to Argentina, as far as known, and apparently both of them are restricted to provinces in the northwest. *Carex excelsa*, on the other hand, is a frequently-occurring species in both

west-central Argentina and central Chile (Wheeler, in manuscript). *Carex polysticha* is more pervasive, ranging from central Argentina (Barros, 1947) northward to Central America (Chater, 1994), Mexico (Hermann, 1974), and the Antilles (Kükenthal, 1909).

2. *Carex pseudomacloviana* G. A. Wheeler, sp. nov. (Figs. 6, 7).

Herbae laxae caespitosae; culmi fertiles 8-47 cm alti; vaginae basales brunneae, glabrae. Folia 5-7; laminae 3-25 cm longae, 2.5-5 mm latae; vaginae 3-15 mm longae, glabrae; zonae interiores vaginarum hyalinae vel pallide brunneae; ligulae 0.5-1.5 mm longae. Inflorescentiae 8-18 mm longae, 7-16 mm latae; spicae 4-12, gynaeceandrae, ovoideae, 4.5-10 mm longae; bracteae infimae glumaceae. Squamae pistillatae 2.2-3.5



Figs. 2-5: 2. *Carex tucumanensis*, plant from Tucumán Province, Argentina, photograph of Venturi 3193 (SI).- 3. *Carex niederleiniana*, plant from Tucumán Province, Argentina, photograph of Venturi 4648 (US).- 4. *Carex polysticha*, habit (plant from Salta Province, Argentina), from Charpin 22984 & Novara (MIN).- 5. *Carex excelsa*, habit (plant from Neuquén Province, Argentina), from Cusato 2875 (MIN). (Bar = 5 cm in Figs. 4 and 5).

mm longae, 1-1.8 mm *latae*; *squamae staminatae* 2.4-3.8 mm *longae*, 1.2-2 mm *latae*. *Perigynia* 2.8-4.2 mm *longa*, 1.3-1.7 mm *lata*, *ascendentia*, *glabra*, *straminea*; *rostra* 1-1.5 mm *longa*, *rubro-brunnea*, *plana infra serrulata*, *teretiusculus superiores laevis* 0.5-1 mm *longis*. *Achenium* 1.3-1.8 mm *longum*, 0.8-1.1 mm *latum*. *Stigmata* 2. *Antherae* 3, 1.8-2.4 mm *longae*.

Type: ARGENTINA. PROV. SALTA: Dpto. Santa Victoria, de Abra de Lizoite a Santa Victoria, 22-III-1982, Kiesling et al. 3980 (Holotype: SI; Isotype: MIN).

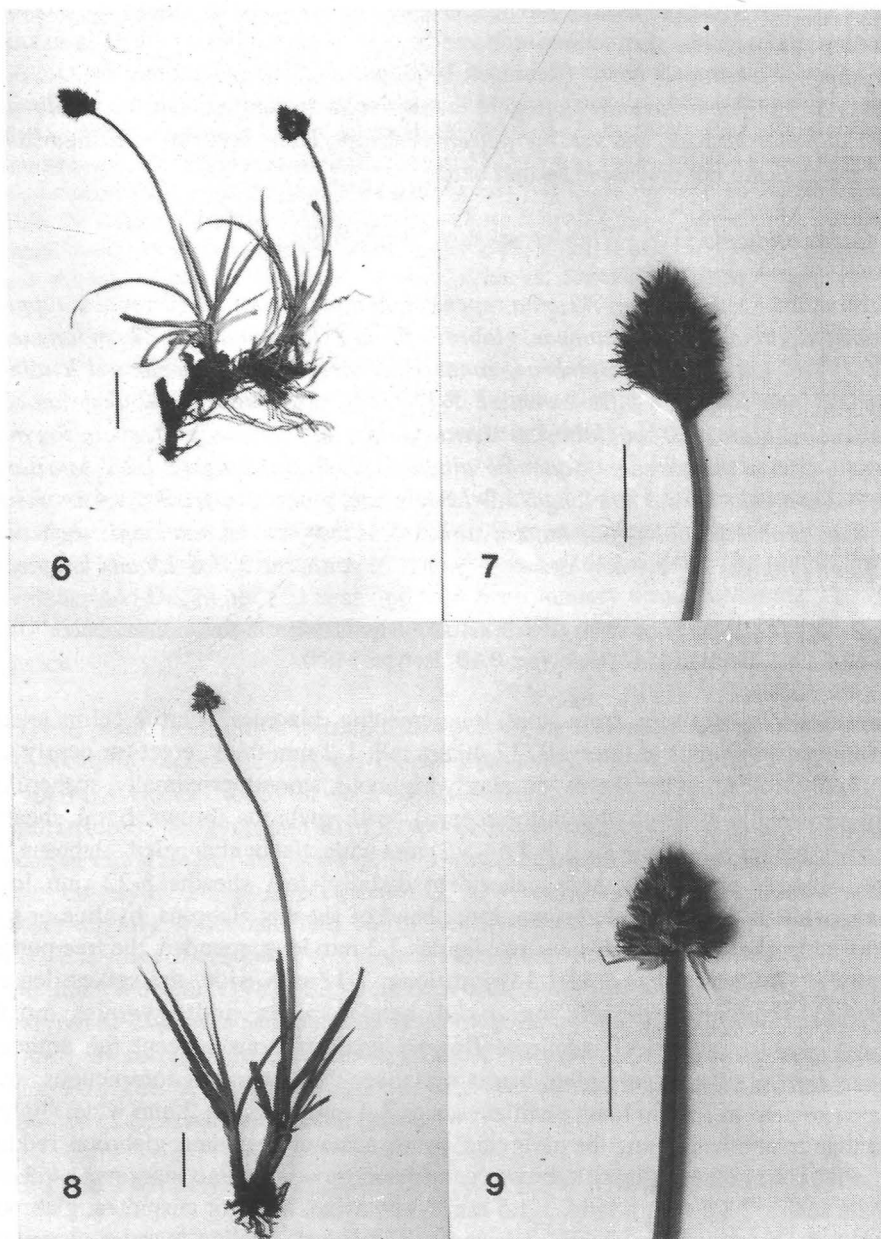
Plants loosely caespitose, from short-creeping rhizomes. Fertile culms 8-47 cm tall, erect or slightly curved, more or less trigonous, smooth except beneath the inflorescence where scaberrulent, with glabrous, brownish basal sheaths. Leaves 5-7, on lower 1/4-1/3 of culm; blades 3-25 cm long, 2.5-5 mm wide, flat to plicate, glabrous, the margins antrorsely scabrous (at least distally); leaf sheaths 3-15 mm long, tightly enveloping culms, glabrous; the inner band of sheaths glabrous, hyaline or pale brown, prolonged up to 1 mm beyond the leaf bases, the apex slightly concave; ligules 0.5-1.5 mm long, rounded, the free portion pale brown. Inflorescences 8-18 mm long, 7-16 mm wide, densely capitate, the spikes difficult to distinguish, the lowest spike 0.5-2 mm distant, spikes single at nodes and sessile; bracts (when present) scalelike, the bodies 3-5 mm long, 2.2-2.6 mm wide, sheathless, with serrulate awns up to 10 (-22) mm long, the upper bracts reduced; spikes 4-12, gynecandrous, ovoid, 4.5-10 mm long; pistillate portion ca. 8-60-flowered; staminate portion less than 8-flowered. Pistillate scales 2.2-3.5 mm long, 1-1.8 mm wide, narrowly ovate, subacute to acute, dark reddish brown with a narrow stramineous to brown center and sometimes very narrow hyaline margins, 1-veined. Staminate scales 2.4-3.8 mm long, 1.2-2 mm wide, narrowly ovate, subacute to acute, dark reddish brown with a stramineous to brown center and sometimes very narrow hyaline margins, 1-veined. *Perigynia* 2.8-4.2 mm long, 1.3-1.7 mm wide, ascending-appressed, plano-convex with ovate or elliptic bodies, widest 0.6-1.5 mm above base, thin-winged and serrulate-margined above the middle, stramineous ventrally and somewhat yellowish at base, stramineous or reddish brown dorsally, glabrous, short-stipitate, with 0-10 faint veins abaxially and 0-5 faint veins adaxially, tapered into a beak; beaks 1-1.5 mm long, reddish brown (at least distally), flattened and serrulate-margined but the apical 0.5-1 mm terete and smooth, the apex obliquely bidentulate with weak teeth up to 0.2 mm long. Achenes 1.3-1.8 mm long, 0.8-1.1 mm wide, lenticular, elliptic-oblong, brown, short-stipitate. Stigmas 2. Anthers 3, 1.8-2.4 mm long, including an apiculate tip 0.1-0.2 mm long.

Paratypes: ARGENTINA. PROV. SALTA: Dpto. Caldera, Cuesta del Carancho, arriba del Potrero del Castillo, ca. 2900 m, 13-III-1952, Sleumer 2869 (LIL, US). PROV. TUCUMÁN: La Ciénaga, Sierra de Tucumán, (10-17)-I-1874, Lorentz et Hieronymus 604 (F).

Carex pseudomacloviana occurs in northwestern Argentina, being known thus far only from Salta and Tucumán provinces (Fig. 1). Little is known about the biology of this species, but it apparently grows in moist meadows at elevations around 2900 m. Plants with ripe fruit have been collected from January through March. The epithet, which means "false *macloviana*," refers to its past confusion in identity, due to its superficial resemblance, to the bipolar *C. macloviana* Urv.

These plants were originally determined as "*Carex macloviana*" (though one sheet was incorrectly labelled "*C. macrorrhiza*"), but they are not referable to that species. *Carex pseudomacloviana* has perigynia stramineous to pale brown (though the distal

half of the beak is usually dark reddish brown) and margins that are rarely (if ever) serrulate below the middle; in contrast, the slightly larger perigynia of *C. macloviana* are "copper-colored to dark olive-green" and "serrulate to much below the middle" (Hermann, 1970: 132). Also, the apex and margins of the scales of *C. pseudomacloviana* are very little, if at all, white-hyaline, whereas in *Carex macloviana* the scales are conspicuously white-hyaline-margined. Moreover, the spikes of *Carex*



Figs. 6-9. 6-7. *Carex pseudomacloviana*, from Kiesling et al. 3980 (MIN); 6, habit; 7, inflorescence (sinistral plant in Fig. 6).- 8-9. *Carex andicola*, from Boelcke 4542 (MIN); 8, habit; 9, inflorescence. (Bar = 2 cm in Figs. 6 and 8; bar = 1 cm in Figs. 7 and 9).

pseudomacloviana are more densely aggregated than those of *C. macloviana*, which generally has distinguishable spikes (at least the lower spikes are somewhat separated). Indeed, the inflorescence of *C. pseudomacloviana* (Fig. 7) more closely resembles that of *C. orizabae* Liebm. from Mexico (Reznicek, 1993), which essentially has indistinguishable spikes.

Carex pseudomacloviana clearly belongs in section *Ovales* Kunth and is a member of the taxonomically difficult *C. macloviana* aggregate (Whitkus and Packer, 1984), a group of species "characterized by having perigynia longer than the usually dark-colored subtending scales, with conspicuous terete and smooth beak apices and usually in small, ovoid spikes in a compact head" (Reznicek 1993, p. 121). Although there are two other members of the *C. macloviana* aggregate that occur in Argentina, viz., *C. macloviana* var. *pseudoleporina* Kük. and var. *thermarum* (Philippi) Kük., both have distinguishable spikes and thus are not discussed further here.

3. *Carex andicola* G. A. Wheeler, sp. nov. (Figs. 8, 9).

Herbae laxae caespitosae; rhizoma repens elongatum; culmi 12-40 cm alti, superior subscabri; vaginae basales brunneae, glabrae. Folia 3-7; laminae 3.5-22 cm longae, 2-4.5 (-5.2) mm latae; vaginae glabrae, zonae interiori pallide brunneae vel hyalinae; ligulae 2-3 mm longae. Inflorescentiae 7-12 (-14) mm longae, 7-12 mm latae, in capitulum ovoidum vel subglobosum dense congestae; spicae plures androgynae; bracteae infimae glumaceae. Squamae pistillatae 3-4 mm longae, 1.2-2 mm latae, glabrae. Perigynia 3.1-3.9 mm longa, 1.2-1.8 mm lata, glabra; rostra 0.8-1.4 mm longa, marginibus scabrella, apice bidentata, dentibus debilibus 0.1-0.3 mm longis. Achenium 1.1-1.4 mm longum, 0.9-1.1 mm latum. Stigmata 2. Antherae 3, 1.6-2.9 mm longae.

Type: ARGENTINA. PROV. NEUQUÉN: Dpto. Los Lagos, Estancia Fortín Chacabuco, Mallín Frison, 20-I-1951, Boelcke 4542 (Holotype: BAB; Isotype: MIN).

Plants loosely caespitose, from stout, long-creeping rhizomes. Fertile culms arising few to several in clumps at intervals, 12-40 cm tall, 1-2 mm thick, erect (or nearly so), rigid, usually exceeding the leaves, obscurely trigonous, smooth proximally, scaberulent distally (especially beneath the inflorescence), with glabrous, brown basal sheaths. Leaves 3-7; blades 3.5-22 cm long, 2-4.5 (-5.2) mm wide, flat or channeled, glabrous, the margins smooth proximally and scaberulent distally; leaf sheaths 8-22 mm long, glabrous, whitish green or pale brown; inner band of sheaths glabrous, hyaline or pale brown, friable, the apex slightly concave; ligules 2-3 mm long, rounded, the free portion pale brown. Inflorescences 7-12 (-14) mm long, 7-12 mm wide, the spikes densely aggregated into an orbicular or ovoid head; spikes androgynous, mostly undistinguishable, the apical staminate flowers inconspicuous (except the anthers), perigynia few to several per spike; bracts scalelike, the lower 1-3 conspicuous, with serrulate awns up to 35 mm long; pistillate scales 3-4 mm long, 1.2-2 mm wide, slightly shorter than to about equaling the perigynia, ovate, acute or cuspidate, glabrous, reddish brown with a stramineous or pale brown center and broad, hyaline margins, 1-veined; staminate scales 2.8-3.6 mm long, 1-1.5 mm wide, ovate, acute or cuspidate, glabrous, pale reddish brown with a stramineous center and broad, hyaline margins, 1-veined. Perigynia 3.1-3.9 mm long, 1.2-1.8 mm wide, ascending to slightly spreading, plano-convex with ovate-elliptic sides, stramineous to pale brown or sometimes reddish brown, glabrous, membranaceous, 2 lateral veins prominent and the rest faint, the margins

frequently scaberulent above the middle, tapered at the base into a conspicuous stipe 0.1-0.5 mm long, more or less abruptly tapered into a distinct beak; beaks 0.8-1.4 mm long, margins smooth or sparingly scaberulent, the apex obliquely cleft dorsally, bidentulate, the teeth weak and 0.1-0.3 mm long. Achenes 1.1-1.4 mm long, 0.9-1.1 mm wide, lenticular with oval sides, more or less tightly enveloped by the perigynium, yellowish brown, apiculate, short-stipitate. Stigmas 2. Anthers 3, 1.6-2.9 mm long, including an apiculate tip 0.1-0.2 mm long.

Paratypes: ARGENTINA. PROV. CHUBUT. Río Pico, Ea. Fromenco, 8-III-1954, Soriano 4636 (BAB). PROV. CÓRDOBA: *Dpto. Calamuchita*, Cerro Champaquí, 15-I-1952, A. T. Hunziker 9632 (CORD, MIN). PROV. NEUQUÉN: *Dpto. Los Lagos*, Estancia Fortín Chacabuco, 4-XI-1949, Boelcke et Hunziker 3552 (BAB); *Dpto. Minas*, a 21 km de las Ovejas camino a las lagunas Epu-Lauquen, Arroyo Las Bandurrias, 14-I-1964, Boelcke 10796 (BAA, BAB, SI, MIN). PROV. RÍO NEGRO: *Dpto. Pilcaniyeu*, Río Pichileufú, 23-XI-1967, Correa 3822 (BAA, BAB, MIN). PROV. SANTA CRUZ: *Dpto. Lago Buenos Aires*, camino a Paso Roballos, 7-II-1975, Boelcke 16182 (BAA, BAB). CHILE. IV REGIÓN, COQUIMBO: *Prov. Choapa, Dpto. Illapel*, Cerro Curimahuida, 10 km E of Matancilla and 15 km NE of Sánchez Mine, 23-XI-1938, Worth & Morrison 16681 (DS, MO, NA, UC, 2 sheets). VI REGIÓN, O'HIGGINS: *Prov. Colchagua*, Santa Rosa, 1838, Anon. s.n. (SGO 46149).

Carex andicola is a transandean species that, in Argentina, occurs from northern Santa Cruz Province northward to Neuquén Province, with a disjunct population also known from the Sierra de Córdoba in southwestern Córdoba Province (Fig. 1). In Chile, specimens have been seen from Colchagua (VI Región, O'Higgins) and Choapa (IV Región, Coquimbo) provinces. This species, which grows in loose caespitose clumps and is strongly anchored in the ground by stout, long-creeping rhizomes, appears to be infrequent to occasional in dry and rocky soils on mountainsides. The plants flower in November and December and bear ripe fruit from January through March. The epithet refers to the widespread occurrence of this species in the Andes of southern South America.

These plants were often determined as *Carex nebularum* Philippi or *C. kurtziana* Kük. (both in sect. *Foetidae*) or, more infrequently, as *C. gayana* E. Desv. or *C. macrorrhiza* Boeck. (both in sect. *Divisae* Kük.). But because *C. andicola* has membranaceous perigynia and all of its spikes densely aggregated (thus the inflorescence appearing like a single head, see Fig. 9), it would be anomalous in section *Divisae*. This species closely resembles *C. pleioneura* G. A. Wheeler but differs by having perigynia that are slightly wider and less conspicuously veined; also, the inflorescence of *C. andicola* is somewhat smaller and more orbicular than that of *C. pleioneura*. It should be noted that Wheeler (1987: 533) cited Worth and Morrison 16681 as a specimen (paratype) of *C. pleioneura*, but after re-examination of the plants it is abundantly clear that they are referable to *C. andicola*. Like *C. pleioneura*, the new species belongs in section *Foetidae*. A key to the Argentine members of section *Foetidae* is offered after the discussion of *C. ecuadorica* given below.

FIRST REPORT OF *CAREX ECUADORICA* FROM ARGENTINA AND BOLIVIA

While *Carex ecuadorica* Kük.(sect. *Foetidae*) has previously been reported from Ecuador and Perú (Kükenthal, 1909; Macbride, 1936), this note represents the first report of it from Argentina and Bolivia. Citations for specimens mapped in Fig. 10 are given at the end of this report.

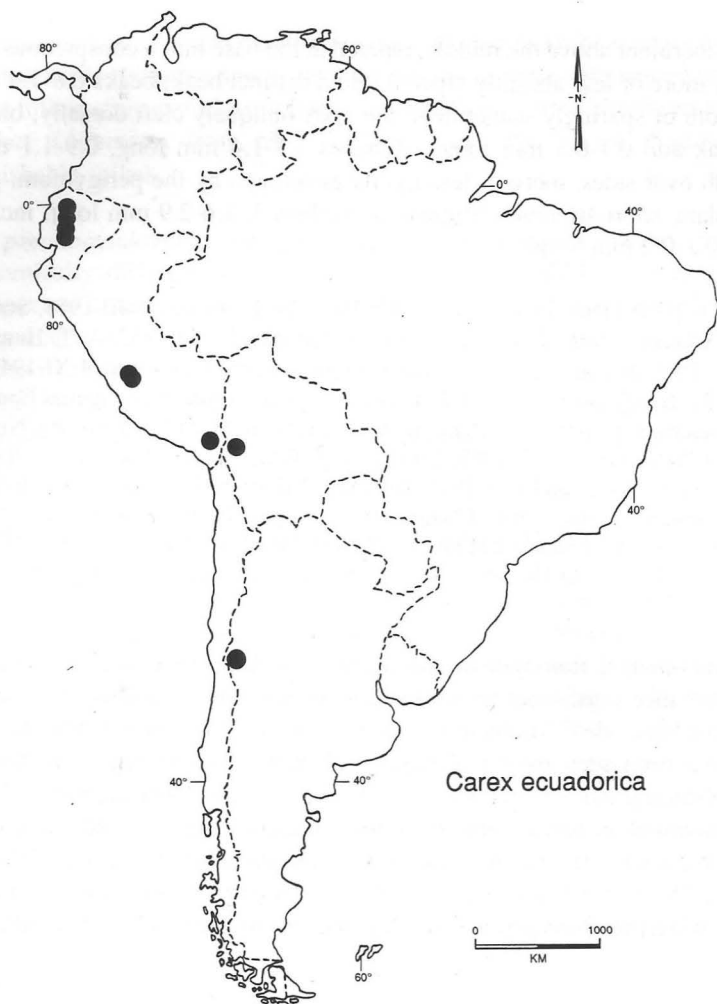


Fig. 10: Map of South America showing the distribution of *Carex ecuadorica*.

Examination of two specimens, one from San Juan Province in Argentina (Ruthsatz 8828) and the other from the Department of La Paz in Bolivia (Beck 261), reveals that both of them are assignable to *Carex ecuadorica*. Ruthsatz's specimen was collected in a mountain meadow (vega), at 2400 m, where the plants were growing in a partially dried-up marsh; and Beck's specimen was collected in a marshy area, with standing water, at 3900 m. It is also noteworthy that several specimens of this species seen from Ecuador and Perú were collected in wet sites (e. g., in marshes and wet pastures), at elevations from 3000 to 4100 m.

Carex ecuadorica is a rhizomatous species that grows in moist to wet, open places and has culms that arise singly or in small clumps. Previous authors (Kükenthal, 1909; Macbride, 1936) have reported the culms to be no more than 15 cm tall, but I have examined plants of this species with culms ranging from 4 to 45 cm. Also, both Kükenthal (1909: 118) and Macbride (1936: 314), in their keys, state that this species has smooth culms throughout, but occasionally the culms are scaberulent, particularly just beneath the inflorescence.

Representative specimens: ARGENTINA. PROV. SAN JUAN: Dpto. Calingasta, El Leoncito, 2400 m, 14-I-1995, Ruthsatz 8828 (MIN, SI). BOLIVIA. DPTO. LA PAZ: Prov. Los Andes, Khallutaca, El Alto, 11 km hacia Tiahuanaco, 3900 m, 25-I-1979, Beck 261 (LPB, MIN, NY). ECUADOR. PROV. CHIMBORAZO: Guamote, towards Palmira, 3100 m, 13-VI-1939, Asplund 6904 (S, US); Vulcani El Altar, Riobamba, s.d., Sodiro 347 (US). PROV. COTOPAXI: near Latacunga, 2800-3000 m, s.d., Lehmann 7689 (US). PROV. PICHINCHA: Machachi, 3000 m, 20-V-1939, Asplund 6265 (S, US). PERU. DPTO. JUNÍN: Prov. Yauli, Paccha, cerca La Oroya, 4100 m, 5-V-1948, Aguilar s.n. (US); La Oroya, s. d., Weberbauer 2347 (F, USM). DPTO. PUNO, Prov. Juli, vicinity of Lake Titicaca, 3125 m, 20-XI-1919, Shepard 131 (GH, US).

Because the only published key to the South American members of section *Foetidae* (Kükenthal, 1909) is greatly out of date, a key to the Argentine members of this section is here provided.

A. Leaves channeled or inrolled, entire (or nearly so); perigynia somewhat inflated, beaks smooth; scales broadly ovate to suborbicular, plants 2.5-10 cm tall.

C. maritima Gunn. (s.l.)

A'. Leaves more or less flat, scabrous (at least in the distal half); perigynia not inflated, beaks scaberulent or smooth; scales ovate or lanceolate; plants 4-80 cm tall.

B. Pistillate scales as long as or longer than the perigynia; leaves 1-2.5 (-3) mm wide; perigynium beak often green-margined.

C. ecuadorica Kük.

B'. Pistillate scales shorter than the perigynia; leaves 2.5-6 mm wide; perigynium beak not green-margined.

C. Perigynia 0.8-1.2 mm wide, lanceolate, prominently 12-24-veined (with 4-10 veins adaxially).

C. pleioneura G.A. Wheeler

C'. Perigynia 1.2 mm wide or wider, not lanceolate, adaxially veinless or with few to several weak veins.

D. Head orbicular or ovoid, 7-12 (-14) mm long and 7-12 mm wide; widest perigynia 1.4-1.6 mm.

C. andicola G. A. Wheeler

D'. Head ovoid to oblong-ovoid, 15-40 mm long and 10-20 mm wide; widest perigynia 1.6-2.4 mm.

E. Achenes 1.3-1.5 mm long and 0.7-0.9 mm wide; perigynia ovate, widest 0.8-1.8 mm above base; scales often narrowly hyaline-margined and sometimes not at all.

C. nebulare Philippi

E'. Achenes 1.5-1.8 mm long and 1-1.2 mm wide; perigynia ovate to broadly ovate or, more often, slightly obovate, widest 1.5-2.5 mm above base; scales broadly hyaline-margined.

C. kurtziana Kük.

Acknowledgments: This study is based on specimens from B, BM, BAA, BAB, C, CAS, CORD, DS, F, G, GH, H, LIL, LP, MIN, MO, NA, NY, P, S, SGO, SI, UC, UPS, and US; to the directors and curators of those herbaria I am very grateful for the loan of specimens. Also, I want to thank Barbara Ruthsatz (Trier University, Germany) and Stephan G. Beck (National Herbarium of Bolivia) for duplicate specimens of *Carex ecuadorica* from Argentina and Bolivia, respectively.

- Barros, M. 1947. *Cyperaceae: Scirpoideae, Rhynchosporoideae, Caricoideae*, in Descole, H. (ed.) *Gen. spec. plant. Argent.* 4 (2): 259-539. Tucumán: Fundación e Instituto Miguel Lillo.
- Chater, A. O. 1994. *Carex*. In: Davidse, G. & al. (eds.). *Flora Mesoamericana* 6: 464-473.
- Hermann, F. J. 1970. Manual of the Carices of the Rocky Mountains and Colorado Basin. *U. S. Dep. Agr. Handb.* N° 374.
- . 1974. Manual of the genus *Carex* in Mexico and Central America. *U. S. Dep. Agr. Handb.* N° 467.
- Kükenthal, G. 1909. *Cyperaceae: Caricoideae*, in Engler A. (ed.), *Das Pflanzenr.* 4 (20) Heft 38: 1-824.
- Macbride, J. F. 1936. *Carex*, in Flora of Perú. *Field Mus. Nat. Hist. Bot. Ser.* 13: 314-320.
- Reznicek, A. A. 1993. Revision of *Carex* section *Ovales* (*Cyperaceae*) in Mexico. *Contr. Univ. Michigan Herb.* 19: 97-136.
- Wheeler, G. A. 1987. A new species of *Carex* (*Cyperaceae*) from western South America and a new combination in the genus. *Aliso* 11: 533-537.
- . 1989. The taxonomy of *Carex* sect. *Aciculares* (*Cyperaceae*) in South America. *Syst. Bot.* 14: 168-188.
- Witkus, R. & Packer, J. G. 1984. A contribution to the taxonomy of the *Carex macloviana* aggregate (*Cyperaceae*) in western Canada and Alaska. *Canad. J. Bot.* 62: 1592-1607.

Para la presentación de los trabajos se recomienda a los autores seguir en términos generales, las Instrucciones publicadas en *Darwiniana* 34. 1996.

Los autores deberán enviar los textos en discos flexibles para computadoras IBM-PC o compatibles; bajo sistemas operativos DOS o Windows pudiéndose utilizar alguno de los siguientes procesadores de texto: Word 3.x-5.x-6.0 para MS-DOS, y 1.x-2.0-6.0 para Windows, WordPerfect 4.x-5.x para MS-DOS y 5.x para Windows, WordStar 3.x-7.0, Windows Write 3.x, Works 2.0-3.0 para MS-DOS y Windows.

Las ilustraciones a pluma podrán presentarse en fotocopias de muy buena calidad en lugar de los originales, en el tamaño aproximado a reproducir (máximo de caja: 21 x 14 cm).

La correspondencia deberá ser dirigida a *Hickenia*, Instituto de Botánica Darwinion, C.C. 22 (1642) San Isidro, Argentina.

Editor: Roberto Kiesling. Comité Editorial: E. Rosa Guaglianone, Osvaldo Morrone, María E. Múlgura, M. Mónica Ponce y Emilio A. Ulibarri. Autoedición: Silvia Antonietti.