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CONTRIBUTIONS TO THE MOSS FLORA OF URUGUAY: THE GENUS *POHLIA* (BRYOPHYTA, BRYALES), A NEW RECORD

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Abstract. Suárez, G. M. & M. M. Schiavone. 2013. Contributions to the moss flora of Uruguay: the genus *Pohlia* (Bryophyta, Bryales), a new record. *Darwiniana*, nueva serie 1(1): 61-66.

The genus *Pohlia* is reported as a new record for Uruguay, where it is represented by two species: *P. wahlenbergii* and *P. humilis* (=*P. tenuifolia*). *Pohlia humilis* is also recorded as new for Colombia. We propose *P. loriformis*, a poorly known species described from Bolivia, as new synonym of *P. humilis*. We select lectotypes for *P. loriformis* and *Mielichhoferia brachycarpa*. We also include a key to the *Pohlia* species from Uruguay, and the South American synonyms, brief comments, distribution, and illustrations for *P. humilis*.

Keywords. Bolivia; Colombia; distribution; *Pohlia*; taxonomy; Uruguay.

Resumen. Suárez, G. M. & M. M. Schiavone. 2013. Contribuciones a la flora de musgos de Uruguay: el género *Pohlia* (Bryophyta, Bryales), un nuevo registro. *Darwiniana*, nueva serie 1(1): 61-66.

El género *Pohlia* se presenta como un nuevo registro para Uruguay, donde está representado por dos especies: *P. wahlenbergii* y *P. humilis* (=*P. tenuifolia*). *Pohlia humilis* también se registra por primera vez para Colombia. Se propone a *P. loriformis*, una especie poco conocida descrita para Bolivia, como un nuevo sinónimo de *P. humilis*. Se designan lectotipos para *P. loriformis* y *Mielichhoferia brachycarpa*. Se presenta una clave para las especies de *Pohlia* de Uruguay y se indican, para *P. humilis*, los sinónimos de América del Sur, comentarios breves, su distribución e ilustraciones.

Palabras clave. Bolivia; Colombia; distribución; *Pohlia*; taxonomía; Uruguay.

INTRODUCTION

Pohlia Hedw. includes small to medium sized acrocarpous moss species that commonly grow on soil. In South America, with 16 species, *Pohlia* species occur mainly in mountain regions (Suárez & Schiavone, 2010, 2011).

While studying mosses collected in the national park Fortaleza Santa Teresa in Northern Uruguay, an unexplored area of this country (Ellis et al., 2011, 2012), two species of genus *Pohlia* were found: *P. wahlenbergii* (F. Weber & D. Mohr) A. L. Andrews and *P. humilis* (Mont.) Broth. [=*P. tenuifolia* (A. Jaeger) Broth]. The former is a common and widely distributed species, while *P. humilis* is a common species in Australia and New Zealand, with only a few records in Chile and Brazil (Shaw, 2006; Suárez, 2011).

Pohlia tenuifolia was originally described as *Webera tenuifolia* by Jaeger in 1875 based on material collected by Wilson in New Zealand (Suárez, 2011). It is a small plant that can be distinguished by

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its linear to linear-lanceolate leaves, the only species with this characteristic in the genus (Suárez & Schiavone, 2011). *Pohlia tenuifolia* was proposed as conserved name against *Pohlia humilis* (Suárez, 2011) but this proposal was not accepted yet, for this reason is treated here as *Pohlia humilis*.

Pohlia loriformis (Herzog) F. J. Herm. is a Bolivian taxon described as *Webera loriformis* by Herzog (1916) based on material collected in Inca Corral, Potosí. Others Pohlias were described from Bolivia but are currently considered as synonyms of other species (Suárez & Schiavone, 2008; Suárez et al., 2012). *Pohlia loriformis* was catalogued as poorly known and it can not be identified from its description; the study of its isotypes corroborated that *P. loriformis* can not be separated from *P. humilis*, consequently we propose it as a synonym of *P. humilis*.

MATERIALS AND METHODS

We studied types and specimens from B, BE, BM, H, JE, L, MO, NY and SP, in addition to our own collections deposited in LIL (Thiers, 2013).

The specimens were studied morphologically with conventional techniques for bryophytes and mounted in water-glycerine-phenol or Hoyer's solution (Anderson, 1954).

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TAXONOMIC TREATMENT

Pohlia humilis (Mont.) Broth., Nat. Pflanzenfam. I(3): 549. 1903. *Bryum humile* Mont., Ann. Sci. Nat., Bot., sér. 3, 4: 104. 1845. TYPE: Chile, Hab. In terra nuda com Dicrano aulacocarpi in provinciis australibus, *C. Gay s.n.* (L 0411125!). Fig. 1.

Pohlia tenuifolia (A. Jaeger) Broth., Nat. Pflanzenfam. I(3): 549. 1903. *Webera tenuifolia* A. Jaeger, Ber. Thätigk. St. Gallischen Naturwiss. Ges. 1873-74: 137. 1875. TYPE: New Zealand, Bay of Islanos, VIII-1874, *J. D.Hooker s.n.* (lectotype BM! designated by Shaw, Syst. Bot. 31: 252. 2006). [Proposal to conserve the name *Webera tenuifolia* (*Pohlia tenuifolia*) against *Bryum humile* (*P. humilis*) in Suárez, Taxon 60(2): 591. 2011.]

Pohlia loriformis (Herzog) F. J. Herm., Bryologist 79: 141. 1976; *Webera loriformis* Herzog, Biblioth. Bot. 87: 80. f. 31. 1916, **syn. nov**. TYPE: Bolivia, Zwischen Incacorral und Paracti, VI-1911, *T. Herzog 5002* (lectotype L! here designated; duplicates B!, JE!, H!).

Mielichhoferia brachycarpa Broth., Ergebn. Bot. Exped. Südbras., Musci, 1901: 294. 1924. TYPE: Brazil, Rio de Janeiro, Petrópolis, *F. von Hohnel 66* (lectotype H-BR! here designated**).**

Plants small, yellowish-green, forming loose turfs. Stems 1.5-2.2(-3.8) mm, brown, simple; in cross section rounded; central strand present, strong. Axillary hairs 102-130 µm long, with 1 brown basal cell and 3 distal hyaline cells. Leaves appressed, flexuose when dry, spreading to erect-spreading when wet, 0.9-1.5 × 0.1-0.2 mm, linear to linear-lanceolate; margins plane to narrowly recurved, serrulate towards the apex; costa strong, ending before the apex; laminal cells thin-walled, upper laminal cells long-rectangular in outline to fusiform, 38-63 × 4-6 µm, median cells the same as the apical ones, 41-102 × 3-9 µm, basal cells short to long-rectangular in outline, 40-60(-27) × 5-9 µm. Dioecious. Perichaetial leaves longer than vegetative ones, up to 1.8-2.3 mm long. Setae red, 1 per perichaetium, 14-21 mm long; capsules erect to inclined, short-cylindrical, 1-2 mm long, with a distinct neck shorter than the urn; exothecials cells wide-rectangular to hexagonal in outline, thin walled, 35-65 × 15-22(-25) µm; stomata scarce, phaneroporous; annulus of 1-2 rows of vesicular cells, irregularly dehiscent; exostome teeth hyaline to yellowish, 250-275 µm, bordered, trabeculate, strongly papillose near the apex; endostome hyaline, 210-300 µm, with a short basal membrane, hyaline, segments

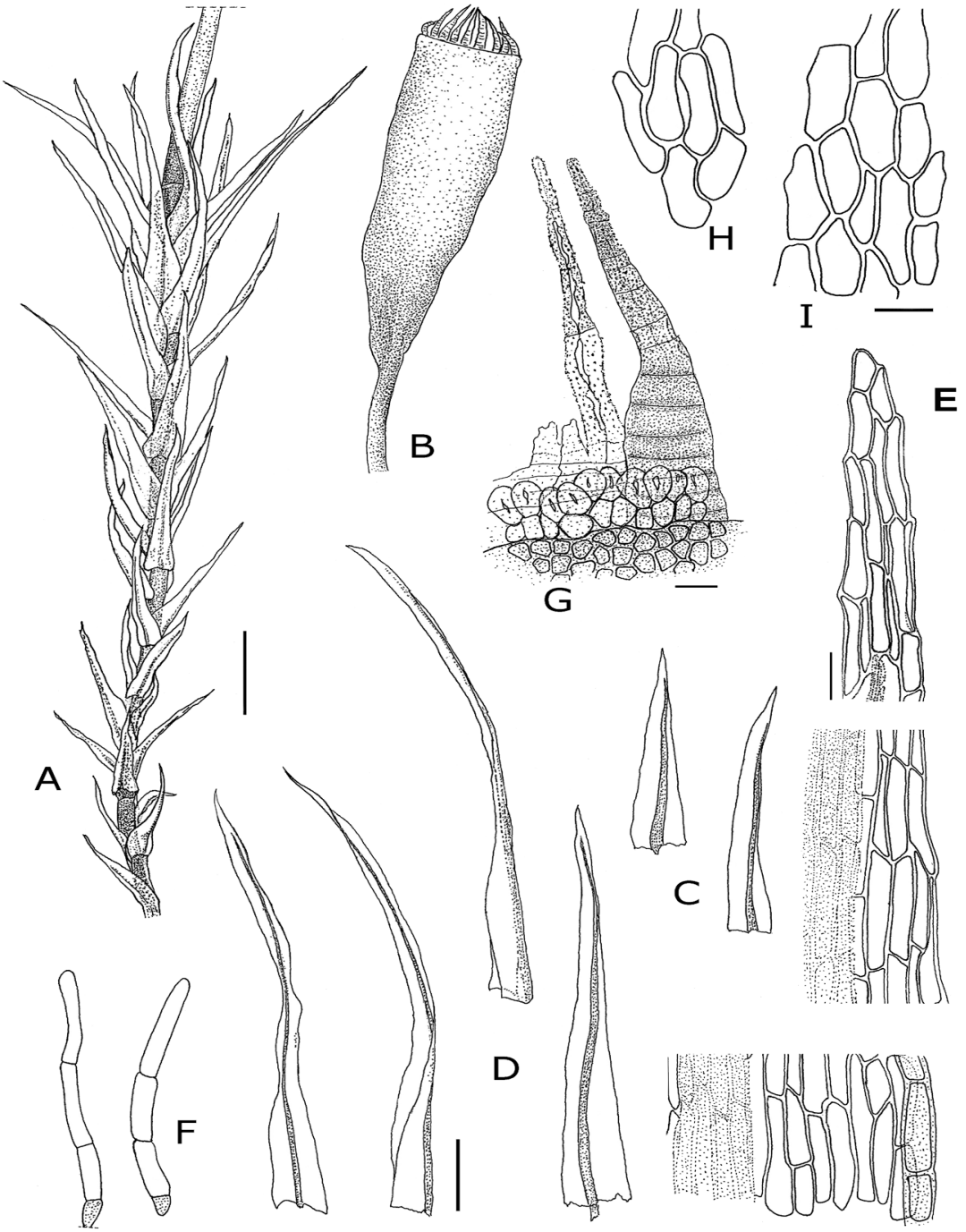

Fig. 1. *Pohlia humilis*. **A**, habit in wet. **B**, sporophyte. **C**, leaves. **D**, perichaetial leaves. **E**, apical, median and basal laminal cells. **F**, axillary hairs. **G**, peristome. **H**, stoma. **I**, exothecial cells. Scale bars: A-B = 1 mm; C-D = 0.5 mm; E-I = 25 µm. Drawn from lectotype *Herzog 5002* (L).

keeled, perforate, and short cilia; operculum conic. Spores 18-25 µm in diameter, papillose.

Distribution and habitat. According to Shaw (2006), *P. humilis* (as *P. tenuifolia*) has a disjunct distribution in Australia with some records in New South Wales and a few records in the Packsaddle and Kind Leopold Ranges. In South America, the species was recorded from Brazil and Chile (Shaw & Fife, 1985; Suárez, 2011). The species is a new record from Uruguay, a country with large areas without study or exploration (Ellis et al., 2012a), and also from Bolivia, and Colombia (see specimens examined).

In Uruguay the species was found in the National Park Fortaleza Santa Teresa (Depto. Rocha) (Fig. 2) growing on clayey soil. The region is characterized by vast areas of dunes on the coast, as well as a series of wetlands located west and north. The National Park was strategically located on a rocky outcrop at 58 m above sea level along the Camino de la Angostura, the only way through the marshes to the sea. In Bolivia (Potosi and Santa Cruz) and Colombia (Antioquia and Caldas) the species was found growing on soil in the "Bosque Montano Secundario" between 2000 to 2500 m above sea level.

Observations. *Pohlia tenuifolia* was described as *Webera tenuifolia* by Jaeger, and Brotherus (1903) made the combination in *Pohlia*. Recently, Suárez (2011) proposed the conservation of the name *Webera tenuifolia*, the basionym of *P. tenuifolia,* against *Bryum humile* Mont., the basionym of *P. humilis* (Mont.) Broth., because *P. tenuifolia* is a name widely used.

Mielichhoferia brachycarpa was described based on samples collected by F. von Hohnel from Brazil. The type material is deposited in H-BR, and after reevaluation we corroborate the synonymy proposed by Shaw & Fife (1895). The three syntypes at H-BR (*F. von Hohnel 156*!, *F. von Hohnel 332*!, and *F. von Hohnel 66*!) were all well conserved, and we chose *F. von Hohnel 66* as lectotype.

Pohlia loriformis is a Bolivian species, with syntypes deposited in L, B, H and JE. After reviewing them, we propose a lectotype at L, because this specimen is well preserved and contains many fertile plants.

Webera paucifolia Dusén, is a nomen nudum based on: "Chile australis ad. Puerto Varas in terra", 26-VI-1896, *Dusén 754* (NY!, W!, BM-Hampe!). Examination of Dusén material shows that the specimen belongs to *P. humilis*.

Fig. 2. Distribution map of *Pohlia* in Uruguay (star).

Specimens examined

BOLIVIA. **Santa Cruz.** Prov. Florida, Municipio Mairana, 23 km nordeste de Mairana, Bosque Nublado secundario, con arbustos, con pocos helechos arborescentes, 18°03'S, 63°54'W, 2100-2300 m, 30-III-2002, *Churchill 21425B* (MO).

BRAZIL. **Minas Gerais.** Parque Nacional de Itatiaia, Brejo da Iapa, 27-VI-1974, *Vital 3564, 3578* (LIL, SP), along entry road near border Rio de Janeiro, between km 1.5 and 3, 22°22'S, 44°45'W, 1700-1900 m, humid montane forest, 04-VII-1991, *Vital & Buck 19486* (SP). **Rio de Janeiro**. Municipio de Parati, 23º12'S, 44º49'W, on mineral soil, on 3 m high bank, along road Parati-Cunha, 20-VIII-1987, *Vital 15327* (SP). **São Paulo.** Campos de Jordao, 07-XII-1965, *Vital 513* (SP).

COLOMBIA**. Antioquia**. Munic. de Sonsón, hacia los medios, 6 km O de Sonsón, bosque mon-

tano secundario, al lado de la quebrada, 05°41'N, 75°21'W, 2420 m, musgo sobre suelo, en el potrero, 08-VII-1987, *Churchill et al. 15523* (MO). **Caldas.** Munic. Manizales, carretera Manizales-Bogotá, km 12 desde el Batallón de Infanteria N° 22 (Ayacucho), en quebrada de bosque montano secundario sobre las pendientes, musgos sobre talud, orilla de carretera, 05°01'N, 75°23'W, 2440 m, 13-IV-1990, *Churchill et al. 16356* (MO).

NEW ZEALAND. **Auckland**. N. Whitford, growing on calcareous mudstone, wet, exposed, 200 ft., 13 Aug 1972, *Linzey 2097145* (MO); Waitakere Range, Huia Dam, 300 ft., clay bank, forest edge, in association with *Wilsoniella blindioides*, 3-IX-1972, *Linzey 2097146* (MO).

URUGUAY. **Rocha.** Parque Nacional Fortaleza Santa Teresa, Frente a Capatazía, sobre suelo, 33°00'7.87''S, 53°33'21.63''W, 33 m, 10-I-2011, *Suárez 1118* (LIL).

Pohlia wahlenbergii (F. Weber & D. Mohr) A. L. Andrews in Grout, Moss Fl. N. Amer. 2: 203. 1935. *Hypnum wahlenbergii* F. Weber & D. Mohr, Bot. Taschenbuch 280, 475. 1807. *Bryum wahlenbergii* (F. Weber & D. Mohr) Schwägr., Sp. Musc. Frond., Suppl. 1. 2: 92, pl. 70. 1816. *Webera wahlenbergii* (F. Weber & D. Mohr) Fürnr., Flora: 35. 1829. *Mniobryum wahlenbergii* (F. Weber & D. Mohr) Jenn., Man. Mosses W. Pennsylvania 146. 1913. TYPE: 'Nordlandia Norvegia; in margine terra sabuloso madefacto juxta mare ad Storstensnäs juxtam Tromsöam lectum d. 16 Juli 1800 *Mnium albicans*", *G. Wahlenberg s.n.* (lectotype UPS designated by Ochyra et al., The Illustrated Moss Flora of Antarctica: 430. 2008).

References. Description, list of synonyms and illustrations can be found in Ochyra et al. (2008); Ochyra & Suárez (2011); Suárez & Schiavone (2010); Suárez et al. (2012).

Observations. This is a common species of the genus *Pohlia* with many synonyms. The species has been included, described and illustrated in floras and other papers (Ochyra et al., 2008; Suárez & Schiavone, 2010) and for this reason no further comments on the species are needed.

While *P. wahlenbergii* was listed as present in Uruguay (Matteri, 2004), the specimen cited below is the first confirmed record for this country. In Uruguay it was found in the Parque Nacional Fortaleza Santa Teresa (Depto. Rocha) growing near water courses mixed with Anthocerotophyta Stotler & Crand.–Stot. and *Philonotis* Brid.

Shaw (2006) mentioned a lectotype for *Hypnum wahlenbergii* at S, but this specimen could not be found in that herbarium (Lars Hedenäs, comm. pers.); Shaw did not indicate the author or reference for the lectotypification, so we follow Ochyra et al. (2008).

Specimens examined

URUGUAY. **Rocha.** Parque Nacional Fortaleza Santa Teresa, Puente del Chorro, 33°58'39''S, 53°32'17''W, 33 m, 3-I-2011, *Suárez 1079* (LIL).

Key to the species of *Pohlia* from Uruguay

1. Leaves linear to linear-lanceolate; middle laminal cells very narrow, long-rectangular in outline to fusiform; capsule annulate, short-cylindrical ..... *Pohlia humilis*
1. Leaves ovate to ovate-lanceolate; middle laminal cells broad, oblong-rhomboidal in outline; capsule exannulate, urceolate ..... *Pohlia wahlenbergii*

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