

# *Globulinella halloyi* (Pottiaceae), a new species from Argentina

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**ABSTRACT.** *Globulinella halloyi* is described from Volcán Socompa in Salta Province of Argentina. It is readily distinguished from congeners by the following combination of character states: robust plants, with costa dorsally and ventrally toothed and with two stereid bands in transverse section, and elongate propagula ca. 200  $\mu\text{m}$  long. A description and illustrations of the new species are provided. A table of morphological characters compares the three species of *Globulinella*.

**KEYWORDS.** *Globulinella*, Pottiaceae, Volcán Socompa, Argentina.



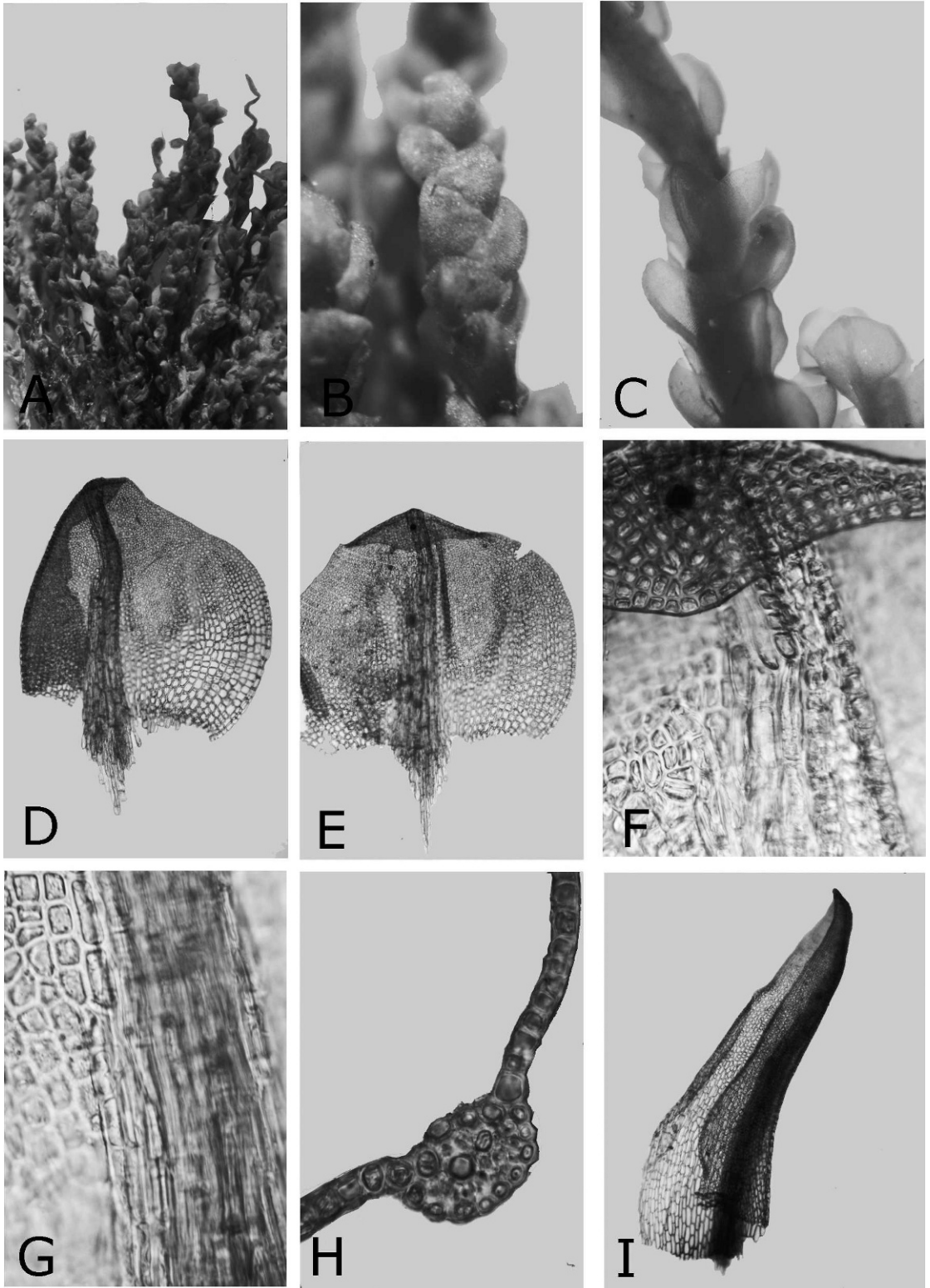
*Globulinella* is an endemic genus of North and South America, found on calcareous soils in arid montane areas (Zander 1993). There are two species, *G. globifera*, which is distributed through the southwestern U.S.A., Mexico, Guatemala, Honduras, El Salvador and Ecuador (Allen 2002; Cano et al. 2008; Magill 1977) and *G. benoistii*, known for Ecuador and Peru (Cano et al. 2008; Magill 1977; Zander 1993). The genus is characterized by a small sized, julaceous habit; broadly rounded, concave, often cucullate leaves; incassate upper laminal cell walls; a costa ending before the leaf apex, with ventral cells bulging; elongate seta; and 16, densely spiculose peristome teeth. The plants are dioicous and rarely fertile. However, the vegetative characters are sufficient to identify the genus quickly.

The specimen collected in the region of Volcán Socompa, although previously identified as *G. globifera* by Magill in 1987, was not cited in the Magill

(1977) monograph. When it was reexamined, some important differences were discovered with respect to previous descriptions made for other samples (Allen 2002; Magill 1977). We did not find sporophytes, only some perichaetia, which may be due to the fact that this species is dioicous. However after a careful analysis it became obvious that this was a new species of *Globulinella*. We propose to name this new taxon in honor of Dr. Stephan Halloy, who collected the specimen, in appreciation for his contribution to our knowledge of the flora and vegetation in such a special place as Volcán Socompa.

***Globulinella halloyi*** M. Schiavone & G. Suárez,  
*sp. nov.* **Figs. 1, 2**

*Caulis erecti 5–15 mm, folias oblonga vel suborbicularis, 0.7–0.9 × 0.7–0.8 mm, costa cum dentibus dorsal et ventralis ad apicem, in sectione transversali 2-estratis stereidarum ventralium et dorsalium, propagulum ad 200  $\mu\text{m}$ .*



**Figure 1.** *Globulinella halloyi*. A, B. Dry plants. C. Wet plants. D, E. Leaves. F, G. Costa toothed (dorsally and ventrally). H. Transverse section of leaf. I. Perichaetial leaf. (From the holotype.)

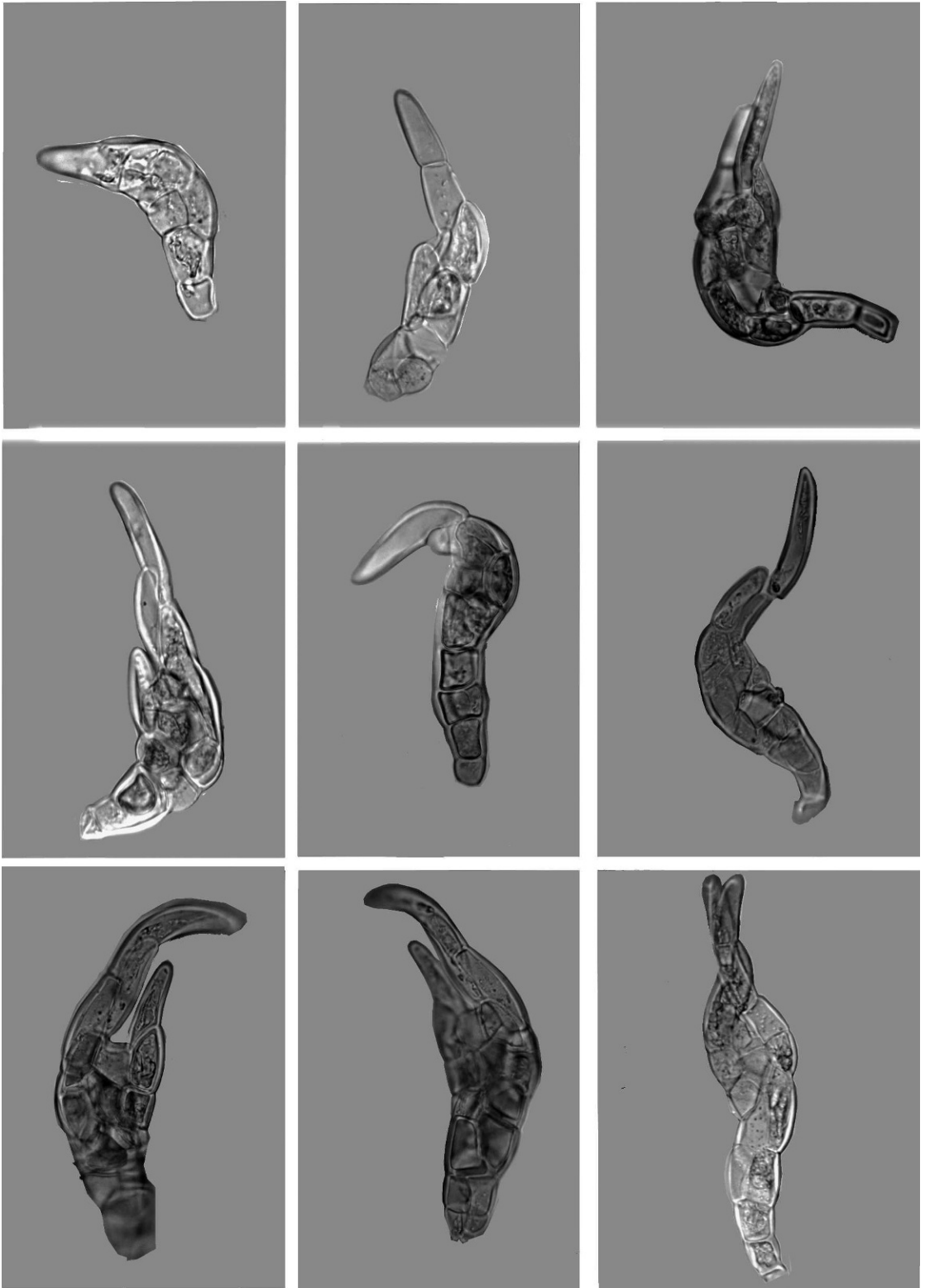


Figure 2. *Globulinella halloyi*. Propagula. (From the holotype.)

Table 1. Comparison of morphological characters between *Globulinella* species.

	<i>G. globifera</i>	<i>G. benoistii</i>	<i>G. halloyi</i>
Plant size (mm)	1.2	2–5	5–15
Leaf shape	oval to oblong	oblong to suborbicular	oblong to suborbicular
Leaf size (mm)	0.5–0.8 × 0.3–0.7	1.4 × 0.8	0.7–0.9 × 0.7–0.8
Costa toothed	ventrally	none	ventrally and dorsally
Stereid bands	1	1–2	2
Propagula (length)	occasional (40 µm)	none	present (200 µm)

TYPE. ARGENTINA. SALTA: Límite entre Argentina y Chile, Volcán Socompa, 24°25'S, 68°15'W, 6030 m, en “punto caliente” (warmspot) n° 5, Nov–Dic 1984, S. Halloy s/n (holotype: LIL).

**Description.** Plants robust. Stems branching by innovations, brown, 1–1.5 cm in length; transverse section rounded, central strand strong, sclerodermis absent or weakly differentiated, hyalodermis absent; axillary hairs of 1 basal brown cell and 1–3 hyaline apical cells. Leaves green to brown, appressed when dry, weakly spreading when moist, concave, oblong to suborbicular, 0.7–0.9 × 0.7–0.8 mm; apex broadly rounded, cucullate; margins entire; costa strong, ending 3–6 cells below apex, with ventral and dorsal distal teeth, costal transverse section elliptical, with ventral and dorsal epidermises present, two stereid bands, guide cells 2–4 in 1 layer; laminal cells with walls thickened, upper cells subquadrate to wide-rectangular, 6–13 × 8–12 µm, basal cells subquadrate to short-rectangular, 20–35 × 11–17 µm, smaller and thinner-walled at the margins. Propagula frequent in leaf axils, elongate, of several cells, with 1–4 leaf primordia at the apex, uncinat, 130–200 µm in length (Fig. 2). Dioicous. Perichaetia terminal, distinct; outer perichaetial leaves ovate-lanceolate, 1.3–1.5 mm long; apex obtuse, weakly cucullate; margins plane to incurved; upper cells with walls thickened, hyaline basally. Perigonia and sporophyte not seen. Laminal cells yellow in KOH.

**Ecological observations.** *Globulinella halloyi* was collected at Volcán Socompa, at one of the six complex autotrophic communities, designated in the field as “hot spot n°. 5,” at 6000 m, at 280–590 m above the upper limit known for bryophytes. These complexes are unique in terms of their isolation, elevation and biota and they are considered fragile.

The communities form dense patches of approximately 200 m<sup>2</sup> on warm soil, surrounding the area that provides water vapor (9–37°C). Apparently these hot spots behave like niches of relatively stable wet media, because there have been no recent eruptions of the volcano (Halloy 1991). It is interesting to note that *G. halloyi* is an abundant plant, and it forms communities with dense clumps of *Pohlia papillosa*. The specific characters of *P. papillosa* do not differ from those of specimens of other regions.

**Discussion.** *Globulinella halloyi* differs markedly from its congeners by the larger plants (Table 1). This could be attributed to an environment permanently wet while the two other species grow in arid montane areas. In addition, the size of the propagula in *G. halloyi* measure over 200 µm, well above the 40 µm described for the propagula from some collections of *G. globifera* (Zander 1993). The presence of two layers of stereids in the costal cross-section of *G. halloyi* is significant, because a ventral single layer is typical for the genus. However Zander (1993) mentioned that two bands occurred in some collections of *G. benoistii* and Cano et al. (2008) described the same for plants from Peru.

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