




# VENTURIELLA ACRIFOLIA (ERPODIACEAE, BRYOPHYTA), NEW TO THE DRY FOREST FROM ARGENTINA

## VENTURIELLA ACRIFOLIA (ERPODIACEAE, BRYOPHYTA), NUEVA PARA EL BOSQUE SECO DE ARGENTINA

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### SUMMARY

**Background and aims:** In the course of floristic dry forest sampling, specimens of *Venturiella acrifolia* were collected in Santiago del Estero and Santa Fe provinces. This record constitutes the first report in Argentina and the second in South America.  
**M&M:** Specimens collected in 2019 and 2023 were analyzed morphologically using conventional techniques for bryophytes and housed in DTE, LIL, MFA and SDE.  
**Results:** The species is described and illustrated.  
**Conclusions:** This work confirms the presence of *Venturiella acrifolia* in Argentina. The species is found in North America, Mexico, Bolivia and Argentina.

### KEY WORDS

Bryophytes, dry forest; Espinal, moss, new record.

### RESUMEN

**Introducción y objetivos:** En el transcurso del muestreo florístico del bosque seco, se encontraron especímenes de *Venturiella acrifolia* en las provincias de Santiago del Estero y Santa Fe. Este registro constituye el primer reporte en la Argentina y el segundo en Sudamérica.  
**M&M:** Especímenes colectados en 2019 y 2023 fueron analizados morfológicamente usando técnicas convencionales para briófitas y depositados en DTE, LIL, MFA y SDE.  
**Resultados:** Se describe e ilustra la especie.  
**Conclusiones:** Este trabajo confirma la presencia de *Venturiella acrifolia* en Argentina. La especie se encuentra en América del Norte, México, Bolivia y Argentina.

### PALABRAS CLAVE

Bosque seco, briofitas, Espinal, musgo, nuevo registro.

## INTRODUCTION

The Erpodiaceae are a family of small and prostrate, pleurocarpous mosses and they are found mainly in dry areas of tropical and subtropical regions of the world (Pursell, 2017). Actually, five genera are recognized, *Aulacopilum* Wilson, *Erpodium* (Brid.) Brid., *Solmsiella* Müll.Hal., *Tricherpodium* (Müll.Hal.) Pursell, and *Venturiella* Müll.Hal. (Gradstein *et al.*, 2001). In Argentina the family is represented by three genera, each with a single species, *Aulacopilum glaucum* Wilson, *Tricherpodium becarii* (Müll. Hal.) Pursell and *Venturiella glaziovii* (Hampe) Pursell (Pursell, 2017; Jiménez *et al.*, 2020; Alvarez *et al.*, 2023).

The genus *Venturiella* includes eight species making it the most diversified genus in the Erpodiaceae (Pursell, 2017). As part of study of the bryoflora of dry forests in Argentina, specimens of *Venturiella acrifolia* (Pursell) Pursell were identified.

The specimens reported here confirm the presence of this taxon in the Argentine moss flora and the samples are described and illustrated.

## MATERIAL AND METHODS

This study is based on examination of fresh material housed in DTE, LIL, MFA and SDE (Thiers, 2023). In this work the following information is provided: description, illustrations, comments, world distribution, vegetation and substrate types of *Venturiella acrifolia*, selected specimens examined, and distribution in Argentina based on the studied collections. The samples were analyzed by conventional techniques for bryophytes (Frahm *et al.*, 2003; Delgadillo-Moya *et al.*, 2022).

## RESULTS

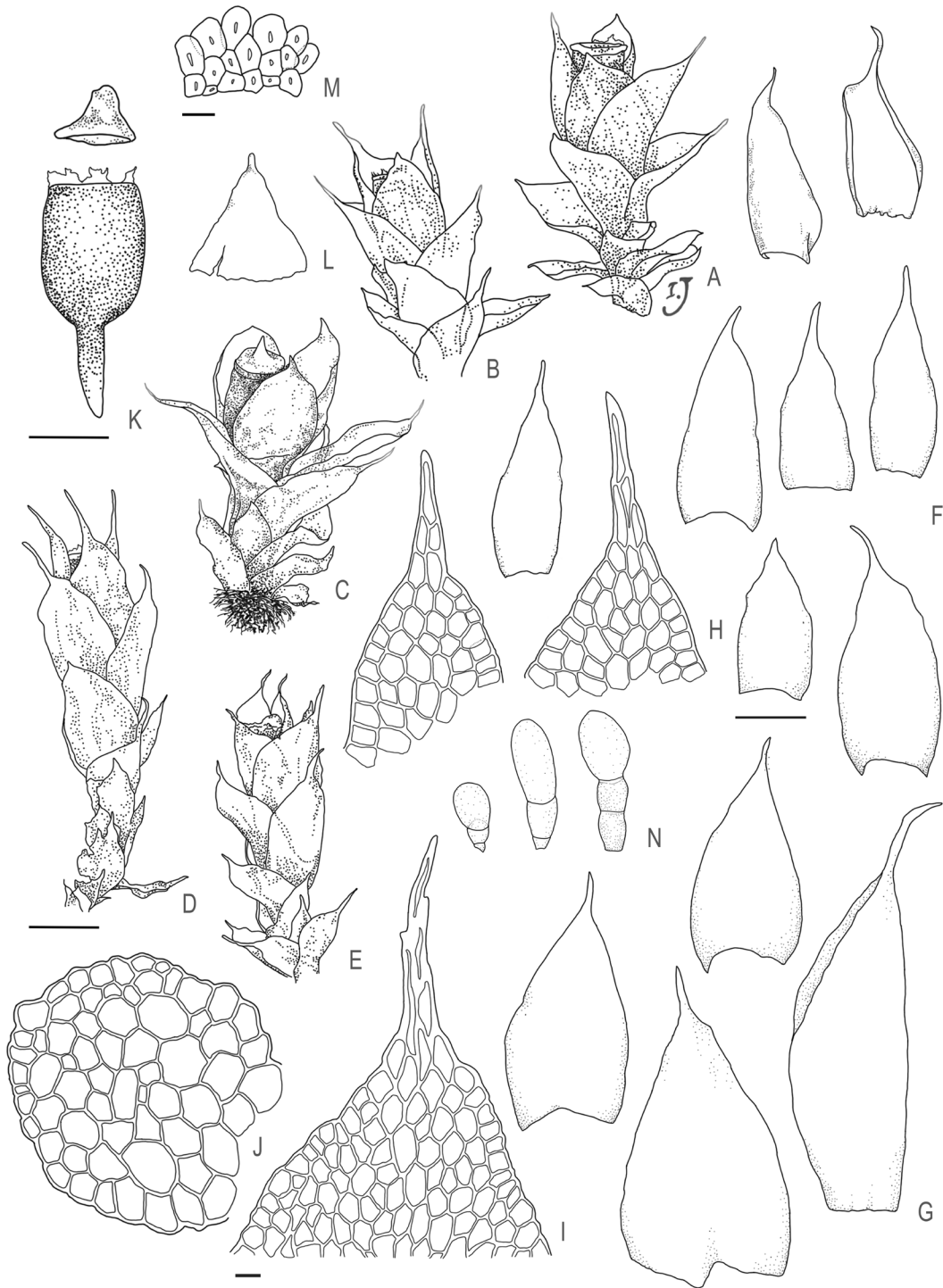
***Venturiella acrifolia*** (Pursell) Pursell, *Mem. New York Bot. Gard.* 116: 50. 2017; *Erpodium acrifolium* Pursell, *The Bryologist* 69: 465. 1966 [1967]. TYPE: MEXICO. Tamaulipas, on bark of mesquite, dry mesquite scrub forest, 9.2 mi E of Victoria on road to Casas, ca. 500 ft, 6-VIII-1961, Pursell & Reese 5505 (*holotype*, MO; *isotypes*, MO, NY). Fig. 1.

Plants small, green, often with a castaneous to brownish tinge; stems prostrate, tightly adhering to substrata, irregularly branched. Stems in transverse section  $\pm$  circular, epidermal cells  $\pm$  incrassate on outer walls; rhizoids sparse, arranged in small tufts, sparingly branched, hyaline to light-castaneous, smooth. Axillary hairs 2-3 cells long, basal cells small and terminal cell larger, all hyaline or 1-2 basal cells brown. Leaves of stems and branches differing only in size, firm, erect, tightly appressed when dry, spreading when wet, oblong-lanceolate,  $0.9-1 \times 0.3-0.4$  mm (including awns), ending in short, sharp, reflexed, hyaline awns; costa none; margins plane, entire; laminal cells smooth; marginal cells mostly oblate and quadrate  $15-22 \times 28-32$   $\mu\text{m}$ ; inner cells throughout leaf oblate, quadrate, or oblate-hexagonal,  $20-27 \times 2-38$   $\mu\text{m}$ . Perichaetia terminal on short, erect branches; perichaetial leaves green, greatly enlarged at maturity, oblong-ovate,  $1-1.3 \times 0.5-0.6$  mm long, awned, spreading when wet, concave, loosely sheathing sporophytes; cells mostly oblong to oblong-hexagonal. Sporophytes 1 per perichaetium. Setae very

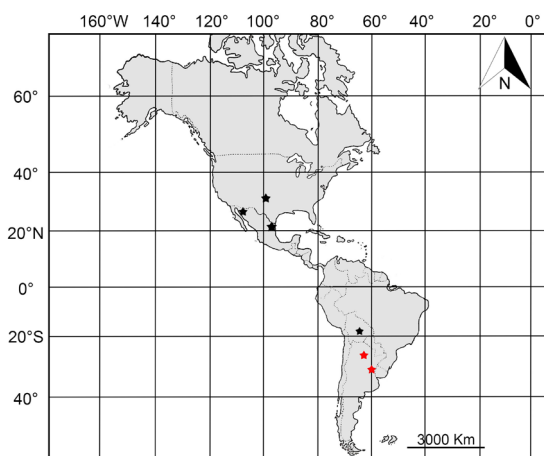
short, 0.1-0.15 mm long. Capsules erect, immersed, yellow, ovate-cylindric, 0.8-1.5 mm long; exothecial cells mostly quadrate to oblong, thin-walled; stomata phaneroporous; opercula conic-rostrate; annuli hyaline, with 2 or 3 rows of quadrate and vesiculose cells; peristomes rudimentary, segments irregular, densely but finely papillose, hyaline membranes usually shortly exceeding annuli. Spores green,  $\pm$  spherical, 18-25  $\mu\text{m}$ , thick-walled, finely papillose to  $\pm$  smooth. Calyptrae mitrate.

*Distribution and habitat.* *Venturiella acrifolia* is present in North America (Mexico, United States) and South America (Bolivia and Argentina) (Fig. 2), a disjunction found in several mosses and liverworts (Schiaivone & Suárez, 2007; Suárez & Schiaivone, 2010). The species can be found growing in dry areas on bark of living trees, decaying wood, and less commonly on rocks (Pursell, 2017). The specimens from Santiago del Estero were found on bark of *Neltuma caldenia* (Burkart) C.E.Hughes & G.P.Lewis (“caldén”) and *Vachellia aroma* (Gillies *ex* Hook. & Arn.) Seigler & Ebinger (“tusca”), in an anthropized area. In Santa Fe, the plants were found on bark of *Neltuma nigra* (Griseb.) C.E.Hughes & G.P.Lewis (“black carob”), in an area with cattle.

*Material studied.* ARGENTINA. Prov. Santa Fe: *Dept. Garay*, Cayastá, Reserva de Usos Múltiples “La Elena”,  $31^{\circ}16'05''\text{S}$ ,  $60^{\circ}15'12''\text{W}$ , 1-VIII-2023, Alvarez 418 (DTE, MFA, LIL);  $31^{\circ}16'02''\text{S}$ ,  $60^{\circ}15'11.2''\text{W}$ , 1-VIII-2023, Alvarez 422 (DTE, MFA, LIL); *Dept. San Justo*, Colonia Silva, campo “Santa Teresa”,  $30^{\circ}27'29.7''\text{S}$ ,  $60^{\circ}35'15.2''\text{W}$ , 11-VIII-2023, Alvarez 463A (DTE, MFA, LIL);  $30^{\circ}27'49''\text{S}$ ,  $60^{\circ}35'25''\text{W}$ , 11-VIII-2023, Alvarez 478A (DTE, MFA, LIL);  $30^{\circ}27'49''\text{S}$ ,  $60^{\circ}35'25''\text{W}$ , 11-VIII-2023, Alvarez 479 (DTE, MFA, LIL);  $30^{\circ}27'50''\text{S}$ ,  $60^{\circ}35'24''\text{W}$ , 11-VIII-2023, Alvarez 482 (DTE, MFA). Prov. Santiago del Estero: *Dept. Capital*, Predio del Jardín Botánico de la UNSE, 25-IX-2019, Morend s.n. (LIL, SDE), en espacio verde entre edificios del barrio Belgrano, 28-IX-2022, Roger s.n. (LIL, SDE).



**Fig. 1.** *Venturiella acrifolia*. **A-C:** Habit (wet). **D-E:** Habit (dry). **F:** Leaves. **G:** Perichaetial leaves. **H:** Leaf apex. **I:** Perichaetial leaf apex. **J:** Stem (in transverse section). **K:** Sporophyte. **L:** Calyptra. **M:** Annulus. **N:** Axillary hairs. Scale= A-E: 0.5 mm; F, G: 0.25 mm; H-J: 25 µm; K, L: 0.25 mm; M, N: 25 µm.



**Fig. 2.** Distribution map of *V. acrifolia* in the American continent, including the two new records from Argentina (highlighted in red).

## CONCLUSIONS

The discovery of this species in Argentina is surprising because it is located in an anthropized zone, no less than 1300 km away from its closest record. The new record of the species can hypothetically be associated with its spontaneous appearance by air transport of spores disseminated by wind or that they are relict specimens of the original vegetation without previous records.

This paper confirms the presence of *Venturiella acrifolia* in the dry forests of Santiago del Estero and Spinal of Santa Fe, from Argentina. This constitutes the first report in Argentina and the second in South America.

## AUTHOR CONTRIBUTIONS

ER and DJA collected the plants. DJA and GMS determined the samples. All authors have worked simultaneously on the manuscript.

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