New record of *Dasyphyllum* (Barnadesieae) from Uruguay

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ABSTRACT

Dasyphyllum spinescens (Barnadesioideae) is here reported for the flora of Uruguay. This new record redefines the geographic area for *Dasyphyllum* (containing *ca.* 31 spp.) by extending its southern limit. We provide a detailed morphological description with illustrative photographs and information on the distribution, habitat, and phenology of *D. spinescens*.

Keywords: Asteraceae, Barnadesioideae, geographic distribution

INTRODUCTION

Dasyphyllum Kunth (Barnadesioideae) is exclusively distributed in South America, being recorded in the Andes from Venezuela to northwestern Argentina, and from Eastern Brazil, through Bolivia, Paraguay until northeastern Argentina (Cabrera, 1959; Stuessy et al., 2009; Urtubey, 2014; Ferreira et al., 2021). It occurs in a large number of environments ranging from dry areas such as the Puna and Cerrado to humid areas such as Atlantic forest (Cabrera, 1959; Stuessy et al., 2009; Saavedra et al., 2014, 2018; Ferreira et al., 2019, 2021). Species of *Dasyphyllum* generally present a shrubby habit, sometimes arboreal and lianas, the leaves have acrodromous venation, capitula are discoid with monoclinous or functionally pistillate florets (gynodioecy), corollas cream to white, and anthers show bilobed apical appendices (Stuessy et al., 2009; Ferreira et al., 2021).

Cabrera (1959) recognized 36 species of *Dasyphyllum* placed in two subgenera: *Dasyphyllum* subg. *Archidasyphyllum* Cabrera with two species and *Dasyphyllum* subg. *Dasyphyllum* Cabrera with 34 species. From early on, the monophyly of *Dasyphyllum* was questionable. The species of the subg. *Archidasyphyllum* had characteristics that set them apart from the rest of the *Dasyphyllum* species (Cabrera, 1959). Recent works that combine morphological and molecular analyzes confirm that *Dasyphyllum*, as it is traditionally known, is a paraphyletic group (Saavedra, 2011; Ferreira et al., 2019). Saavedra (2011) in her taxonomic review of the genus recognized 33 species. More recently, Ferreira et al. (2019) proposed a new circumscription of *Dasyphyllum* by raising the subg. *Archidasyphyllum* to generic rank. According to Ferreira et al. (2021), the genus includes 27 species and four species not yet described, which would render the total current

A brand new addition

The list of Barnadesieae for Uruguay adds now to monotypic *Schlechtendalia* Less., *Dasyphyllum spinescens* (Less.) Cabrera. The new record represents a new Compositae tree for the country, increasing the number to four, the others being *Baccharis longiattenuata* A.S.Oliveira (Astereae), *Moquiniastrum polymorphum* (Less.) G.Sancho (Gochnatieae) and *Tessaria integrifolia* Ruiz & Pav. (Inuleae).

Dasyphyllum spinecens, Sierra de Ríos, Cerro Largo, Uruguay.
Photo by Mauricio Bonifacino

Figure 1. *Dasyphyllum spinescens* (Less.) Cabrera. **A.** Habitat in Sierra de Ríos, Cerro Largo, Uruguay. **B.** Young branch, with spines; notice the distinctive acrodromous venetion (a generic distinctive feature). **C.** Rhytidome and characteristic fasciculate spines. **D.** Top view of the capitulum; arrow indicates bifid connectival appendage (a generic distinctive feature). **E.** Side view of capitulescence. Photos: M. Bonifacino.

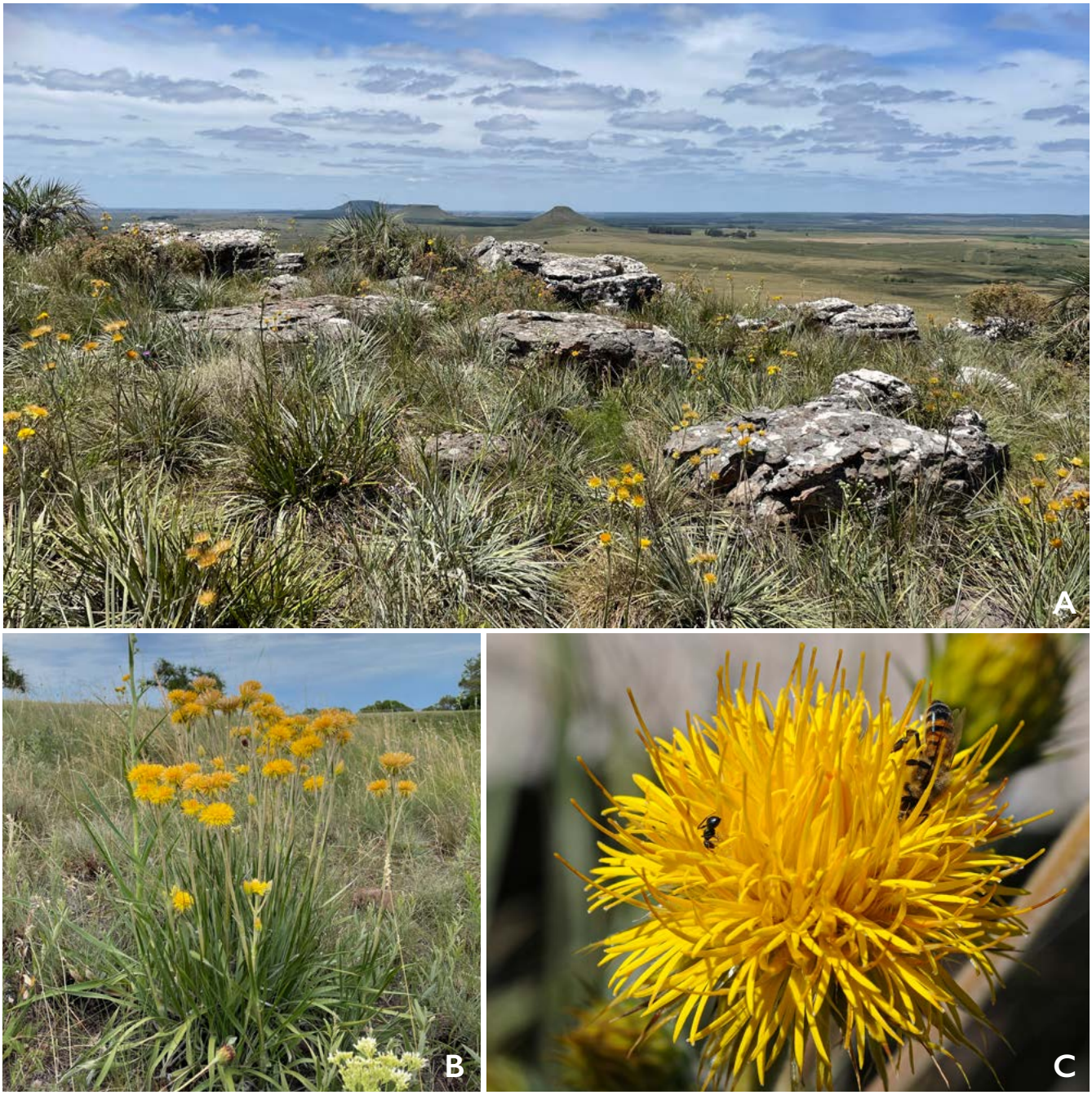

Figure 2. *Schlechtendalia luzulilfolia* Less., the other Barnadesieae species found in Uruguay. **A.** Habitat in Cerro Miriñaque (Rivera). **B.** Habit, notice grass like appearance. **C.** Close up of capitulum, notice pseudobilabiate corollas. Photos: M. Bonifacino.

figure to ca. 31 spp., still retaining its status as the largest genus of the tribe. The greatest diversity of the genus is in Brazil where 21 species are recognized (Stuessy et al., 2009; Saavedra, 2010).

As part of our ongoing project titled "Flora del Uruguay: Familia Compositae", we discovered *Dasyphyllum* (Figure 1), a second genus of Barnadesieae for Uruguay. Of those two genera, monotypic *Schlechtendalia* Less. (Figure 2) is widely distributed across the country, while *Dasyphyllum* is so far restricted to one locality in northern Uruguay.

After studying collected specimens and comparing them with the information provided in the literature and the study of the type materials, we conclude that the species found in Uruguay represents the southernmost distribution of *Dasyphyllum spinescens*

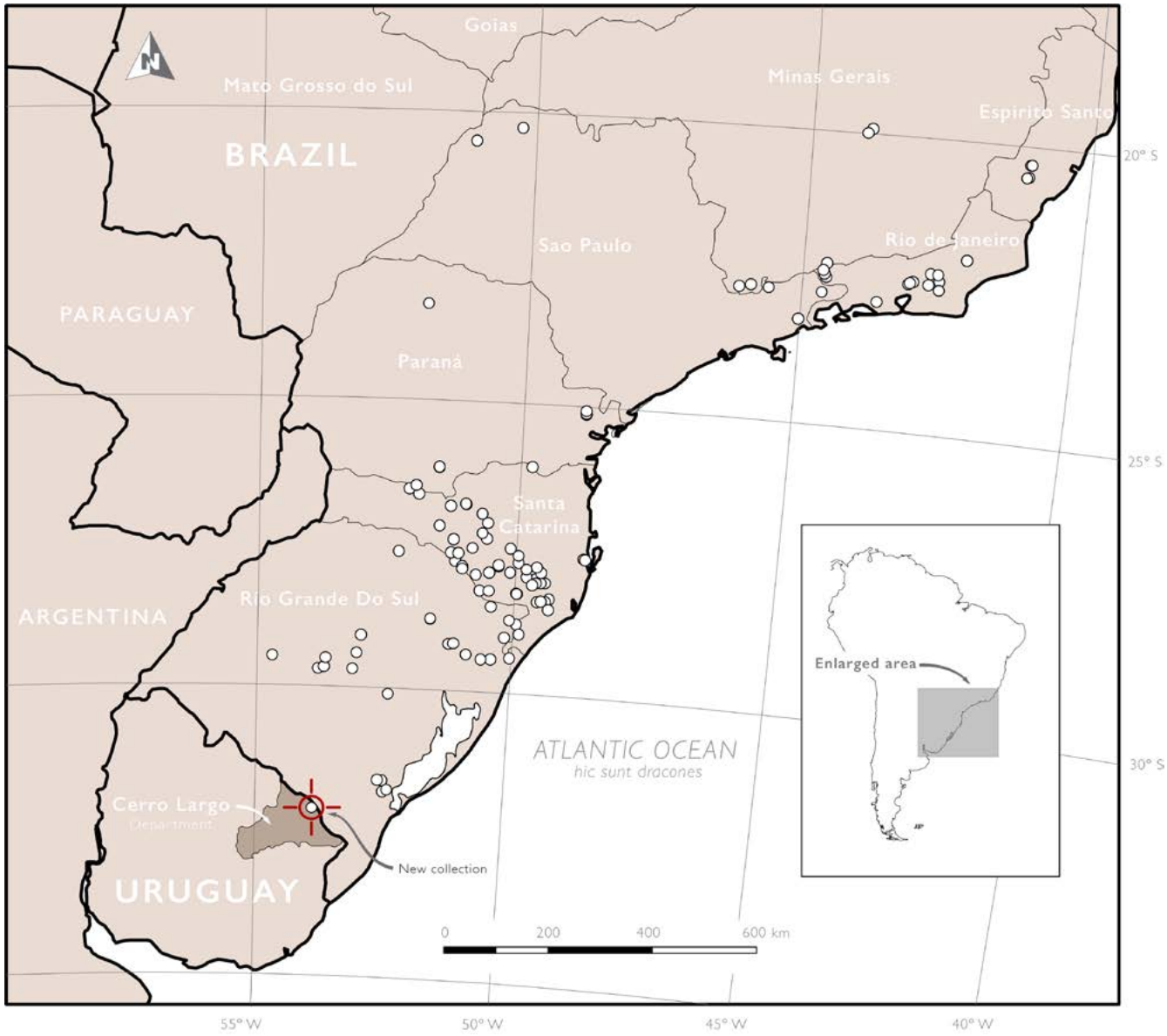

Figure 3. *Dasyphyllum spinescens* (Compositae: Barnadesieae) geographic distribution map.

(Less.) Cabrera, and therefore the southernmost distribution of *Dasyphyllum*. According to Cabrera (1959), *D. spinescens* is a tree characterized by light brown bark and fasciculate spines, by its upper leaves with very conspicuous spiny apex, sparsely pubescence, and capitulum with involucre campanulate.

The objective of this work is to report the presence of *Dasyphyllum spinescens* in Uruguay thus expanding the limits of the genus geographic distribution. We present a detailed morphological description, photographs, and a distribution map.

The images of the type specimens available on Jstor Global Plant (JSTOR, 2021) were analyzed, and the herbarium database (Reflora, 2021) was used to access the herbarium records from CEPEC, CRI, ECT, ESA, FLOR, FURB, HDCF, HEPH, HUEM, HUFU, LUSC, MBML, MG, NY, RB, RBR, US, VIES, acronyms according to Thiers (2017). For the maps, the geographical distribution was obtained from the records analyzed and plotted using QGIS version 3.4 (QGIS Development Team, 2019).

From the specimen deposited in MVFA and the fresh material collected, we made a detailed description.

The analysis of the reproductive morphology of *Dasyphyllum spinescens* was carried out with both pressed material and fresh cultivated material, from a specimen of the same accession as the individual found in the wild.

TAXONOMIC TREATMENT

Dasyphyllum spinescens (Less.) Cabrera, Revista Mus. La Plata, Secc. Bot. 9 (38): 57, 1959. *Flotovia spinescens* Less., Linnaea 5: 251, 1830. *Chuquiraga spinescens* (Less.) Baker, Fl. Bras. 6 (3): 362, 1884. Type: Brazil, Brasilia, *Sellow* s.n. (B†) Figure 1.

Trees, evergreen, ca. 6 m tall, stems erect, cylindrical to quadrangular, sericeous-pubescent with lenticels, adult branches with fasciculate spines. **Leaves** alternate, 3.5–6 × 0.85–1.5 cm, petioles 0.5–1 cm long, narrowly elliptic, base acute, apex acuminate to mucronate, adaxial and abaxial surfaces sericeous, acrodromous venation, herbaceous to coriaceous, discolor, margins entire. **Capitulescences** paniculiform, capitula 9 to 15, peduncles 0.8–2.5 cm long, sericeous-pubescent. **Involucres** 8–9 × 4–5 mm, campanulate; subinvolucral bracts 0 to 4, 3–6 × 1.5–2 mm, elliptic, apex acuminate to mucronate, herbaceous-coriaceous; phyllaries in 7 to 9 series, graduated in length, imbricate, dark brown, outer phyllaries 3–6 × 2–3 mm, ovate, base rounded to obtuse, apex acute, pubescent towards the margin, chartaceous, margin entire, inner phyllaries 6–7 × 2–2.3 mm, ovate, curved outwards, base acute to obtuse, apex acute, pubescent to puberulous on abaxial surface, puberulous at the apex on adaxial surface, chartaceous, margin entire. **Receptacles** flat, paleate, pilose. Paleae ca. 14, 10.5–11 × 0.5 mm, linear in the first two-thirds and elliptic towards the apex, base acute, apex acute, pubescent on abaxial surface and glabrous on adaxial surface, chartaceous, margins entire. **Florets** ca. 25, monoclinous, in 2 to 3 series, corollas tubulose, tube 4–4.2 mm long, lobes 5, 4–5 × 0.5–0.6 mm, elliptic, corollas light yellow to white-yellow, tube villous inside, lobes villous to tomentose towards the apex on abaxial surface and glabrous adaxially. **Anthers** slightly sagittate 4.2–4.3 mm long, basal appendages 0.3 mm long, connective appendix 0.3 × 0.3 mm, bilobed, lobes ovates, apex acute. **Style** 12 mm long, style branches 0.5 mm long, ovate, apex acute, glabrous. **Cypselae** 2.1–2.5 mm long, fusiform cylindrical, tomentose. **Pappus** 7–8.5 mm long, uniseriate, homomorphic, stramineous plumose bristles, persistent.

Distribution and habitat: Southeastern and southern Brazil, in the states of Minas Gerais, Espírito Santo, São Paulo, Rio de Janeiro, Paraná, Santa Catarina and Rio Grande do Sul (Cabrera, 1959; Saavedra, 2010). *Dasyphyllum spinescens* has only been reported for Uruguay in the department of Cerro Largo (Figure 3), where it grows in subtropical semideciduous submontane riverine forests (Figure 1A).

Phenology: Flowering from February to March.

Specimens examined: URUGUAY. CERRO LARGO: Sierra de Ríos, Cuchilla de Yaguarón, S 32°07'40.21" W 53°49'49.67", 13-III-2012, *Bonifacino & Speroni 4273* (MVFA).

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