



Paepalanthus magistrae (Eriocaulaceae), a remarkable new species in honor of Ana Maria Giulietti-Harley

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Abstract

We describe and illustrate *Paepalanthus magistrae*, a remarkable new species of Eriocaulaceae from Northeastern Brazil. The species is placed into *Paepalanthus* subsect. *Dichocladus* by the presence of trimerous flower, elongated dichotomous branched stem, and small rigid leaves. Within the section it may be easily distinguished by its leaves with glabrescent adaxial surface and lanose abaxial surface. As the species is narrowly distributed and known from a few populations, it is considered endangered.

Key words: Caatinga, Paepalanthoideae, Serra das Confusões National Park, taxonomy.

Introduction

Paepalanthus Mart. is the richest genus of Eriocaulaceae in Brazil with ca. 340 species, 95% of which restricted to the country, with a high number of micro-endemic species (Giulietti *et al.* 2010; Forzza *et al.* 2010; Sano *et al.* 2014). New species are frequently described, especially for poorly sampled areas (e.g. Giulietti & Miranda 2009; Trovó & Sano 2009, 2011; Trovó *et al.* 2011, 2012, 2013a, 2013b; Echternacht & Trovó in press). The Espinhaço Range in Southeastern Brazil is the center of diversity of the genus, which is also quite diverse on the Guiana Shield and, in a lower degree, on Central Brazil and on the Atlantic Forest domain. Piauí state, in northeastern Brazil, is particularly poor in *Paepalanthus*, with only four species acknowledged in the Brazilian checklist (Sano *et al.* 2014). The Serra das Confusões National Park is located at the south of the state, mostly within the Caatinga domain. There, sandstone outcrops, especially on the slopes of the Mountains, are formed by quartzose soils, the typical environment for Eriocaulaceae.

Paepalanthus differs from the remaining genera of Eriocaulaceae by its isostemonous flowers, the pistillate with free petals, and gynoeceum with stigmatic and nectariferous branches inserted at the same point (Koernicke 1863; Giulietti *et al.* 2012). The genus was revealed polyphyletic (Andrade *et*

al. 2010; Giulietti *et al.* 2012; Trovó *et al.* 2013c), as well as several of its 28 supra-specific ranks defined by Ruhland (1903). *Paepalanthus* subsect. *Dichocladus* Ruhland includes plants with trimerous flowers, elongated and dichotomously branched stems, and small, rigid leaves. The subsection includes a group of species from the Espinhaço Range that form a clade, and a disjunctive group from the Guiana Shield, which were not yet included in phylogenetic analyses (Trovó *et al.* 2013c). The habit enables an easy association of species to *P.* subsect. *Dichocladus*, but the monophyly of the whole taxon is still to be tested. Recent collections from the Serra das Confusões revealed a new, very distinctive species of *P.* subsect. *Dichocladus* that is described herein.

Taxonomic treatment

Paepalanthus magistrae Sano, F.N. Costa, Trovó & Echtern. sp. nov.

Type: Brazil. Piauí: Caracol. “Parque Nacional da Serra das Confusões, afloramento rochoso na localidade Moquem, próximo da gruta do Enoque. 9° 08' 11'' S, 43° 33' 27'' W. Elev. 500m”. 22 Feb 2013, Martinelli, G. *et al.* 18122 (holotype: RB, isotype: B). Fig. 1, 2.

Diagnosis: *Paepalanthus magistrae* differs from all the other species of *P.* subsect. *Dichocladus*

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by its leaves with glabrescent adaxial surface and lanose abaxial surface. It is morphologically differentiated from *Paepalanthus bonsai* Trovó & Sano, the most closely related species, also by its leaves with round apex, spathe tip acute, longer scapes, spherical capitula, and involucral bracts completely glabrous.

Perennial herbs forming small, dense cushions in rocky crevices, 4.5–11 cm tall, stem elongate, 4–7.5 cm long, branched, covered by leaves and marcescent leaf sheaths. Leaves disposed along the stem, chartaceous, deciduous, falciform, $5-7 \times 0.5-0.1$ mm, adaxial surface glabrescent, abaxial surface lanose, apex round,

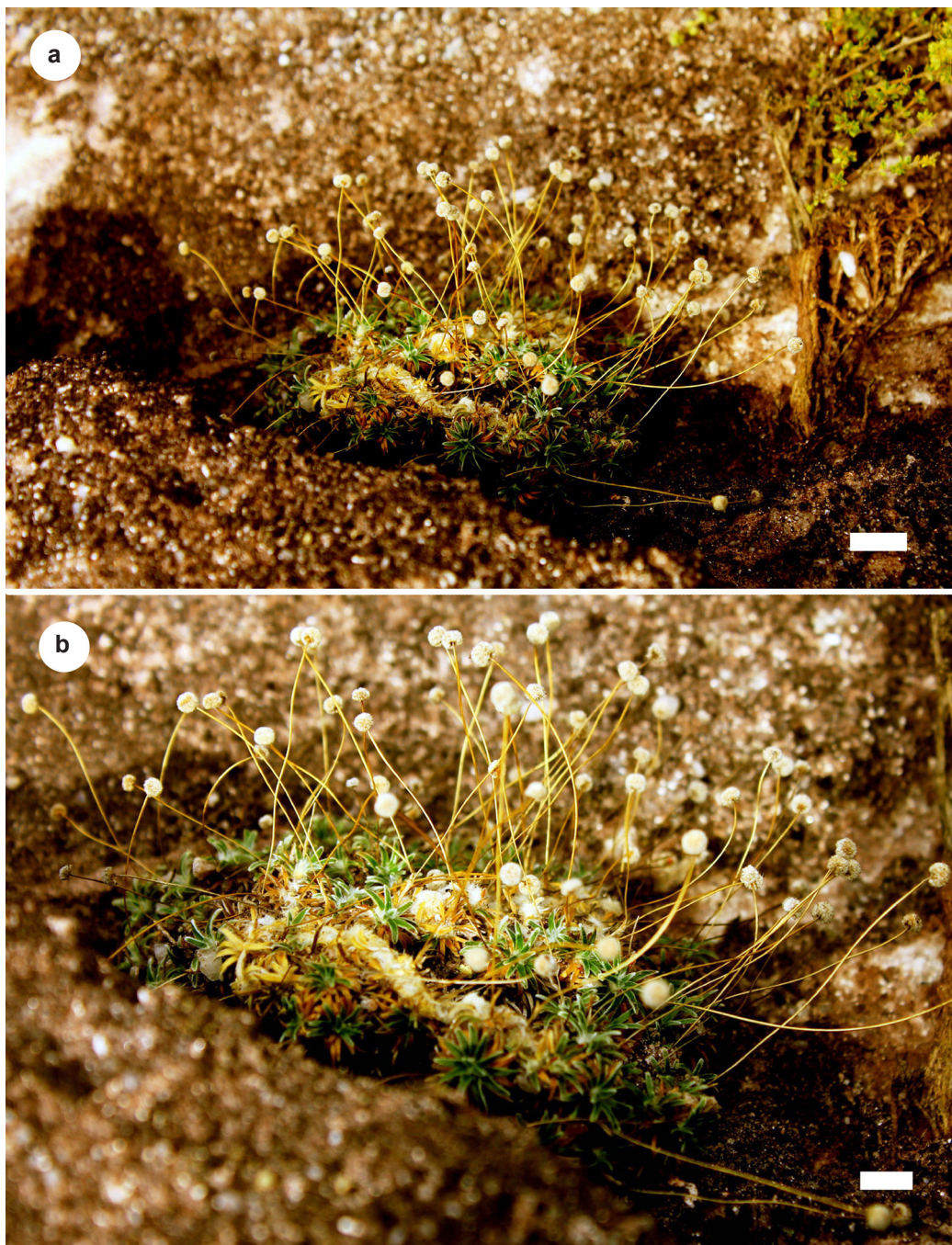


Figure 1 – *Paepalanthus magistrae* – a. habit; b. habit detail. Scale bars – a. 2.5cm; b. 1cm. (photos from CNCFlora)

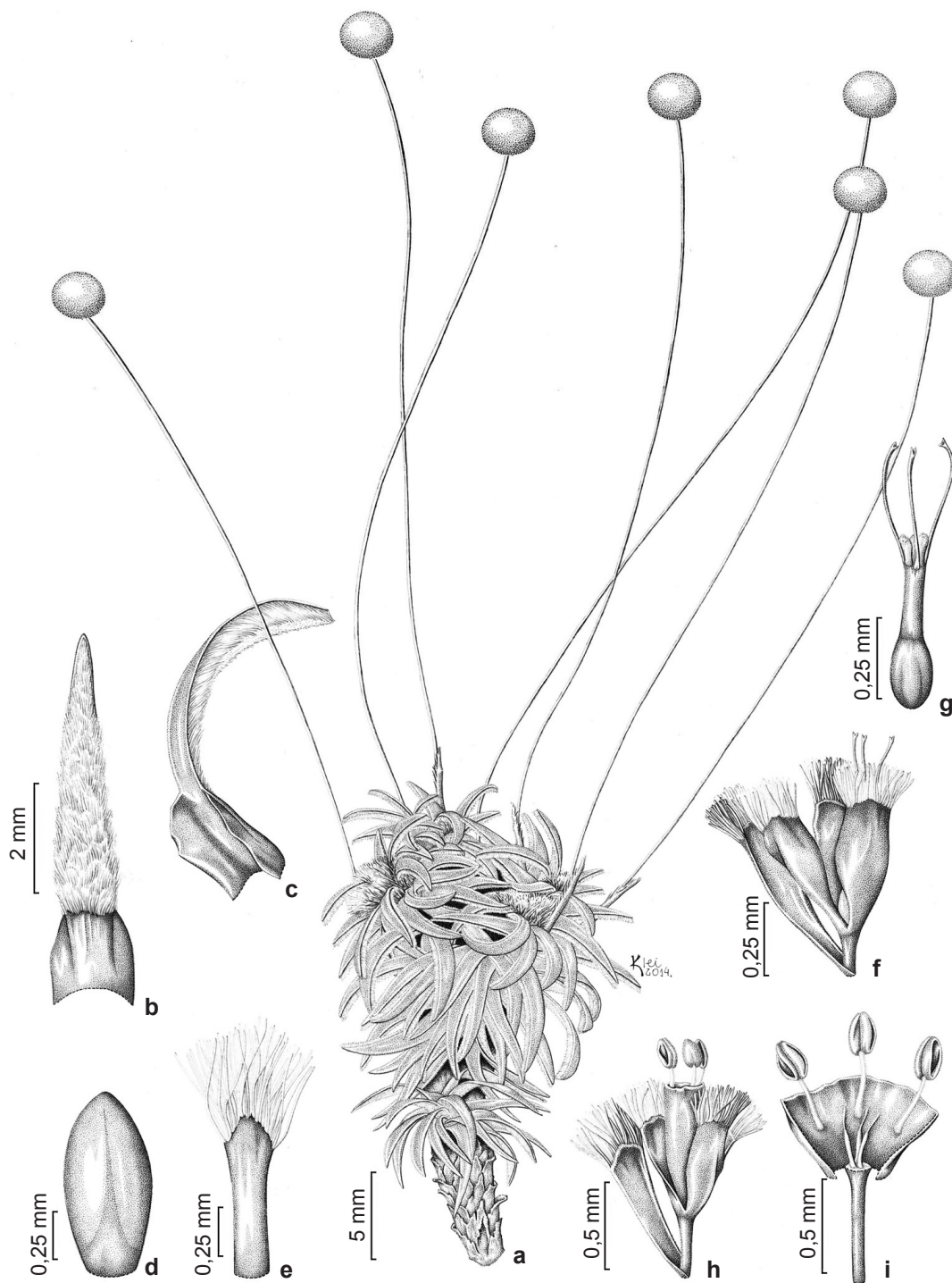


Figure 2 – *Paepalanthus magistrae* – a. branch detail; b. leaf abaxial surface; c. leaf adaxial surface; d. involucral bract abaxial surface; e. floral bract abaxial surface; f. pistillate flower; g. gynoecium; h. staminate flower; i. staminate flower with sepals removed and opened corolla (Drawings from the holotype by Klei Sousa).

base dilated, and margins glabrous. Spathes 0.5–1 cm long, lanose to glabrescent, tip acute. Scapes 1 to 3 per branch, 2–6.5 cm long, glabrous; capitula 2–4 mm diam., spherical; involucre bracts light brown with a dark stripe in the middle, arranged in 2 series, deltoid, ca. 2 mm long, glabrous on both surfaces, apex obtuse, margin glabrous; receptacle hemispheric, pubescent. Flowers 3-merous, ca. 50 per capitulum, 4× more staminate than pistillate; floral bracts narrowly oblong, ca. 2 mm long, glabrous, apex acute, ciliate toward the apex. Staminate flowers ca. 3 mm long; pedicel ca. 0.5 mm long, with long trichomes; sepals oblong, ca. 1.5 mm, glabrous, apex acute, ciliate toward the apex; corolla tubular, membranaceous, hyaline, glabrous, ca. 2.5 mm long, truncated; stamens ca. 2.5 mm; pistillodes 3, long papillose. Pistillate flowers ca. 1.5 mm, sessile; sepals oblong, ca. 2 mm long, glabrous, apex acute, ciliate toward the apex; petals obovate, ca. 1.5 mm long, glabrous, apex obtuse, ciliate toward the apex; gynoecium ca. 1.5 mm long, stigmatic branches bifid, twice the length of the small nectariferous branches. Fruit a loculicidal capsule.

Etymology: The epithet *magistrae* - belonging to the master - is a tribute to Prof. Ana Maria Giulietti-Harley, who has guided three generations of specialists in Eriocaulaceae. As in this species, she has her roots in the Caatinga. To her we offer our gratitude and our acknowledgement.

Habitat, Distribution, and Conservation: *Paepalanthus magistrae* is known from a few populations growing on rock crevices in mountains of Serra das Confusões, Piauí (Fig. 1). The species occurs within the Capivara National Park and is considered endangered according to criteria B1a and B2a of IUCN (2011). Additional populations may be found in the vicinities, as the area is poorly sampled.

Notes: *Paepalanthus magistrae* is placed into *Paepalanthus* subsect. *Dichocladus* due to its trimerous flowers, elongated dichotomous branched stem, and small rigid leaves. Within the section, it is similar to *P. bonsai* and *P. glaziovii* Ruhland by possessing bifid stigmatic branches. Differs from *P. bonsai*, the most similar species, by its leaves with abaxial surface lanose (vs. glabrescent), leaf apex rounded (vs. acute), spathe tip acute (vs. truncate), longer scapes, spherical capitula (vs. urceolate), involucre bracts glabrous (vs. pilose in the abaxial surface and margin), and small flower differences. Despite the morphological differences, *P. magistrae*

is allopatric distributed, as both *P. bonsai* and *P. glaziovii* are restricted to the Diamantina Plateau in Minas Gerais state.

Paratypes: BRAZIL. PIAUÍ: São Raimundo Nonato, “Serra da Capivara”, 10.VII.1984, *Emperaire*, L. 2583 (RB). Guaribas, “Serra das Confusões”, 1-15.X.2000, *Percequillo*, A.R. et al. (SPF 144286).

Acknowledgments

Financial support: M.T., Alexander von Humboldt Foundation, UFRJ (ALV 2013) and FAPERJ (E-26/112.476 - INST; E-26/110.031/2011, E-26/111.392/2012 - BIOTA); P.T.S., CNPq (proc. 308300/2012-2); L.E., PROPP-UFU (edital 06/2013).

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