

# CALATHEA GALDAMESIANA (MARANTACEAE), A NEW ENDEMIC PANAMANIAN SPECIES

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## ABSTRACT

***Calathea galdamesiana*** H. Kenn. & R. Flores, endemic to Panamá, is described as new for inclusion in the Flora Mesoamericana. It occurs in premontane wet forest and is known only from the type locality in Parque Nacional Santa Fe, Veraguas Province. It is characterized by the 5–8 basal leaves per shoot, in which the petiole is absent and the margins of the leaf sheath are spreading and reflexed; and the 1–4 fusiform inflorescences borne on a separate, leafless shoot directly from the rhizome. *Calathea galdamesiana* shares a similar vegetative habit and leaf morphology with *C. panamensis* Standl. but differs in the elliptic vs. obovate to obovate-elliptic leaf blade, the 1–4 inflorescences borne on a separate leafless shoot vs. 1 (rarely 2) borne on the leafy shoot, the red-purple vs. green bracts and chasmogamous vs. cleistogamous flowers. The flower morphology of *C. galdamesiana* is most similar to that of *C. cleistantha* Standl. which also has the inflorescences borne on a separate leafless shoot. *Calathea galdamesiana* differs from *C. cleistantha* by the absence of a petiole and the margins of the leaf sheath spreading to recurved vs. petiole (0–)3.5–15 cm and the margins of leaf sheath clasping, the usually shorter pulvinus (0.5–1 vs. 0.9–2.3 cm), and the fusiform vs. ovoid inflorescence (length to width ratio 3.2–4.5:1 vs. <2.5:1).

## RESUMEN

***Calathea galdamesiana*** H. Kenn. & R. Flores, endémica de Panamá, es descrita como nueva para inclusión en Flora Mesoamericana. Esta especie se encuentra en el bosque húmedo premontano y está conocida de sólo de la localidad del tipo en Parque Nacional Santa Fe de Provincia Veraguas. *Calathea galdamesiana* se caracteriza por tener 5–8 hojas basales por brote y la ausencia de peciolo y las márgenes de la vaina son extendidos a recurvados; y inflorescencias 1–4, fusiformes, en un brote aparte, sin hojas, que sale directamente del rizoma. *Calathea galdamesiana* tiene hábito similar a *C. panamensis* Standl., pero se distingue por sus láminas foliares elípticas vs obovadas u obovado-elípticas, las inflorescencias 1–4, en un brote aparte, sin hojas vs inflorescencia 1 (raramente 2) en un brote con hojas, las brácteas rojo-púrpuras vs. verdes, y las flores casmogamas vs. cleistogamas. La forma de las flores de *C. galdamesiana* es más similar a *C. cleistantha* Standl., la cual también tiene las inflorescencias en un brote aparte, sin hojas. *Calathea galdamesiana* difiere de *C. cleistantha* Standl., por la ausencia del peciolo y los márgenes de la vaina extendidos a recurvados vs. peciolos (0–)3.5–15 cm y los márgenes de la vaina abrazados, y el pulvínulo usualmente más corto (0.5–1 vs. 0.9–2.3 cm), y las inflorescencias fusiformes vs. ovoides (proporción largo por ancho 3.2–4.5:1 vs. <2.5:1).

In preparation for the Flora Mesoamericana treatment, the species of Marantaceae from Panama have been a special focus as with increased collecting several undescribed species have been discovered recently. With considerably more collecting since publication of the Woodson & Schery (1945) treatment for Flora of Panama, listing 23 species, the total has tripled. By 1972, Dressler (1972:184) reported a total of 35 species for Panama. Besides field work, recent herbarium studies at Missouri Botanical Garden and University of Panama have uncovered additional new species. Just since 2011, 11 more species of Marantaceae have been described from Panama. Kennedy (2012:49) had reported a total of 63 species whereas, currently, 69 species are recognized (a 200% increase from the original *Flora of Panama* treatment). Twenty species are recognized as endemic, including the one described herein plus another as yet undescribed taxon.

## TAXONOMIC TREATMENT

***Calathea galdamesiana*** H. Kenn. & R. Flores, sp. nov. (**Figs. 1, 2**). TYPE: PANAMÁ. VERAGUAS: Parque Nacional Santa Fe, alrededores de la parcela ubicada por CMAP II/ANAM, Alto de Piedra, Guabal, 900 m, 8°31'39"N, 81°08'58"W (UTM 0483553 E, 0942618 N), 18 May 2015, R. Flores & N. Guerra 3655 (HOLOTYPE: PMA; ISOTYPES: SCZ, UCH, UCR).

Haec species quoad partes vegetativas *Calathea panamensis* Rowlee ex Standl. similis, sed ab ea lamina foliari elliptica (vs. obovata vel obovato-elliptica), inflorescentiis 1 ad 4 (vs. 1 raro 2) surculo aphylo discreto insidentibus, bracteis rubro-purpureis (vs. viridibus) atque floribus chasmogamis; quoad partes florales *C. cleistanthae* Standl. similis, sed ab ea foliis semper sessilibus, vagina florali marginibus patentibus

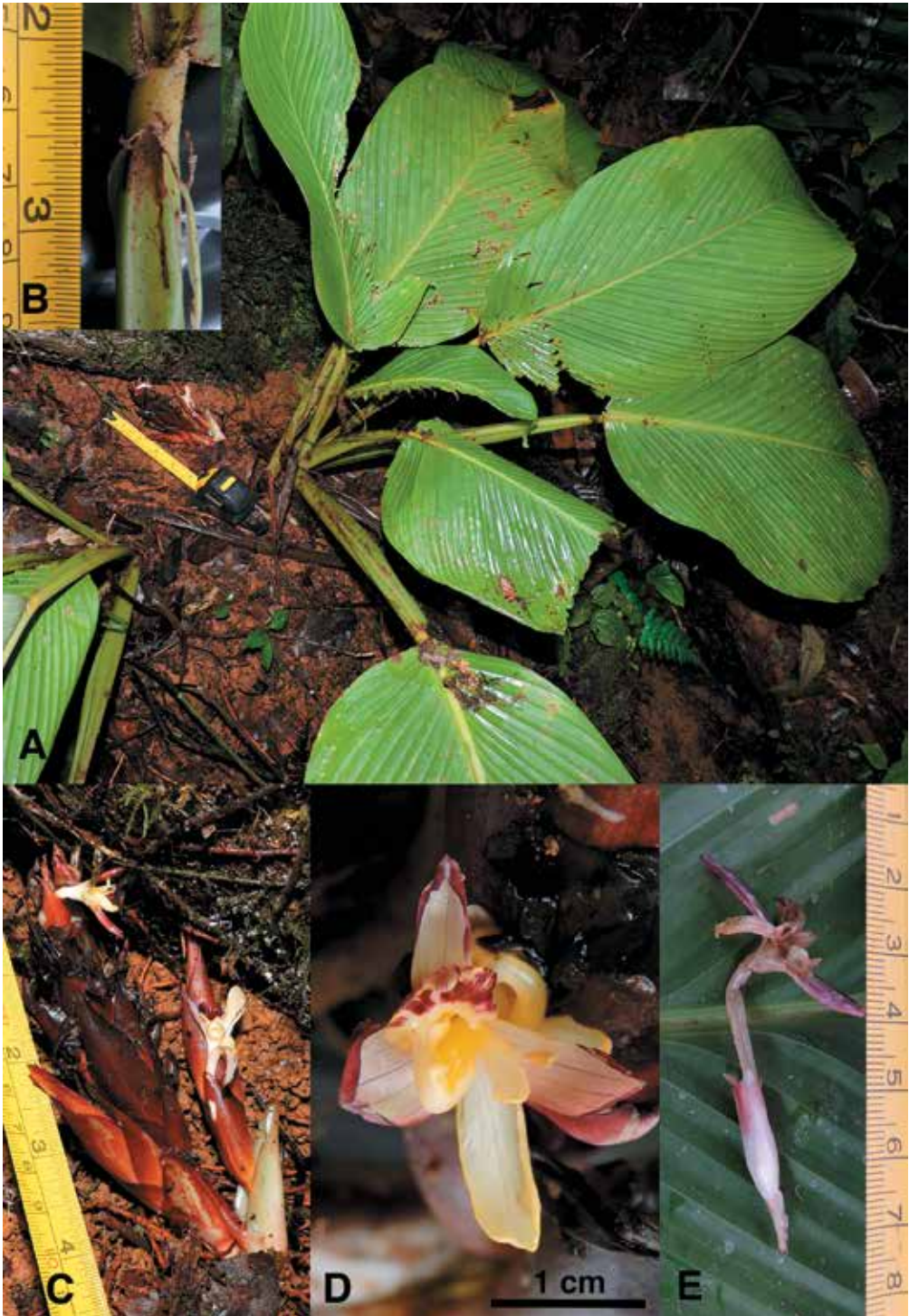
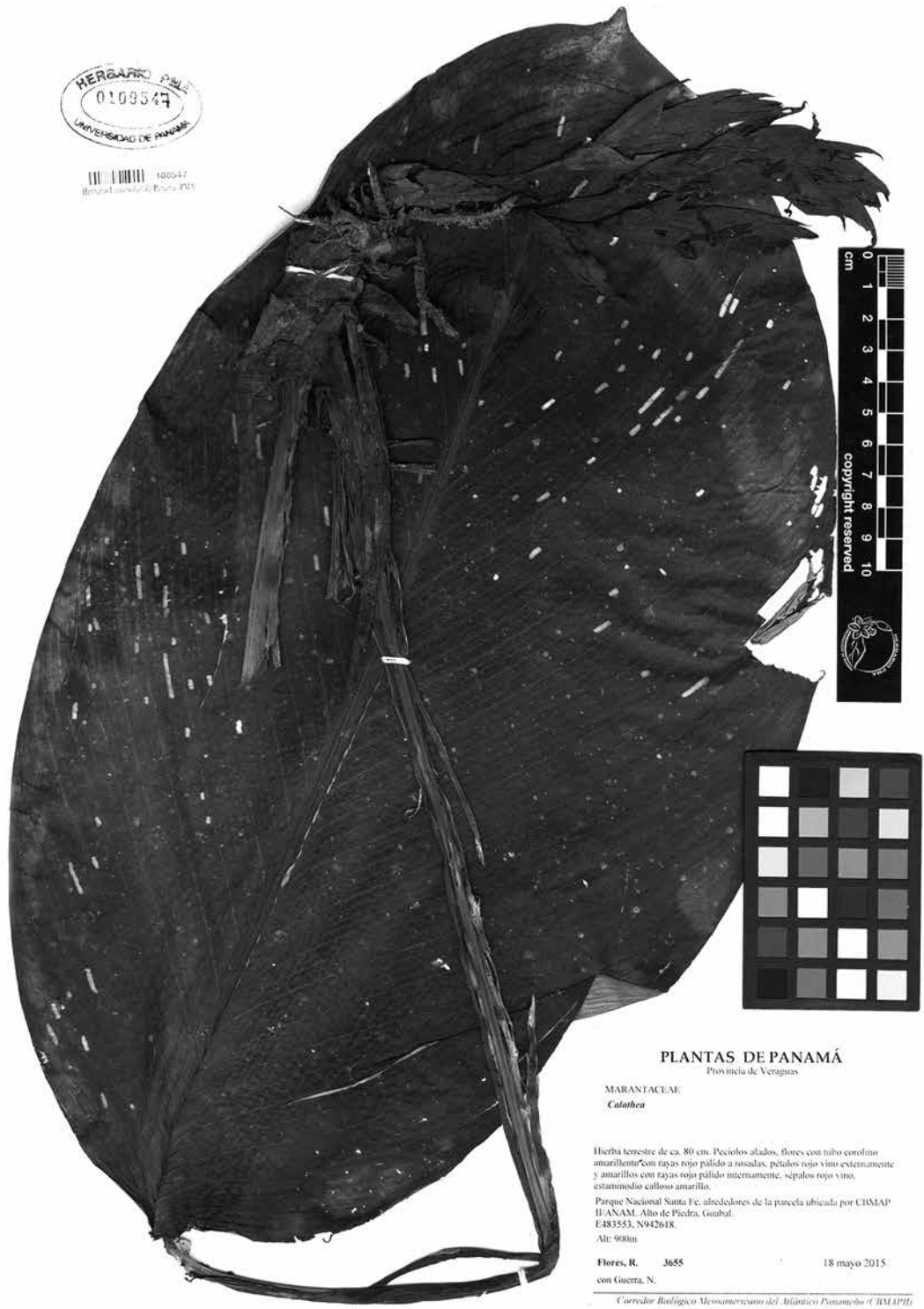


FIG. 1. *Calathea galdamesiana* H. Kenn. & R. Flores. **A.** Habit. **B.** Leaf base, pulvinus and apex of alate leaf sheath. **C.** Inflorescences subtended by cataphyll. **D.** Face view of untripped flower. **E.** Flower on adaxial leaf surface. (Flores & Guerra 3655, PMA, photos by Rodolfo Flores).



**PLANTAS DE PANAMÁ**  
Provincia de Veraguas

MARANTACEAE  
*Calathea*

Herba terrestre de ca. 80 cm. Peciolo alado, flores con tubo corolario amarillento con rayas rojo pálido a rosadas, pétalos rojo vino externamente y amarillos con rayas rojo pálido internamente, sépalos rojo vino, estaminodios calloso amarillos.

Parque Nacional Santa Fe, alrededores de la parcela ubicada por CHMAP II-ANAM, Alto de Piedra, Guabal.  
E:483553, N:942618.

Alt: 900m

Flores, R. 3655  
con Guerra, N.

18 mayo 2015

*Carretero Botánico Mesoamericano del Atlántico Panameño (CBMAP)*

Fig. 2. *Calathea galdamesiana* H. Kenn. & R. Flores. Holotype. Type scan provided by PMA (Flores & Guerra 3655, PMA).

usque recurvis (vs. amplexicaulibus), pulvino plerumque brevior (0.5–1 vs. 0.9–2.3 cm longo) atque inflorescentia fusiformi (vs. ovoidea) longitudinis cum latitudine proportione 3.2–4.5 (vs. ca. 2.5) distinguitur.

**Plants** rhizomatous, rosulate herbs, 50–80 cm; the inflorescences are borne on a leafless shoot directly from the rhizome; roots bearing swollen “root tubers” 4.3–6.5 × 2–3 cm; cataphylls narrowly ovate, apiculate, green. **Leaves** 5–8 basal; leaf sheath alate, the wings spreading, recurved, the abaxial surface, both wings and central back portion, light green, adaxial portion of wings deep green, central portion of leaf sheath lighter, 18–48 cm; petiole absent; pulvinus light yellow-green to cream-colored, minutely tomentose adaxially, 0.5–1 cm; leaf blade herbaceous, with pleated appearance (tissue between two adjacent veins planar), elliptic, apex obtuse to rounded with acumen, base obtuse to rounded, 23.5–46.2 × 19–25.5 cm (length:width ratios [1.34–]1.81–2.16:1) lateral veins 11 to 14 per 3 cm (measured at midpoint of each side of blade), vein angles from midrib 35°–42°, measured at midpoint of blade, adaxial surface grass-green, midrib yellow-green, noticeably lighter than blade, abaxial surface pale grey-green, midrib cream-colored. **Inflorescences** 1–4 per shoot, the first terminal, subsequent ones in the axil of the subtending cataphyll, imbricate, fusiform, 5.8–10.8 × 1.3–2.5 cm; peduncle red-purple, white if covered by cataphyll, 2.4–6.5 cm, the basal portion, ca. 2 cm, swollen, tissue growth more on one side, causing the inflorescence to be deflexed onto the ground. **Bracts** 6–12, spirally arranged, ovate, apical ones proportionally longer and narrower, apex acuminate, 4–5.9 cm long, abaxial surface of bracts red-purple to brownish purple, darker at margins and apex, becoming very dark, almost blackish purple, in age. **Flowers** open spontaneously. **Sepals** red-purple apically, basal half white, ca. 19 mm long. **Corolla** tube cream-colored to white, ca. 35 mm; corolla lobes subequal, elliptic, apex obtuse, red-purple abaxially, white adaxially with the veins seen as fine purple lines, 17–19 × 5–6 mm. **Staminodes** 3; outer staminode obovate, apex emarginate, yellow, ca. 14–17 × 8 mm; callose staminode totally callose, apex reflexed, obtuse with minute acumen to rounded or somewhat irregular, yellow basally, apical 1/3 dark red-purple, ca. 7 mm wide; cucullate staminode yellow, ca. 10 mm; stamen pale yellow with lateral petaloid appendage 1–3 mm wide; ovary pink, ca. 3 mm. **Fruits** and seeds unknown.

Additional specimens: **PANAMÁ. Veraguas:** Parque Nacional Santa Fe, alrededores de la parcela ubicada por CBMAP II/ANAM, cerca a la estación de ANAM, Alta de Piedra, Guabal, E483553 N942618, 3 Sep 2014, R. Flores, R. Vergara, R. Carranza & J. Aguirre 3654 (MO, PMA).

**Distribution and habitat.**—*Calathea galdamesiana* is endemic to Panamá. It is known only from the type locality in Parque Nacional Santa Fe, Veraguas Province. It occurs in premontane wet forest habitat. The only collections of it were at 900 m elevation.

**Discussion.**—*Calathea galdamesiana* belongs to *Calathea* section *Breviscapae* Benth. It is characterized by the 5–8 basal leaves per shoot, the elliptic leaf blades, the absence of a petiole proper, the margins of the leaf sheath are spreading and reflexed, the 1–4 fusiform inflorescences borne on a separate, leafless shoot directly from the rhizome, the petals red-purple abaxially, the outer and cucullate staminodes yellow and callose staminode yellow basally, apical 1/3 red-purple. *Calathea galdamesiana* shares a similar vegetative habit and leaf morphology with *C. panamensis* Standl. but differs in the elliptic vs. obovate to obovate-elliptic leaf blade, the 1–4 inflorescences borne on a separate leafless shoot vs. 1 (rarely 2) borne on the leafy shoot, the red-purple vs. green bracts and chasmogamous vs. cleistogamous flowers. The uncommon leaf morphology, shared with *C. panamensis* (alate, spreading, marginally recurved leaf sheath and lack of petiole) together with the inflorescences borne on a separate, leafless, shoot distinguish *C. galdamesiana* not only from other Panamanian species but from all Central American species and probably South American as well. The Brazilian species, *C. alboguinata* K. Schum., also has an alate leaf sheath, but there, the inflorescence is borne on the leafy shoot. The flower morphology of *C. galdamesiana* is most similar to that of *C. cleistantha* Standl. which also has the inflorescences borne on a separate leafless shoot. *Calathea galdamesiana* differs from *C. cleistantha* by the absence of a petiole and the margins of the leaf sheath spreading to recurved vs. petiole (0–)3.5–15 cm and the margins of leaf sheath clasping, the usually shorter pulvinus (0.5–1 vs. 0.9–2.3 cm), and the fusiform vs. ovoid inflorescence (length to width ratio 3.2–4.5:1 vs. <2.5:1).

The presence of the swollen “root tubers” in *C. galdamesiana* together with the thin textured, plicate leaf,

are commonly found in deciduous species such as *C. panamensis*, *C. latifolia* (Willd. ex Link) Klotzsch and *C. macrosepala* K. Schum. Whether this new species is possibly deciduous is not yet known.

*Calathea micans* (L. Mathieu) Körn., *C. microcephala* (Poepp. & Endl.) Körn. and *C. fucata* H. Kenn., in *Calathea* section *Microcephalum* Benth. also exhibit the swollen, and subsequent unequal-sided growth, of the base of the peduncles observed in *C. galdamesiana*. The growth of the base of the peduncle acts to deflex the inflorescence to the ground, usually when in fruit, in the case of *C. micans* and the related species, which are dispersed by ants (Horvitz & Beattie 1980). It is possible this is also the case in *C. galdamesiana* and merits further observation in the field.

*Etymology*.—The specific epithet, *galdamesiana*, is in honor botanist Carmen Galdames, research assistant at SCZ herbarium, Smithsonian Tropical Research Institute, Ancon, Panamá. It is a pleasure to thus recognize her contribution to our knowledge of the Panamanian flora through her collections, photographs, co-authorship of the *Catálogo de las Plantas Vasculares de Panamá*, her ethnobotanical studies and her generous assistance to the authors in the SCZ herbarium, including sharing her botanical knowledge.

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