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Guzmania sanluisensis (Bromeliaceae; Tillandsioideae), a new species from the fragmented montane cloud forests of northern Peru

MARISELA ANALU ROJAS-FERNANDEZ[1a], ERIC J. GOUDA[2] & JOSÉ LUIS MARCELO-PEÑA[1b*]
[1]*National University of Jaén, ISV Herbarium, Postal Code 06800, Cajamarca, Peru*
[a] *marisela.rojas@est.unj.edu.pe; https://orcid.org/0009-0009-7023-9424*
[2]*Botanic Garden, University of Utrecht (U), Utrecht, Netherlands*
E.J.Gouda@uu.nl; https://orcid.org/0000-0003-3578-8072
**Corresponding autor:* [b] *jose_marcelo@unj.edu.pe; https://orcid.org/0000-0002-0095-4643*

Abstract

Guzmania sanluisensis (Bromeliaceae) is described and illustrated, a new species from the severely fragmented cloud forests of the Jaén area, northern Peru. This species is recognized by its reddish to bright brown bracts and revolute white petals with purple spots at the apex. Its morphology is contrasted with related species. Additionally, information on ecological aspects, distribution, and conservation status is included.

Key words: Taxonomy, Poales, conservation, endemism, northern Peru

Introduction

The genus *Guzmania* Ruiz & Pav. (Bromeliaceae: Tillandsioideae) includes approximately 220 species, most of which are epiphytic (Gouda *et al.*, cont. upd.). Its distribution is mainly concentrated on the Amazonian and Pacific slopes of the Andes mountain range (Smith & Downs, 1977). It is characterized by an inflorescence that can be simple or compound, with capitate, digitate, generally with polystichous flowers. The flowers are bisexual, with partially fused sepals and highly fused or conglutinated petals, lacking basal appendages (nectary scales), which distinguishes it from other genera in the subfamily. *Guzmania* ranks second in species number within the subfamily, following *Tillandsia* L. (ca 798 sp.) and closely followed by *Vriesea* Lindl. (216 sp.; Gouda *et al.*, 2025).

In Peru, 41 species of *Guzmania* have been reported, distributed across the regions of Amazonas, Ayacucho, Cajamarca, Cusco, Huancavelica, Junín, Loreto, Madre de Dios, Pasco, Piura, Puno, San Martín, Tumbes, and Ucayali. These species inhabit environments ranging from sea level *Guzmania acutispica* E. Gross. in Rauh & Gross (1990:27) to altitudes of 3000 m *Guzmania xipholepis* Smith. (1963:248). Eleven species are endemic to Peru (Brako & Zarucchi, 1993; Ulloa *et al.*, 2004; León *et al.*, 2006; Gouda, 2012).

However, to date no endemism of this genus has been recorded in the department of Cajamarca, despite the fact that the region exhibits high levels of endemism. This is attributed to the complexity of its topography, the altitudinal gradients, and the presence of ecosystems such as dry forests, montane forests, shrublands, and isolated páramos, which provide diverse microhabitats favorable for speciation (León *et al.*, 2006).

Recent botanical explorations in the montane cloud forests of Jaén Province (Cajamarca, northern Peru), carried out by researchers from the Botany Laboratory and ISV Herbarium (Thiers, 2016) of the National University of Jaén, have led to the discovery of a new species for the genus *Guzmania*. This work describes its diagnostic morphological features, discusses its taxonomic affinities, and includes information on its ecology, distribution, and conservation status.

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Taxonomy

Guzmania sanluisensis **M.A. Rojas-Fernandez & J.L. Marcelo-Peña,** ***sp. nov.*** (Figs. 1 & 2)

TYPE: PERU. Cajamarca: Prov. Jaén. San Luis locality, 727275.025E, 9373478.795N (zone 17M), 2390 m. In humid montane forest, 21 March 2025 (fl.), M. A. Rojas-Fernandez, M. F. Orihuela-Aranda, D. J. Santacruz-Díaz, Y. Peña-Guerrero 202 (holotype: ISV).

Diagnosis: This species is closely related to *G. xipholepis,* but differs from it by its more robust inflorescence with peduncle up to 25 mm in diameter (vs. an inflorescence with peduncle 14 mm in diameter); primary bracts ovate, apiculate, 60–70 mm long, exceeding spikes (vs. orbicular bracts 50 mm long); spikes ellipsoid, subsessile, 60–70 mm long (vs. spikes globose, sessile 50 mm long); petals 29 mm long, tightly fused for 22–25 mm, with revolute apices (vs. petals 15 mm long, claws conglutinated into a tube and extended lamellae).

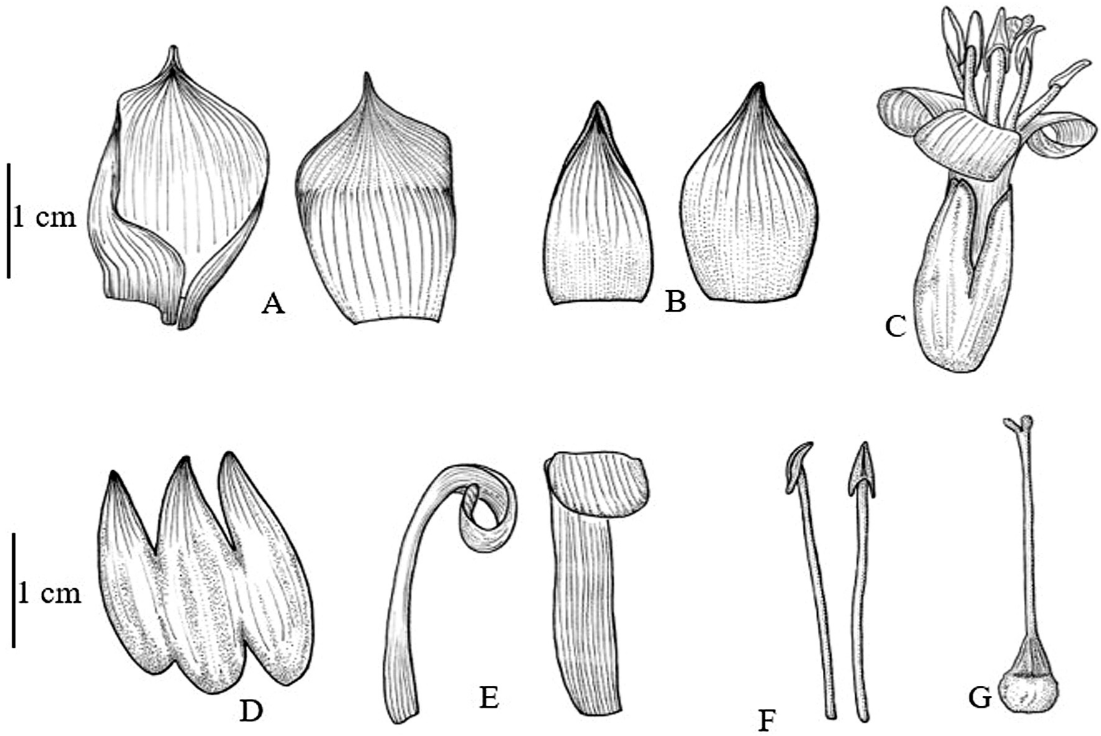

FIGURE 1. Floral structures of *Guzmania sanluisensis* A. Primary bracts (adaxial and abaxial views). B. Floral bracts (adaxial and abaxial views). C. Flower. D. Sepals (abaxial). E. Petals (lateral and abaxial view). F. Stamens. G. Pistil (Drawing from the type M.A. Rojas-Fernandez 202, by Sara Terreros).

Description

Plant acaulescent herb flowering up to 1.5 m in height, epiphytic or terrestrial; with numerous leaves forming a broadly funnelform rosette. **Leaves** up to 68 cm long, thin coriaceous; *sheaths* distinct 10–11 cm wide, cream-colored; *blade* lingulate, acuminate, , 55–60 cm long, 7–8 cm wide, glabrous, canaliculate for most of its length, green. **Peduncle** erect, very robust, 20–25 mm in diameter, green to brown; *peduncle bracts* imbricate, erect with slightly divergent blade, exceeding the internodes, ovate, 11 cm long, 4–5 cm wide, acuminate or acute, the lower ones green, the upper ones largely chestnut-colored, striate at the base, glabrous. **Inflorescence** laxly once-branched, fertile part 54–60 cm long; axis robust, 15–18 mm in diameter, slightly flexuous, green to brown; primary bracts broadly ovate, broarly rounded and apiculate, 60–70 mm long, 60 mm wide, thin coriaceous, pale green with reddish to bright brown striations and margins to wholly brown with nearly black apical margins. **Spikes** subsessile, ellipsoid, 60–70 mm long, 50–60 mm in diameter, with ca 25 densely polystichous flowers. **Floral bracts** ovate, acuminate or apiculate, 25–40 mm long, exceeding the sepals, ecarinate, densely imbricate and contiguous with each other except the subulate ápex, reddish to bright brown, with darker margins and apex. **Flowers** subsessile; *sepals* connate for 6–7 mm at the base, ovate-lanceolate, symmetrical, slightly incurved, 15–20 mm long, 5 mm wide, acute, coriaceous, bluntly carinate, cream-colored lower half, brown in upper half to reddish at the margins, keel and apex; *petals* cream colored with purple spots and striations toward the apex and margins (especially abaxially) , 29 mm long, lower 2/3 connate and adnate to the stamens, the free blade revolutely coiled. **Stamens** exserted; *filament* complanate of equal length, slightly vending outward, whitish; *anther* dorsifixed below the middle, sagittate, yellowish-brown; *pistil* exserted, about the same length as stamens; *ovary* ovoid, pyriform, greenish-white; *style* long, slender, soft; *stigma* trilobed, whitish.

FIGURE 2. *Guzmania sanluisensis* : A. Habitat, a plant growing epiphytically in humid montane forests. B. Habit of the type specimen growing terrestrially. C. Inflorescence of the type specimen. D. Spike with flowers, showing the revolute coiled petals, and exserted stamens and pistil. E. Spike with a flower, showing the reddish to bright brown floral bracts and the whitish petals with purple spots and striations toward the ápex. (Photograph by M.A. Rojas-Fernandez).

Distribution and habitat

Guzmania sanluisensis occurs in the montane cloud forests of "San Luis del Nuevo Retiro", Cajamarca (northern Peru), where a variety of microhabitats exist. It grows epiphytically on tree trunks and branches, and can also be found on the forest floor, at an altitude of 2390 m. This species is associated with a diverse set of plant taxa characteristic of these ecosystems, including *Magnolia manguillo* Marcelo-Peña & F. Arroyo, *Cedrela angustifolia* DC., as well as species of *Ficus*, *Miconia*, *Cavendishia*, *Hedyosmum*, *Weinmannia*, *Hieronyma*, *Piper*, and *Cyathea*. Flowering has been observed in mid-March.

Conservation status

Guzmania sanluisensis is an extremely rare species with a very restricted distribution. After three botanical expeditions of three to four days each, only five individuals were recorded. Its habitat is severely threatened by deforestation, agricultural expansion, and grazing, factors that intensify fragmentation and loss of forest cover, in addition to the potential effects of climate change by altering precipitation and increasing the frequency of droughts. The extent of occurrence (EOO) cannot be accurately estimated because only one recording point is available, while the area of occupancy (AOO) is formally estimated at 4 km², although the actual value is considerably lower (<0.1 km²). Based on its presence in a single location, the low population abundance, and current threats, we propose its preliminary categorization as Critically Endangered (CR) under IUCN criterion B2ab(iii) (2024).

Etymology

The species epithet refers to San Luis del Nuevo Retiro, where the species was discovered. This locality is part of the montane cloud forests of northern Peru, rich in plant diversity, where new species have been recently reported (Marcelo-Peña & Arroyo, 2013; Reynel & Marcelo-Peña, 2025), suggesting that many more remain unknown to science. The authors hope that this designation will encourage conservation efforts in these forests, which are undergoing severe fragmentation due to agricultural and livestock expansion.

Observations

Guzmania sanluisensis is morphologically similar to *G. xipholepis*, but it is distinguished by several vegetative and reproductive characteristics (see table 1). The description of *G. xipholepis* was based on the online Encyclopedia of Bromeliads by Gouda *et al.* (2025).

TABLE 1. Comparison of morphological characteristics of *Guzmania sanluisina* M.A. Rojas-Fernandez & J.L. Marcelo-Peña, *sp. nov.*, with *G. xipholepis* L.B. Sm.

***G. xipholepis* L.B.Sm.**	***G. sanluisensis sp. nov.***
Plant flowering 1.6–2 m in height.	**Plant** flowering up to 1.5 m in height, epiphytic or terrestrial.
sheath elliptic, 12 cm wide, brown below with a narrow, pale margin.	**sheaths distinct,** 10–11 cm wide, cream-colored
leaf blade apex broadly subacute or apiculate, flat, glabrous daxially, dark lepidote abaxially.	**leaf blade** apex acuminate, glabrous on both sides canaliculate.
leaves up to 80 cm long	**leaves** up to 68 cm long, slightly leathery
Inflorescence 40–50 cm long	**Inflorescence** 54–60 cm long
Peduncle, ca 1.4 cm in diameter.	**peduncle** , 2–2.5 cm in diameter.
peduncule bracts the upper ones elliptical, acute.	**peduncule bracts** ovate, acuminate or acute.
primary bracts orbicular, ca 5 cm long and fully covering the spikes, the upper ones approximately half the length of the spikes.	**primary bracts** broadly ovate, 6–7 cm long.
spikes globose, sessile, 5 cm long.	**spikes** ellipsoid, subsessile, 6–7 cm long.
floral bracts acute.	**floral bracts** acuminate or apiculate.
sepals 2.2 cm long, equally connate for 4 mm, brown when dry	**sepals** 1.5–2 cm long, connate for 6–7 mm, 5 mm wide, acute, coriaceous, almost free, cream-coloured, in lower half, brown in upper half and reddish brown at the apex margins, keel and apex.
petals yellow, 1.5 cm long, with spreading Blade.	**petals** oblanceolate, whitish with purple spots and striations toward the apex, 2.9 cm long, with revolute coiled blade.

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