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Begonia jurgenneae (Begoniaceae, section *Petermannia*), a new endemic species from Panay Island, Philippines

Harold O. BUENVENIDA[1,2,#,*], Mark Arcebal K. NAIVE[3,4,#,*], Lillian Jennifer V. RODRIGUEZ[2,5]

1. *Capiz State University, Pontevedra Campus, Bailan Pontevedra, Capiz 5802 Philippines.* ***2.*** *Institute of Biology, University of the Philippines Diliman, Quezon City 1101, Philippines.* ***3.*** *Center for Integrative Conservation and Yunnan Key Laboratory for Conservation of Tropical Rainforests & Asian Elephants, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences, Mengla, Yunnan 666303, China.* ***4.*** *University of Chinese Academy of Sciences, Beijing 100049, China.* ***5.*** *Natural Sciences Research Institute, University of the Philippines Diliman, Quezon City, 1101, Philippines.* [#]*Co-first authors;* [*]*Corresponding authors' emails: HOB: hobuenvenida@up.edu.ph; MAKN: mark@xtbg.ac.cn*

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ABSTRACT: We describe and illustrate *Begonia jurgenneae*, a newly discovered species from Capiz and Iloilo Provinces, Panay Island, Philippines. A complete taxonomic treatment is here provided including a comprehensive morphological description, diagnostic comparisons with allied taxa, a phenological data, a distribution map, color images, and a preliminary conservation assessment.

KEY WORDS: *Begonia incisa*, *Begonia quercifolia*, Biodiversity, endangered, species discovery, tropical forest, Western Visayas.

INTRODUCTION

Panay Island, a biogeographic crossroads in central Philippines, has long been recognized as a Pleistocene biodiversity refuge due to its unique geologic history (Fernando *et al*., 2008). Unlike most Philippine islands that emerged from oceanic subduction, Panay's complex tectonic origin which—involved the collision of the Palawan Microcontinental Block with the Philippine Mobile Belt during the Miocene (Hall, 2002)—created isolated limestone terranes and high-elevation mountains that favored species diversification. These ancient geologic processes explain the island's disproportionate endemic diversity, particularly in a diverse taxa like *Begonia*. According to Hughes *et al.* (2015–), *Begonia* is represented in Panay Island by 19 taxa (including one natural hybrid *Begonia* × *dinglensis* Rubite, C.I Peng, Koh Nakam. & K.F.Chung) of which 10 are known to be island endemics. We posit that this number will rise with ongoing botanical exploration, as new species discoveries and or new records further establish Panay Island as a living laboratory for plant diversification.

During our recent botanical expedition to Panay Island's forests in the province of Capiz in May 2021, we encountered an unknown *Begonia* belonging to section *Petermannia*. This species was previously collected by M. Ramos & G. Edaño (*M. Ramos & G. Edaño 31353*) and C.I. Peng at Jamindan, Capiz (*Peng et al. 23834, 23837, 23838*) in 2012, and documented in Iloilo by Pieter Pelser and Julie Barcelona in 2014 (CUBIC 110210, CUBIC 110232, CUBIC 110238, CUBIC 110271, CUBIC 110276, CUBIC 110307, CUBIC 110340, CUBIC 110350; Pelser *et al*., 2011 onwards). Morphological examination and comparative analysis with other species from *Begonia* section *Petermannia* occurring in the Philippines (Merrill, 1912, 1923; Ang *et al.*, 2024) and neighboring countries (Hughes *et al.*, 2015–; Kiew, 2015) revealed unique diagnostic characters distinguishing it from all described congeners. Therefore, we herein describe it as *Begonia jurgenneae*, a species new to science and the 20th representative of the genus for Panay Island. A complete taxonomic account is provided below, including detailed morphological descriptions, geographical distribution, habitat, phenology, conservation status and a discussion on its taxonomic affinities.

MATERIALS AND METHODS

The new species was described using field photographs and live and preserved specimens. Morphological descriptions follow the style of Naive *et al.* (2024), with plant terminology standardized according to Beentje (2010) and herbarium codes conform to Index Herbariorum (Thiers, 2025–). A comparative morphological analysis was performed by examining type specimens and relevant literature in the Philippines and Malesian *Begonia* sect. *Petermannia* species through digital repositories including the Begonia Resource Centre (Hughes *et al*., 2015–) and the Global Biodiversity Information Facility (GBIF, 2025). Distribution analysis include georeferenced data from both historical collections and our field surveys, using GeoCAT (Bachman *et al*., 2011) to calculate the extent of occurrence (EOO) and area of occupancy (AOO) to provide a preliminary IUCN Red List assessment following current guidelines (IUCN, 2024).

TAXONOMIC TREATMENT

Begonia jurgenneae Naive & Buenvenida, ***sp. nov.***
§ *Petermannia* **Fig. 1**

***Type*:** PHILIPPINES. Panay Island, Capiz Province, Pilar, Radar/Yating, elev. 400 m, 11.393N, 123.030E, 8 May 2021, *H.O. Buenvenida HOB-2021-023* (holotype: PNH261953!; isotypes: PUH, CAHUP, SING, Capiz Ecology and Conservation Center 0028-2021-E!).

***Diagnosis*:** Close to *Begonia quercifolia* (=*B. leytensis*), a species from Samar and Leyte Island, but can easily be recognized by having a lanceolate stipule (vs. linearly oblong stipule in *B. quercifolia*), lanceolate leaf lamina with 5–7 primary veins (vs. oblong to ovately oblong leaf lamina with 3–4 primary veins in *B. quercifolia*), and sparsely pubescent capsule with acute wings apex (vs. glabrous capsule with conspicuous wings apex in *B. quercifolia*).

Description*:** Monoecious, epipetric to terrestrial, herbaceous, succulent plant, up to 26 cm tall. ***Stem cylindrical, inconspicuously corrugate, 4–6 mm in diameter, strigose, red to reddish green, internode 0.7–3.4 cm long. ***Leaves*** alternate, held horizontally, petiolate, stipulate; *stipule* 2, persistent, lanceolate, 9–11 × 5–7 mm, sparsely strigose, light green to yellowish green, margin entire, apex cuspidate; *petiole* cylindrical, inconspicuously corrugate, up to 4.5 cm long, 4.0–4.5 mm diameter, succulent, densely strigose, scarlet to reddish green; *lamina* asymmetrical, narrowly ovate, slightly falcate, 11.0–15.31 × 4.5–5.8 cm, chartaceous, adaxially olive green, sparsely pubescent to densely pubescent, abaxially pale green to maroon, glabrous except the glabrous to strigose veins, margin irregularly sinuate to distally irregularly serrate, base asymmetrically cordate, apex long acuminate; *venation* palmately pinnate, with 5–6 primary veins, actinodromous, adaxially sunken, green, glabrous, abaxially protruding, pale green, glabrous to pubescent. ***Inflorescence*** terminal, simple cyme, monochasial, up to 7 cm long, staminate and pistillate flowers on separate cincinnae, pistillate flower basal; *peduncle* cylindrical, inconspicuously corrugate, 2.5–3.3 cm long, 1–3 mm in diameter, succulent, light to reddish green, glabrous or sparsely pubescent; *rachis* cylindrical, 1.3 cm long, glabrous to puberulent, whitish green; *floral bracts* persistent, broadly ovate, 5–6 × 6 mm wide, glabrous, light green, translucent, membranous, margin distally serrulate, ciliate, apex acute to attenuate. ***Staminate flowers*** 1 or 2 clustered in cincinnus, up to 1.9 cm long; *pedicel* cylindrical, inconspicuously corrugate, 1.2–1.5 cm long, 0.7–1.0 mm in diameter, sparsely pubescent, pale pink to greenish white; *tepals* 2, orbicular, 1.0–1.1 × 1.2 cm, ventrally glabrous, dorsally sparsely pubescent, white with pale pink apex to pale greenish white, margin entire, slightly recurved, apex rounded; *androecium* 3–4 mm across, symmetrical; *stamens* ± 35, up to 2.8–3.0 mm long; *filament* free except the fused base, cylindrical, terete, 0.8–1.2 mm long, 0.4–0.5 mm in diameter, glabrous, golden yellow; *anther* obcordate, 1.2–1.4 × 0.8–0.9 mm, glabrous, base cuneate, apex emarginate. ***Pistillate flower*** solitary, up to 2.8 cm long, strongly recurved; *pedicel* cylindrical, inconspicuously corrugate, up to 1.4 cm long, 1.5–2.0 mm in diameter, light green, pubescent; *ovary* 3-locular, bell shaped, 1.3 × 1.3 cm (wings included), 0.6 cm wide (wings excluded), sparsely pubescent, apex truncate, wings unequal, apex rounded to retuse, placentation axile, bilamellate; *tepals* 5, lanceolate to broadly obovate, outer 2, 10–12 × 5 mm, inner 3, 10.0–12.0 × 5.5–6.0 mm, white, ventrally glabrous, dorsally occasionally pubescent, margin entire, apex rounded to obtuse; *style* basally fused, 3-branched, up to 6 mm long, each stylodium bifurcate in the stigmatic region, golden yellow, stigmatic surface spirally twisted, papillose all around. ***Fruit*** solitary, up to 3.5 cm long, strongly recurved; *pedicel* cylindrical, inconspicuously corrugate, 2 cm long, 1.0–1.8 cm in diameter, reddish green, pubescent; *capsule* bell-shaped, 1.8 × 1.7 cm (wings included), 5–6 mm wide (wings excluded), reddish green to maroon, sparsely pubescent, apex truncate, wings unequal, apex acute.

***Distribution and habitat*:** Endemic to Panay Island (Fig. 2) where it grows on rocky slopes with clay-loam soil in deeply shaded habitats, as well as on semi-shaded, moist limestone outcrops near streams at 60–600 m above sea level.

***Phenology*:** Observed flowering and fruiting from May to December.

***Etymology*:** This species is named in honor of Dr. Jurgenne Honculada-Primavera, whose pioneering work in mangrove conservation and community-based protection has become foundational to preserving Philippine biodiversity.

***Provisional conservation status*:** The species was currently documented in eight localities, with fewer than 100 mature individuals recorded. Its estimated Extent of Occurrence (EOO) is 2,359.819 km², and its Area of Occupancy (AOO) is 32 km². Populations were observed in secondary forests, unprotected areas, and agricultural land, where habitat conversion threatens their survival. In view of these and in accordance with the IUCN Standards and Petitions Committee (2024), we propose a provisional conservation status of 'Endangered' [EN B1ab(i,ii,v),B2ab(i,ii,v)].

Additional specimens examined **(paratypes):** Philippines, Panay Island, Capiz, Jamindan, Apr–May 1918, *M. Ramos & G. Edaño 31353* (US barcode 00328424!); Philippines, Panay Island, Jamindan, Brgy. Agcagay, Suhoton Cave, elev. 95 m, 11.4306N, 122.5217E, 22 Jun 2012, *Peng et al. 23834* (HAST barcode 133512!); Philippines, Panay Island, Jamindan, Brgy. Agcagay, Suhoton Cave, elev. 95 m, 11.4306N, 122.5217E, 23 Jun 2012, *Peng et al. 23837* (HAST barcode 133516!); Philippines, Panay Island, Jamindan, Brgy. Agcagay, Suhoton Cave, elev. 95 m, 23 Jun 2012, *Peng et al. 23838* (HAST barcode 133517!). Philippines, Panay Island, Capiz, Dumalag, Suhot cave, elev. 60 m, 3 Oct 2006, *R. Rubite 328* (HAST barcode 118791!); Philippines, Panay Island, Capiz, Tapaz, Brgy. Aglinab, elev. 200 m, 6 Oct 2006, *R. Rubite 332* (HAST barcode 118793!).

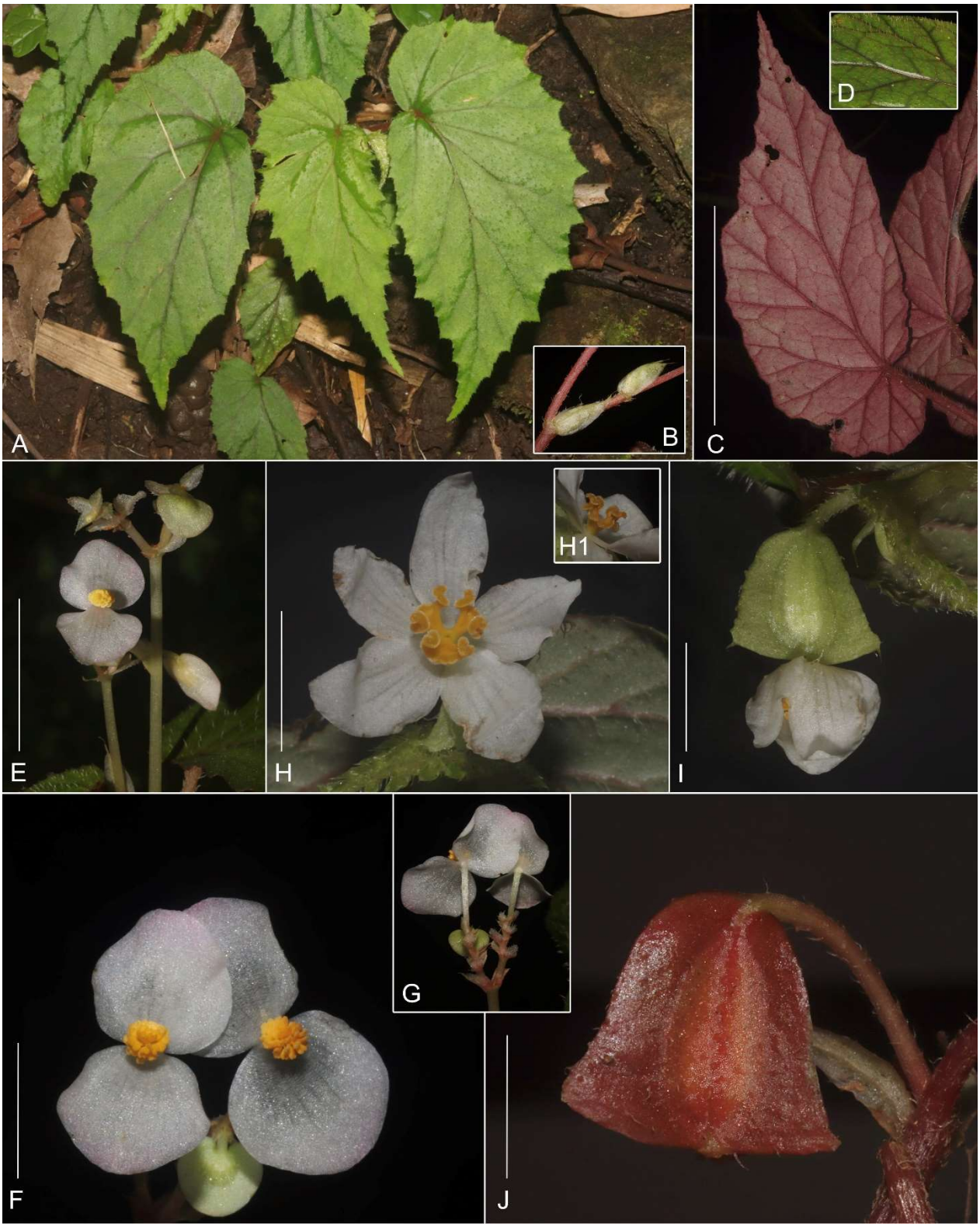

Fig. 1. ***Begonia jurgenneae*** Naive & Buenvenida **A.** Habit in situ **B.** Stipules **C.** Abaxial leaf surface; **D.** Adaxial leaf surface **E.** Male inflorescence **F.** Ventral view of staminate flowers **G.** Dorsal view of staminate flowers **H.** Ventral view of pistillate flower; H1. Details of style **I.** Lateral view of pistillate flower showing ovary and pedicel **J.** Profile view of the fruit. Scale: C: 5 cm; E–F, H–J: 1 cm. Photos by MAK Naive.

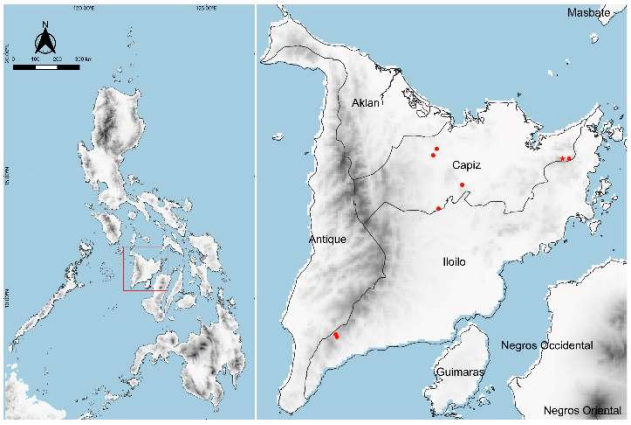

Fig. 2. Distribution of ***Begonia jurgenneae*** Naive & Buenvenida across Panay Island. The red star indicates the type locality, whereas red circles indicate localities where the species was previously documented and collected.

***Notes*:** *Begonia jurgenneae* was previously misidentified as *B. incisa*, however, the new species can be easily distinguished by its longer petiole (vs. shortly petiolate in *B. incisa*), a lanceolate leaf lamina with irregularly sinuate to serrulate margin (vs. obovate or oblong leaf lamina with deeply lobed margin in *B. incisa*), and a monochasial, simple cyme inflorescence (vs. dichasial, compound cyme in *B. incisa*). This species is also similar to *B. contracta* Warb., *B. cumingiana* (Klotzsch) A.DC. and *B. cumingii* A.Gray but differs significantly in inflorescence architecture (simple, monochasial cyme vs. compound, dichasial cyme) and geographic distribution (Panay Island vs Luzon Island).

Among other species of *Begonia* sect. *Petermannia* from Panay Island, *B. jurgenneae* closely resembles *B. everettii* Merrill but can be easily distinguished by its pubescent vegetative and reproductive organs (vs. glabrous vegetative and reproductive organs in *B. everettii*), a lanceolate leaf lamina with irregularly sinuate to serrulate margin (vs. oblongo–ovate to broadly oblong with distantly toothed and repand to denticulate margin in *B. everettii*), a simple cyme inflorescence with white flowers and a smaller capsule with unequal wings (vs. a larger capsule with equal wings in *B. everettii*).

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