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Begonia gigang (section *Petermannia*: Begoniaceae), a new species from Zamboanga Peninsula, Mindanao Island, Philippines

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Abstract. A new species of *Begonia* from Zamboanga del Norte, Mindanao Island, Philippines, is described. *Begonia gigang* is morphologically similar to *Begonia corazoniae* but can be distinguished by having smaller leaves which are hirsute on both surfaces, longer panicles and peduncles, shorter pedicels for both staminate and pistillate flowers, and trigonous-ellipsoid ovary. *Begonia gigang* is assessed as Endangered under the IUCN Red List Categories and Criteria. A detailed description, photographs, and ecological notes, and are provided.

Keywords: *Begonia corazoniae*, *Begonia tinuyopensis,* endangered, endemic, taxonomy.

INTRODUCTION

The genus *Begonia* L. is one of the most rapidly expanding genera of Angiosperm, comprising approximately 2167 species in the tropical and subtropical regions (Hughes et al. 2015; Moonlight et al. 2018). In the Philippines, a total of 177 species of *Begonia* were reported, and the region of Zamboanga Peninsula harbors 22 taxa (Mazo et al. 2024; Pelser et al. 2011).

A field survey was conducted in the municipality of President Manuel A. Roxas (PMAR), and Katipunan in 2023 and 2024 (Fig. 1). During the survey, specimens of *Begonia* with a decumbent habit, obliquely ovate leaves with light green to yellowish spots occurring at the branching of veins, and terminal inflorescences were documented. The specimens belong to *Begonia* section *Petermannia* because of their erect to suberect habit, 3-locular ovary, and axillary or terminal inflorescences where staminate flowers are distal and pistillate flowers basal, two to four-tepaled staminate flowers and five-tepaled pistillate flowers (Rubite 2012). Based on the observation of its morphological characters, comparisons with related species, and a thorough review of the literature, it is proposed that the taxon in question represents an undescribed species.

This paper describes a new species of *Begonia* from Zamboanga del Norte, Philippines under morphological species concept (Cronquist 1978). This discovery raises the number of *Begonia* species known from the Zamboanga Peninsula region to 23.

MATERIALS AND METHODS

The specimens of *Begonia gigang* were collected under Wildlife Gratuitous Permit (GP) No. IX-2023-11 issued by the Department of Environment and Natural Resources (DENR) Region 9 and deposited at PNH and FEUH. Morphological observations and measurements were conducted using both fresh specimens and photographic images captured in situ. Specimens of *Begonia* section *Petermannia* from the Philippines and neighboring countries, including recent publications on the genus, were thoroughly examined. The conservation assessments of species were made following the IUCN Standards and Petitions Subcommittee (2022).

TAXONOMIC TREATMENT

Begonia gigang Mazo & Rubite, **sp. nov.** (Fig. 2); Section *Petermannia*

Type: Philippines. Mindanao, Zamboanga del Norte, municipality of President Manuel A. Roxas, Barangay Sebod, 290 m a.s.l., 4 June 2023, *K.R.F. Mazo 112* (holotype PNH; isotype FEUH).

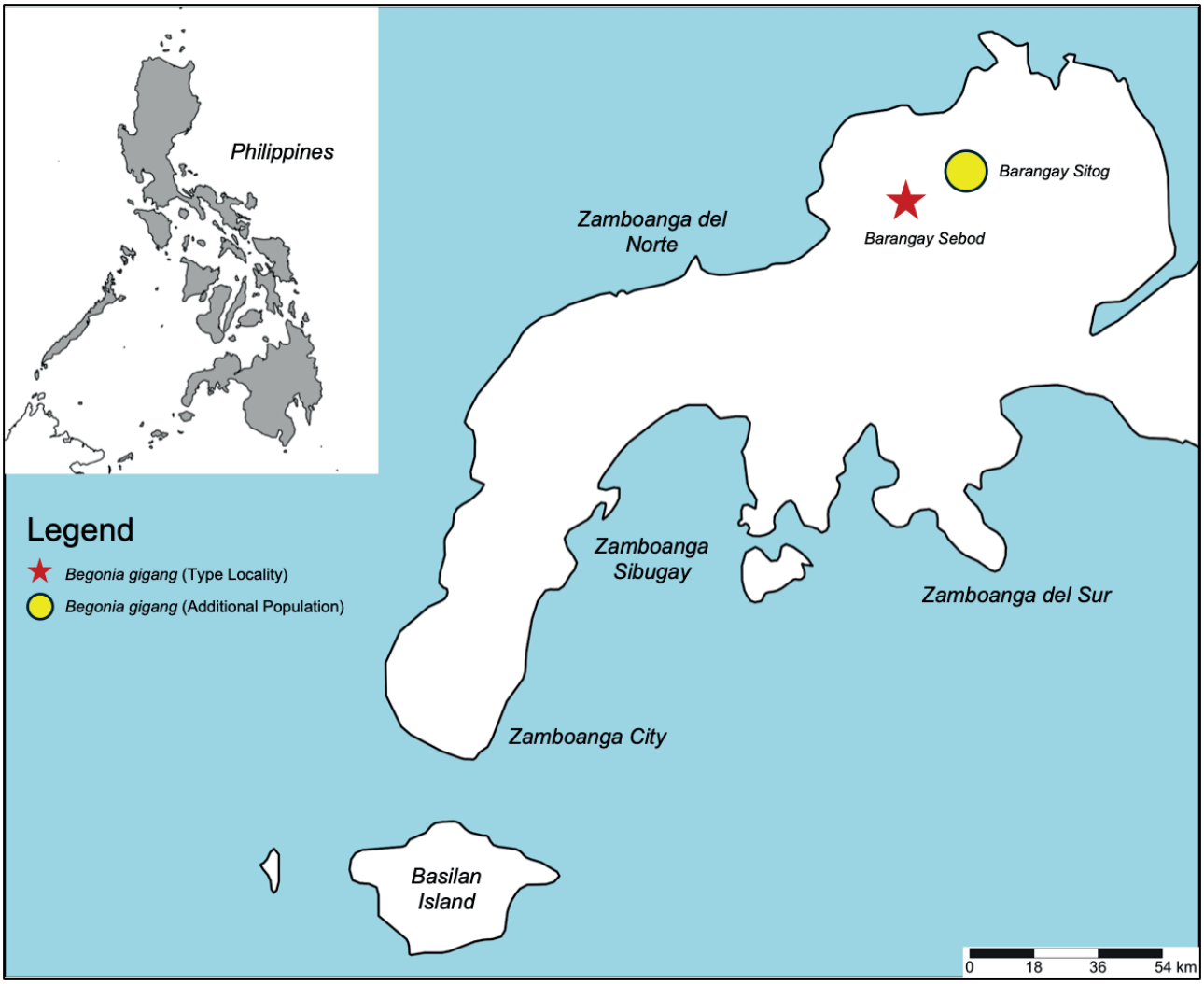

Figure 1. Distribution map of *Begonia gigang* Mazo & Rubite.

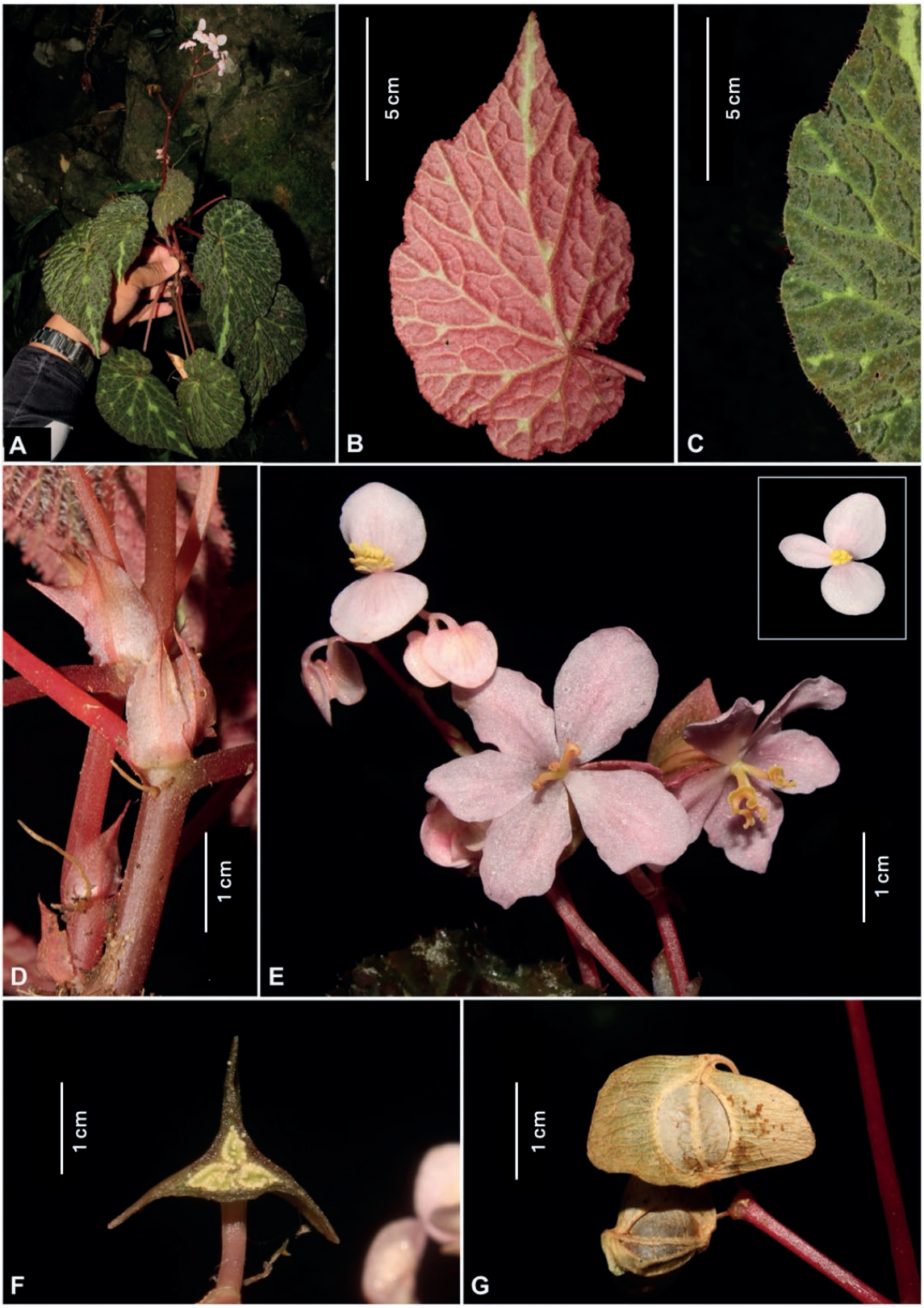

Figure 2. *Begonia gigang* Mazo & Rubite. A. Habit; B. Leaf adaxial surface; C. Leaf abaxial surface showing leaf margin; D. Stem and stipules; E. Staminate and pistillate flowers, inset 3-tepaled staminate flower; F. Cross-section of the ovary; G. Capsules. *All from K. R. F. Mazo 112.*

Diagnosis

A species similar to *Begonia corazoniae* Naive (Naive et al. 2024) in having lamina with greenish to yellowish spots and variegations on the veins but differs in having smaller leaves (10.0–14.5 × 5–7 cm vs. up to 21 × 10.0–13.3 cm) which are hirsute on both surfaces (vs. glabrous), longer panicles and peduncles (15–23 cm vs. 8–13 cm; 9–12 cm vs. up to 4 cm), shorter pedicels for both staminate and pistillate flowers, and trigonous-ellipsoid ovary (vs. trapezoid to obovoid).

Description

Herb monoecious, perennial, terrestrial, or lithophilic, up to 20 cm tall. Stem decumbent stem, 4–6 mm in diameter, reddish maroon, glabrous, internodes 1.0–3.5 cm long, rooting at the lower nodes. Stipules persistent, triangular to broadly ovate, 13–19 × 7.5–9.5 mm, pinkish red, glabrous, margin entire, keeled, apex aristate, arista up to 3.5 mm long. Leaves alternate; petiole terete, 6.5–15 cm long, 3–5 mm in diameter, reddish maroon, sparsely pilose, hairs denser near the leaf base; lamina asymmetric, basifixed, ovate, 10.0–14.5 × 5–7 cm, base obliquely cordate to rounded, lobes rounded, overlapping, margin distantly crenate, ciliate with maroon trichomes (up to 1.2 mm long); apex acuminate; adaxially dark green with light green spots occurring at the branching of veins, reddish brown hirsute, abaxially maroon with yellowish spots occurring at the branching of veins, reddish brown hirsute, dense on the primary and secondary veins; venation palmate, primary veins 6–7, sunken adaxially and raised abaxially, branching dichotomously. Inflorescence terminal or in the upper axils, bisexual, protogynous; panicle 15–23 cm long, few-flowered; peduncle 9–12 cm long, pinkish red, glabrous; pistillate flower 1–3, arising from the base of inflorescence; staminate flower distal, on cyme branching up to 3 times, producing up to ca. 10 flowers. Bracts caducous, pinkish white, glabrous; lowermost bract lanceolate, 6–7 × 2–3 mm, margin entire, apex apiculate; uppermost bract oblanceolate, 3–4 × 1.5–2.0 mm, margin entire, apex rounded. Staminate flower pedicel 2–6 mm long, pinkish or white, glabrous; tepals 2 (rarely 3), ovate to broadly ovate, 6–11 × 7.0–10.5 mm, pinkish, glabrous on both surfaces, margin entire, apex rounded; androecium zygomorphic, stamens 15–20, filaments fused at base; anthers broadly elliptic, apex retuse, dehiscing through 2 slits. Pistillate flower pedicel 10–15 mm long, pinkish, glabrous; tepals 5, pinkish, glabrous; outer tepals 2, elliptic to obovate, 10.5–13.3 × 6–8 mm, apex rounded to obtuse; inner tepals 3, obovate, 9–13 × 6.5–9.0 mm, apex obtusely rounded; styles 3, yellow, apically bifid, 4.7–5.6 mm long, stigmas in spiral band and papillose all around. Ovary trigonous-ellipsoid, 7.5–10 × 5.0–6.7 mm (wings excluded), brownish red to yellowish green, glabrous, wings three, subequal, brownish red to yellowish green, truncated distally, 7–12.5 × 5.3–10 mm; locules 3, placenta bilamellate. Capsule nodding, trigonous-ovate, 10–13 × 16–20 mm; pedicel recurved, 11–13 mm long; wings three, subequal, truncate distally, unequal proximally, 10–14 mm long, 5.5–11 mm wide.

Etymology

The specific epithet is derived from the Subanen dialect refers to the rock formations where the new species was found.

Phenology

Observed flowering and fruiting from February to June.

Distribution and ecology

Begonia gigang is endemic to Zamboanga Peninsula, and known only from barangay Sebod, President Manuel A. Roxas, and barangay Sitog, Katipunan, Zamboanga del Norte (Fig. 2). It grows on rocks near water bodies in full and partially shade areas at 250–400 m elevation.

Notes to similar species

In the region of Zamboanga Peninsula, island of Mindanao, southwestern Philippines, *B. gigang* is similar to *B. tinuyopensis* Mazo et al. (2021) in having a decumbent stem, persistent stipules, obliquely ovate leaves, terminal inflorescences with 2-tepaled staminate and 5-tepaled pistillate flowers, and 3 subequal winged capsules. However Table 1 shows that it differs from *B. tinuyopensis* by having puberulent stems (vs. glabrous), larger stipules (5–7 mm × 2.5–3 mm vs. 13–19 × 7.5–9.5 mm), longer petioles (6.5–15 cm vs. 1.8–4.5 cm), larger leaves (10.0–14.5 cm × 5–7 cm vs. 3.8–6.4 cm × 2.5–4.5 cm) with distantly crenate margins (vs. irregularly doubly-serrate to serrate), with light green to yellowish spots occur at the branching of veins, longer panicles (15–23 cm vs. 3–8 cm), lanceolate to oblanceolate bracts (vs. ovate to orbicular) and capsules that are unequal proximally (vs. obtusely rounded).

Proposed conservation assessment

Begonia gigang is known from the two municipalities in Zamboanga del Norte: President Manuel A. Roxas and Katipunan. In the type locality, about 10 populations with 6–15 individuals, and within the municipality

Table 1. Morphological comparison of *B. gigang, B. corazoniae* and *B. tinuyopensis.*

Characters	*Begonia gigang*	*B. corazoniae*	*B. tinuyopensis*
Stipule			
Duration	persistent	persistent	persistent
Dimension (mm)	13–19 × 7.5–9.5	18–22 × 10–13	5–7 × 2.5–3
Leaves			
Petiole length (cm)	6.5–15	up to 18	1.8–4.5
Petiole vestiture	sparsely pilose	glabrous	hirsute
Lamina dimension (cm)	10.0–14.5 × 5–7	up to 21 × 10.0–13.3	3.8–6.4 × 2.5–4.5
Vestiture	hirsute at both surfaces	glabrous at both surfaces	hirsute at both surfaces
Adaxial color	dark green with light green spots occurring at the branching of veins	green to dark purplish green with dull greenish-yellow spots and variegation on the veins	adaxially green or dark green to reddish brown
Abaxial color	maroon with yellowish spots occurring at the branching of veins	purplish-red with reddish-green veins	abaxially light red to maroon
Margin	distantly crenate	erose and ciliate	irregularly doubly-serrate to serrate
No. of primary veins	6–7	8–9	5–6
Inflorescence			
Panicle length (cm)	15–23	8–13	3–8
Peduncle length (cm)	9–12	up to 4	1.8–2.9
Peduncle vestiture	glabrous	glabrous	puberulous
Bract shape	lanceolate to oblanceolate	broadly ovate	orbicular and ovate
Bract dimension (mm)	3–7 × 1.5–3	7–11 × 9–10	3–4 × 3–4.3
Staminate flower pedicel length (mm)	2–6	13	3–11
Pistillate flower pedicel length (mm)	10–15	up to 35	7–10
Ovary shape	trigonous-ellipsoid	trapezoid to obovoid	trigonous-ellipsoid

of Katipunan, about 20 populations with 10–15 individuals were observed. The populations in the two municipalities are near waterfalls and coconut plantations. During the fieldwork, threats such as agricultural expansion, land conversion, and tourism development were observed. Given these threats, we proposed *B. gigang* be classified as Endangered (EN, D) following the IUCN Standards and Petitions Committee (2022).

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