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ORCID
KRFM: 0000-0002-5131-9084
NIS: 0000-0003-3390-261X
RRR: 0000-0002-1704-1533

A new species of *Begonia* section *Baryandra* from Zamboanga Peninsula, Southwestern Philippines

Kean Roe F. Mazo[1,*], Noel L. Salatan[2], Rosario R. Rubite[3]

[1] *Department of Forestry, College of Agriculture and Forestry, Jose Rizal Memorial State University-Katipunan Campus, Zamboanga del Norte, 7109, Philippines*
[2] *Department of Forestry, College of Forestry and Environmental Studies, Western Mindanao State University, Zamboanga City, 7000, Philippines*
[3] *Department of Biology, College of Arts and Sciences, University of the Philippines Manila, Padre Faura, Manila, Philippines*
*Corresponding author. Email: keanmaze@gmail.com

Abstract. A new species of *Begonia* sect. *Baryandra*, *B. sebodensis,* from Zamboanga del Norte, southwestern Philippines is described and illustrated. *Begonia sebodensis* is morphologically similar to *B. anisoptera* in obliquely ovate to widely ovate leaves, four-tepaled staminate and pistillate flowers and three locular ovary but differs in glabrescent stipules, sericeous petioles, leaf margins distantly serrate and ciliate, many-flowered inflorescences, capsule wings subequal and flat. Following IUCN criteria, we propose *B. sebodensis* as Endangered (EN).

Keywords: *Begonia anisoptera,* endemic, lithophyte, taxonomy, Zamboanga del Norte.

INTRODUCTION

With at least 2116 species, *Begonia* L. (Begoniaceae) is considered the sixth-largest genus of flowering plants (Hughes et al. 2015–; Moonlight et al. 2018). In the Philippines, 163 species are recognized and distributed in 3 sections, namely; *B.* sect. *Petermannia*, *B.* sect. *Baryandra* A. de Candolle (1859: 122) and *B.* sect. *Platycentrum* (Amoroso et al. 2023; Hughes et al. 2015–; Mazo and Rubite 2022; Mazo et al. 2022; Rubite et al. 2022).

The region of Zamboanga Peninsula, southwestern Mindanao is one of the botanically unexplored areas in the Philippines. Based on herbarium records and literature, 17 species and one subspecies of *Begonia* were recorded in Zamboanga Peninsula (Naive et al. 2022; Mazo et al. 2022). *Begonia* sect. *Baryandra* is represented by a single species in the region, *Begonia anisoptera* Merr., and all the remaining taxa belong to *Begonia* sect. *Petermannia*.

During a botanical exploration in the municipality of President Manuel A. Roxas (PMAR), Zamboanga del Norte (Fig. 1), a rhizomatous *Begonia* with 4-tepaled staminate and pistillate flowers, and 3-locular ovary was documented. These characters indicate that it is a member of the *B.* sect. *Baryan-*

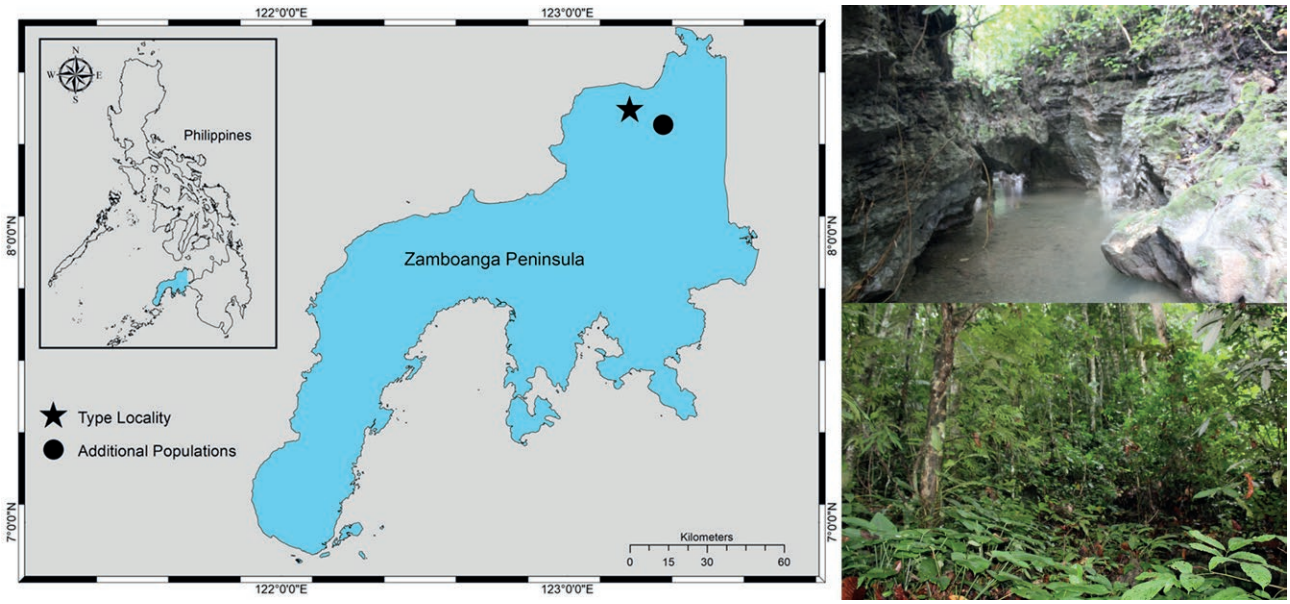

Figure 1. Map showing the distribution (left) and habitat (right) of *Begonia sebodensis* in Zamboanga Peninsula.

dra. Based on a detailed examination of morphological characters of the collected material and closely related species, we concluded that it is new to science, which is hereby named *Begonia sebodensis* Mazo & Rubite (Fig. 2) and described as the second representative of the *B.* sect. *Baryandra* in Zamboanga Peninsula, Philippines.

MATERIALS & METHODS

Fruiting and flowering materials of the *B. sebodensis* were collected in June 2023. The descriptions were based on both living and dried collections vouchered under Wildlife Gratuitous Permit (GP) No. IX-2023-11 issued by the Department of Environment and Natural Resources (DENR) Region 9. Protologues, herbarium specimens, and other relevant literature were examined for morphological comparisons. *B. sebodensis* closely resembles *B. anisoptera* (Fig. 3) the only *Begonia* sect. *Baryandra* representative in the region. The conservation status was assessed following the International Union for Conservation of Nature (IUCN) criteria (IUCN Standards and Petitions Subcommittee 2022).

TAXONOMIC TREATMENT

Begonia sebodensis Mazo & Rubite, **sp. nov.** (Figure 2)**;** Sect. Baryandra

Type: Philippines, Mindanao, Zamboanga del Norte, municipality of President Manuel A. Roxas, barangay Sebod, 8°22'12.40"N, 123°11'39.13"E, 350 m. a.s.l., June 4, 2023*, K.R.F. Mazo 113* (holotype PNH).

Diagnosis

Similar to *Begonia anisoptera* in having obliquely ovate to widely ovate leaves, 4-tepaled staminate and pistillate flowers and three winged capsules. However, the new species can be easily distinguished in having stipules glabrescent (vs. densely hirsute), petioles 16.5–28.0 cm long, indumentum reddish-maroon, appressed (vs. 4–12 cm long, hairs brown and spreading), larger leaves 8–17 × 7.0–11.5 cm, distantly serrate (vs. 6–12 × 4–8 cm, entire), inflorescence cymosely branching 5–7 times (vs. 2–3 times), oblanceolate inner staminate and pistillate tepals (vs. obovate to cuneiform) with rounded apex (vs. truncate to slightly retuse), capsule recurved or pendulous (vs. splash cup), wings subequal and flat (vs. strongly unequal, abaxial wing cucullate, lateral wings curved).

Description

Herbaceous, lithophytic, rhizomatous, perennial, monoecious. Rhizome creeping up to 13 cm long, 9–15 mm thick, puberulent, reddish to maroon, prominent petiolar scars, internodes 10–23 mm long. Stipules persistent, triangular 11.5–13.5 × 6–8 mm, reddish, adaxially glabrescent, abaxially glabrous, herbaceous, strongly keeled with reddish brown hairs fused at the keel, margin slightly revolute, apex aristate (3.5 mm long). Leaves alternate; *petiole* terete, 16.5–28.0 cm long, 5–7 mm

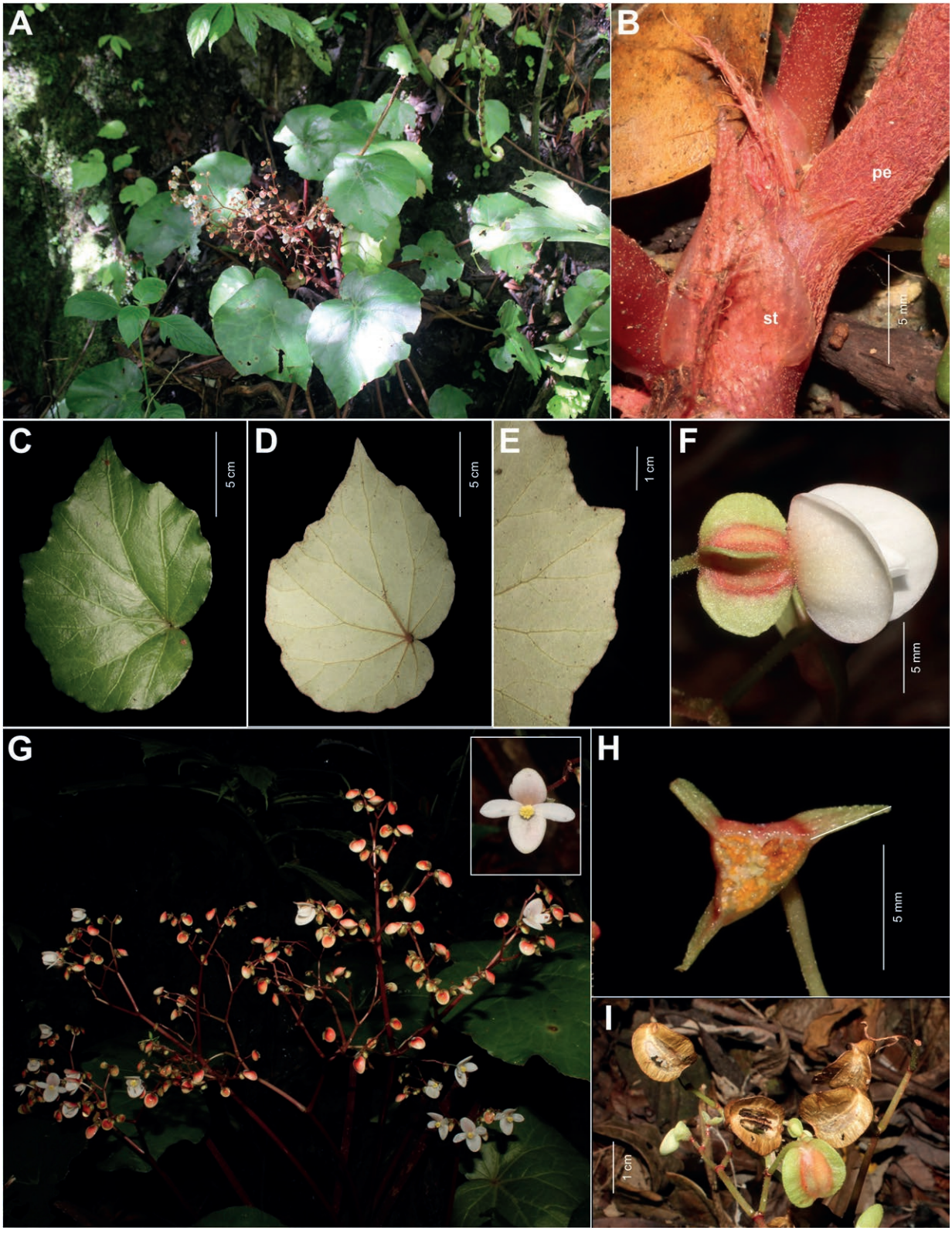

Figure 2. *Begonia sebodensis* Mazo & Rubite. A. Habit; B. Stipules (st) and portion of the petioles (pe); C. Leaf adaxial surface; D. Leaf abaxial surface; E. Leaf margin; F. Pistillate flower, side view showing the ovary; G. Inflorescences, inset: front view of the staminate flower; H. Cross-section of the ovary; I. Capsules and fruit. All from *K.R.F. Mazo 113*.

Figure 3. *Begonia anisoptera* Merr. A. Habit; B. Petiole showing white and spreading hairs; C. Stipule; D. Fruit showing strongly unequal wings, abaxial wing cucullate.

thick, maroon, sericeous; *leaf blad*e asymmetric, succulent, oblique, ovate to widely ovate, (8–)13–17 × (7–)9.5–11.5 cm, broad side width 6.5–8.3 cm, basal lobes cordate, sinus overlapping, margin distantly serrate, slightly undulate, ciliate (hairs 0.6 mm), apex acuminate; adaxially green, glabrous, abaxially ivory, lanate, reddish hirsute trichomes on veins (hairs 0.5 mm long); venation palmate, 7–8 primary veins, abaxially raised, branching dichotomously, tertiary veins reticulate. Inflorescence axillary, erect, bisexual, protandrous, cymosely branching 5–7 times; peduncle 16–35 cm long, red, sparsely puberulent in newly develop and turning glabrous. Bracts caducous, widely ovate, boat-shaped, 6–7 × 5.3–5.6 mm, pale green, glabrous, margin entire, apex rounded. Staminate flower pedicel 7–11 mm long, pale green to red, puberulent, tepals 4; outer 2, widely ovate,

9.5–11.0 × 8.5–9.0 mm, pinkish to white, adaxial surface sparsely puberulent to glabrous, venation distinct, apex rounded; inner 2 oblanceolate, 8–9 × 3.5–4.0 mm, white, glabrous both surfaces; androecium actinomorphic, 3.5–4.5 mm in diameter; stamens yellow, 35–40, filaments shortly fused at the base; anthers obovate, *ca*. 1 mm long, apex retuse. Pistillate flower pedicel 2.5–5.5 mm long, pale green to red, puberulent, tepals 4; outer 2 suborbicular, 9.5–10.5 × 8.5–10.0 mm, pinkish to white, adaxially glabrous, abaxially sparsely puberulent to glabrous, venation distinct, apex rounded; inner 2 elliptic to oblanceolate, 8–8.5 × 3.8–4.5 mm, white, glabrous both surfaces, apex rounded; *ovary* trigonous-ellipsoid, 4.5–5.5 × 3.0–3.5 mm, green to red, sparsely puberulent to glabrous; *wings* 3, subequal, flat, 7.8–8.2 × 3.0–3.6 mm, proximally cordate, distally rounded to truncated at an angle, margin entire; ovary 3-locular, placenta bilamellate; *styles* 3, 4.8–5.0 mm long, fused at the base at 1.5 mm; *stigma* spirally twisted and papillose all around. Capsule recurved or pendulous 10.0–11.5 × 8.0–12.6 mm, wings subequal, flat 1.7–11.0 mm long, 1.5–3.5 mm wide, truncate to slightly retuse proximally, rounded to truncate distally, dehiscing along the attachment with the wings.

Etymology

The specific epithet derived from the locality where the new species was collected.

Phenology

Observed flowering and fruiting from March to June.

Distribution and ecology

Begonia sebodensis is endemic to Zamboanga Peninsula and is currently known only from the municipalities of President Manuel A. Roxas, and Katipunan, Zamboanga del Norte (Fig. 1). It grows on rocks and vertical cliffs in shady areas at elevations of 200–500 meters above sea level. In the type locality, the plant associated with *B. sebodensis* includes *Homalomena philippinensis* Engl. (Araceae), *Monophyllaea merrilliana* Kraenzl. (Gesneriaceae), and species of *Ficus* L. (Moraceae), *Elatostema* J.R.Forst. & G.Forst. (Urticaceae), and *Calamus* L. (Arecaceae).

Proposed conservation assessment

Begonia sebodensis is only known from two barangays of two different municipalities in Zamboanga del Norte: Barangay Sebod, President Manuel A. Roxas, and Barangay Miatan, Katipunan. In the two barangays, total of 10 to 15 subpopulations were recorded with less than 100 mature individuals. The type locality is near a waterfalls which is being developed as a tourist destination, vegetation in the area is being cleared and planted with ornamental plants, the falls is frequently visited by local tourists. The two barangays are near farm lots and charcoal making was also observed. These barangays where the *B. sebodensis* were recorded are currently not protected under the country's National Integrated Protected Areas System by the Department of Environment and Natural Resources. Following IUCN red list and criteria (IUCN 2022), *Begonia sebodensis* is hereby proposed as Endangered [EN, D].

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REFERENCES

Amoroso VB, Lamparas RJV, Lagunday NE, et al. 2023. *Begonia fritschiana* (Begoniaceae, *Begonia* section *Baryandra*), a new species from Quezon, Bukidnon, Philippines. Phytotaxa. 587(1): 39–46.

Hughes M, Moonlight PW, Jara A, et al. 2015 onwards. Begonia Resource Centre. Available from: http://padme.rbge.org.uk/begonia (accessed 3 August 2023).

IUCN Standards and Petitions Committee. 2022. Guidelines for Using the IUCN Red List Categories and Criteria. Version 15.1. Available from : https://www.iucnredlist.org/documents/RedListGuidelines.pdf. (Accessed 01 August 2023).

Mazo KRF and Rubite RR. 2022. Two new species of *Begonia* (section *Petermannia*, Begoniaceae) from the Zamboanga Peninsula, Philippines, and a redescription of *Begonia parvilimba*. Phytotaxa. 538(2): 163–171.

Mazo KRF, Salatan NI, Santos IEA, et al. 2022. Two new species of *Begonia* (section *Petermannia*, Begoniaceae) from Zamboanga Peninsula, Philippines with notes on an amended description of *B. elatostematoides.* Taiwania. 67(3): 441–449.

Merrill ED. 1912 [1911]). The Philippine species of *Begonia.* Philippine Journal of Science, section C, Botany. 6: 369–406.

Moonlight PW, Ardi WH, Padilla LA, et al. 2018. Dividing and conquering the fastest-growing genus: Towards a natural sectional classification of the mega-diverse genus *Begonia* (Begoniaceae). Taxon. 67(2): 267–323.

Naive MAK, Calimbo LGL, Cudal MG, et al. 2022. Taxonomy of the genus *Begonia* (Begoniaceae) in Mindanao, Philippines IV: *Begonia bangsamoro subsp. bagasa* (*Begonia* section *Petermannia*), a new subspecies from Zamboanga del Sur. Phytotaxa. 559(1): 88–94.

Rubite RRR, Ubaldo DBH, Salcedo JC, et al. 2022. *Begonia hemicardia* (sect. *Petermannia*, Begoniaceae), a resurrected heterotypic synonym and *nomen nudum*. Edinburgh Journal of Botany 79, Begonia special issue, Article 403: 1–7. https://doi.org/10.24823/EJB.2022.403.