

A NEW SPECIES OF *BEGONIA* (BEGONIACEAE) FROM PENINSULAR THAILAND

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A new species from Thailand, *Begonia bella* Phutthai (Begoniaceae), is described and illustrated. It belongs in *Begonia* sect. *Parvibegonia* and is a narrow endemic in Phangnga province. Its IUCN category is considered to be 'Vulnerable'.

Keywords. *Begonia*, new species, Thailand.

INTRODUCTION

In Thailand the species-rich genus *Begonia* L. (Begoniaceae) was previously represented by 45 species (Craib, 1931). Later, Hughes (2008) reported 49 species, with 26 of these being endemic to the country. Following extensive field surveys carried out in Thailand from June 2007 to December 2009, together with study of specimens from various herbaria (AAU, ABD, BK, BKF, BM, C, E, K, L, PSU, SING), 54 species of *Begonia* are now recorded from Thailand. Forty-five of these species have been observed and collected in the wild by one or more of the authors (Phutthai *et al.*, 2009).

Recent collections from Phangnga province in Peninsular Thailand revealed an undescribed species, belonging to *Begonia* sect. *Parvibegonia*. This section is distributed from the Himalayas to Indo-China, Malaysia and Indonesia (Doorenbos *et al.*, 1998; Hughes, 2008), and its members are generally small plants distinguished by the combination of a tuberous habit, female flowers with two stigmas, two-locular fruits with one enlarged wing, and bifid placentae. The new species, *Begonia bella*, was collected at one locality at Namtok Ra Man Waterfall, and is probably endemic to that area. It is a lithophytic herb, growing on wet granitic rocks by streams in deep shade in dry evergreen forest.

SPECIES DESCRIPTION

***Begonia bella* Phutthai, sp. nov.** Sect. *Parvibegonia*. Figs 1–3.

Vegetatively this species is most similar to *Begonia integrifolia* Dalzell, but differs in having dentate (not entire) leaf margins. The fruits are similar to those found in

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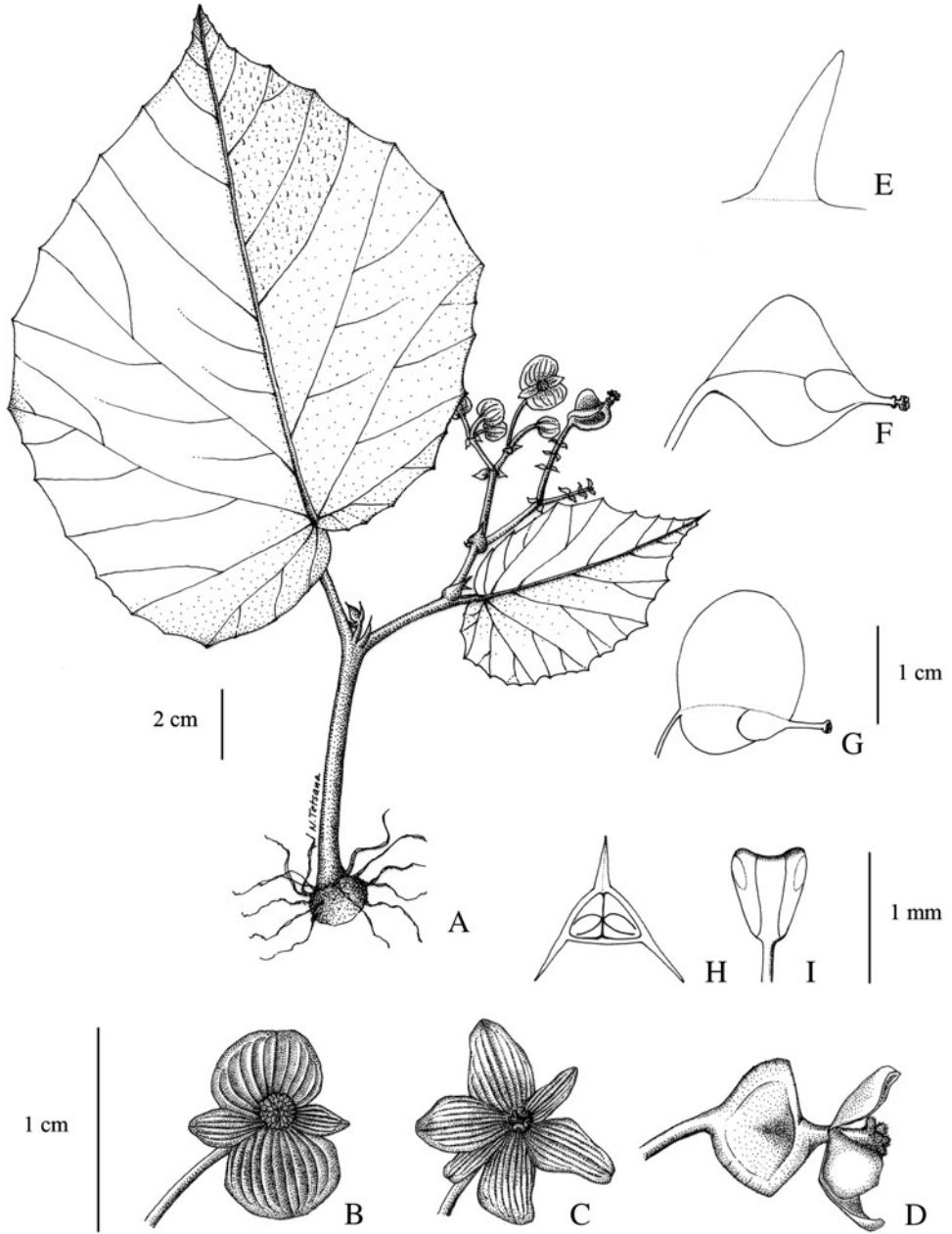


FIG. 1. *Begonia bella* Phutthai. A, habit; B, staminate flower; C (front view)—D (side view), pistillate flower; E, trichome; F, young fruit with persistent stigma; G, capsule; H, ovary, middle cross-section; I, stamen.

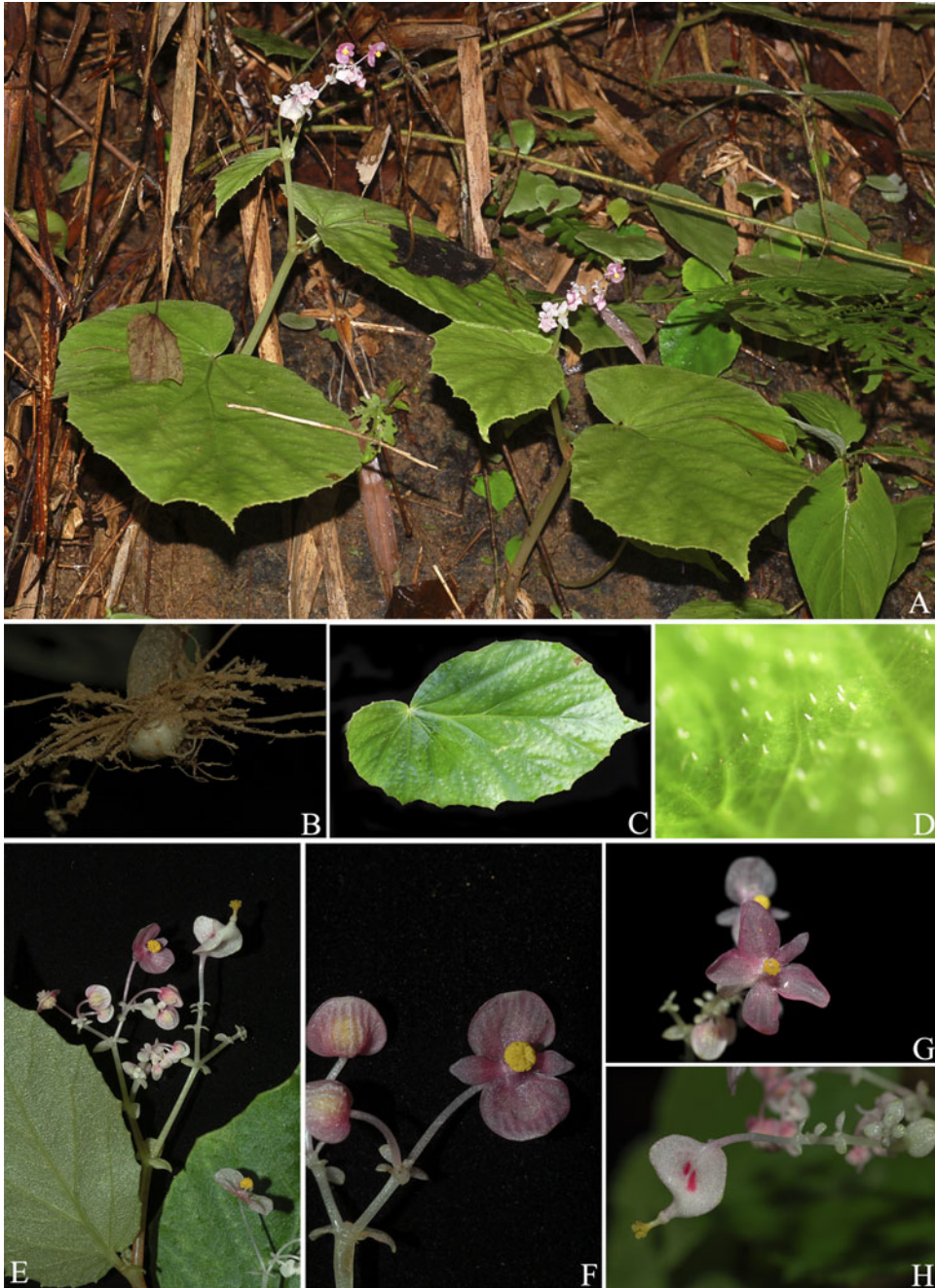


FIG. 2. *Begonia bella* Phutthai. A, habit and habitat; B, tuber with fibrous roots; C, leaf adaxial surface; D, trichomes on adaxial leaf surface; E, inflorescence; F, staminate flower; G, pistillate flower; H, young fruit with persistent stigma.

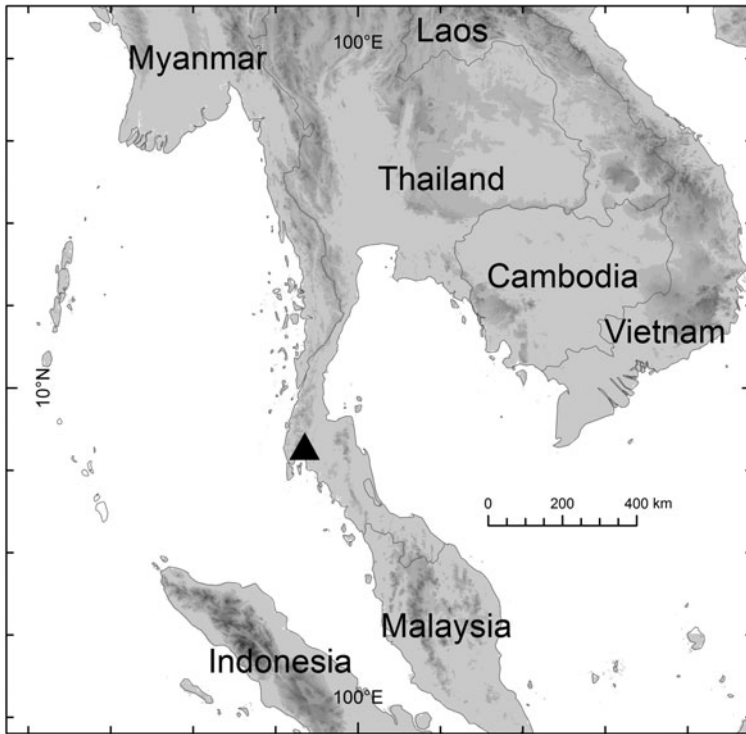


FIG. 3. The distribution of *Begonia bella* Phutthai (▲) in Peninsular Thailand.

Begonia sinuata Wall. ex Meisn. in having the capsule restricted to the terminal portion of the fruit, but differ in being white with a pink blotch (not green or pinkish green) and in having a flat (not cucullate) abaxial wing. – Type: Thailand, Phangnga, Namtok Ra Man Waterfall, Namtok Ra Man Forest Park, on wet granitic rock or on wet soils by stream in dry evergreen forest, 08°27'111"N, 09°82'6947"E, 50 m, 30 vii 2008, *Phutthai* 122 (holo PSU; iso BKF, E).

Perennial monoecious herb, 13–30 cm tall. *Stems* succulent, glossy, suberect, glabrous, pale green with short red stripes; tubers globose or subglobose with numerous fibrous roots, c.5–10 mm diameter. *Leaves* 2(–3) per plant, basifixed, alternate; petiole pale green with red stripes, reddish brown when dry, 1–4 cm long; leaf blade succulent, asymmetric, chartaceous when dry, adaxial surface sparsely scabrous, dull light green, glossy, iridescent, abaxial surface glabrous, pale greenish white; ovate, 7–16.5 × 4.5–14 cm, asymmetric, base cordate, margin irregularly dentate, apex acuminate; venation palmate-pinnate, veins 6–8, midrib prominent beneath. *Stipules* persistent, pale green, lanceolate, margin entire and slightly undulate, apex acute, 5–7 × 2–2.5 mm. *Inflorescences* axillary but appearing terminal due to lack of further branching, dichasial cymes, bisexual, branched 1–3 times, 7–15 cm

long, with 4–6 staminate flowers and 2 pistillate flowers per branch, protandrous; peduncles c.1.8–2.5 cm long; terete, pale green, glossy, glabrous. *Bracts* persistent, membranous, ovate-lanceolate, very pale green or whitish, glossy, c.1–5 × 0.5–4 mm; margin entire; apex acute or obtuse. *Staminate flowers*: pedicels 5–10 mm; tepals 4, pinkish or pale pink; outer 2 suborbicular, apex obtuse, base rounded, margin entire, glabrous on both sides, c.6–7 × 5–7 mm; inner 2 ovate-lanceolate, apex acute, base cuneate, margin entire, glabrous on both sides, c.4–5 × 2–3 mm; androecium actinomorphic, globose, stamens 40–45, yellow, filaments c.0.5 mm long, anthers c.0.5 mm long, obcordate, dehiscent by short pore-like slits near the tip, filaments fused at the base. *Pistillate flowers*: pedicels whitish pink, c.6–9 mm long; tepals 5(–6), unequal; 4 of which are ovate oblong, the other 1(–2) oblong, pale pink, apex obtuse, base obtuse, margin entire, glabrous on both sides, c.10–12 × 2–5 mm; styles 2(–3), fused at the base, yellow, stigmatic band kidney-shaped; ovary with 3 subequal wings, whitish with 2 pinkish blotches on the ovary body; placentation axile, placentae bifid. *Fruits*: capsules glossy, pinkish white, pendulous, drying pale brown, c.15 × 10–12 mm; capsule ovate, c.5–7 × 3–4 mm (c.1/3 of the length of fruit), abaxial wing obliquely orbicular or ligulate, c.10 mm tall, lateral wings narrower, curved along length of capsule, 2–3 mm tall. *Seeds* numerous, brown, ellipsoidal, 0.4–0.5 mm long, collar cells c.1/2 the length of the seed.

Distribution. Peninsular Thailand, Phangnga, Namtok Ra Man Forest Park.

Habitat and ecology. In granite rock crevices or on damp streamside soils in seasonally dry evergreen forest. Flowering May to November; fruiting November to January.

Proposed IUCN category. *Begonia bella* is currently only known from a single site. Although this is within a protected area (Ra Man Forest Park), Forest Parks in Thailand have a recreational role and can experience high visitor numbers. Therefore, the population 'is prone to the effects of human activities or stochastic events within a very short time period (e.g. within one or two generations) in an uncertain future, and is thus capable of becoming Critically Endangered or even Extinct in a very short time period' (IUCN, 2011). Hence we consider a category of VUD2 to be appropriate.

Notes. *Begonia bella* is typical of *Begonia* sect. *Parvibegonia* in having 2(–3) bifid stigmas, bifid placentae and 2-locular fruit with one enlarged wing. The inflorescence always occurs adjacent to the smaller of the plant's two leaves, as in *Begonia integrifolia* and allies. However, *Begonia bella* differs in having irregularly dentate leaves. The ovate capsule of this species only occupies the front c.1/3 of the length of the whole fruit, with the fruit wings alone occupying the remaining rear c.2/3 of the fruit's length. Small capsules relative to the rest of the fruit are also found in *Begonia sinuata*, which differs in having symmetric leaves with stellate hairs. The epithet *bella* is Latin for beautiful, referring to the delicate pink flowers and bicoloured ovaries.

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