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Begonia kanburiensis (sect. *Diploclinium*, Begoniaceae), a new species from Thailand

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ABSTRACT. *Begonia kanburiensis* Phutthai, a new species which belongs to *Begonia* section *Diplocinium*, was discovered in Kanchanaburi Province during surveys for a revision of the genus for the Flora of Thailand. It is a limestone endemic and its IUCN status is considered to be 'Vulnerable'.

KEY WORDS: *Begonia*, new species, Thailand.

INTRODUCTION

The genus *Begonia* (Begoniaceae) has around 750 species in Asia, with new species being frequently published, especially from limestone areas (Peng et al, 2014; Phutthai and Sridith, 2010; Sang et al., 2013). There are currently 51 species of *Begonia* recognised in Thailand, many of which have very narrow distributions (Phutthai et al., 2009). According to the sections of *Begonia* proposed by Doorenbos et al. (1998), *Begonia* species in Thailand belong to 10 sections i.e. *Diplocinium* (14 spp.), *Parvibegonia* (12 spp.), *Platycentrum* (6 spp.), *Reichenheimia* (5 spp.), *Sphenanthera* (5 spp.), *Alicida* (1 sp.), *Heeringia* (1 sp.), *Monophyllon* (1 sp.), *Petermannia* (1 sp.), *Tetraphila* (1 sp.) and another 4 species unplaced to section (Hughes, 2008; de Wilde et al. 2011; Phutthai et al., 2009; Phutthai et al., 2012; Phutthai and Sridith, 2010). During field surveys of natural populations of *Begonia* in Thailand in 2012, a new species of *Begonia* in section *Diplocinium* was discovered. Section *Diplocinium* is represented by 14 species in Thailand (Hughes, 2008), with the full distribution of the section being from the Himalaya to Indochina and Malaysia (Doorenbos et al., 1998). The new species was collected from wet limestone cliffs/wet rock crevices in deeply shaded areas in a mixed deciduous forest, is endemic to the Tenasserim range, and is currently known only from the karst limestone cliffs at the type locality in Kanchanaburi Province in southwestern Thailand.

DESCRIPTION

Begonia kanburiensis Phutthai, **sp. nov.** Sect. *Diplocinium*. Figs. 1−3.

Vegetatively this species is most similar to B. incerta, but differs in having aciliate-dentate leaf margin and lamina dull dark greenish brown with silver spots on the adaxial surface. The tepals are 4 in the pistillate flowers and hence differs from *B. saxifragrifolia* with only 3 tepals.− Type: Thailand, Kanchanaburi, Thong Pha Phum District. On wet limestone in deep shade in mixed deciduous forest, 14°44′45″N, 98°37′45″E, 240 m, 31 Sept. 2012, *T. Phutthai 243* (holo. **BKF**; iso. **BK**, Mahidol University (Kanchanaburi campus)). Figs. 1, 2.

Monoecious herb, 5−8 cm tall. *Stems* tuberous, tubers globose or sub-globose with numerous

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fibrous roots, 5−8 mm diam. *Leaves* 1 (–2) per plant, attached basally; stipules persistent, pale green, fimbriate, 1−3 × 1−2 mm, apex acute; petiole pale green or dark red, brown when dry, 4−5 cm long; leaf blade succulent, symmetric, chartaceous when dry, adaxial surface slightly hairy near the margin, dull dark greenish brown with silver spots between the veins, glossy, abaxial surface glabrous, vinaceous or dark reddish brown, suborbiculate, 4−10 × 7−11 cm, apex obtuse, margin crenate-dentate, base cordate; venation palmate, veins 6−8, prominent beneath. *Inflorescences* arising from tuber, dichasial, bisexual, 4−8 cm long, with staminate flowers basal and pistillate flowers distal, initially protandrous; peduncles terete c. 4−6 mm long, glabrous, dark red or reddish brown, glossy. *Bracts* persistent, fimbriate, 1−2 × 0.5−1 mm, pale green, glossy, apex fimbriate. *Staminate* flowers pedicels 4−10 mm, ascending; tepals 4, white, outer 2 orbiculate, 4−6 × 4−7 mm, apex obtuse, margin entire, base rounded, abaxially covering with minute echinate hairs, adaxially glabrous; inner 2 obovate, 4−5 × 4 mm, apex rounded, margin entire, base cuneate, glabrous on both sides; androecium actinomorphic, globose, stamens 30−40, bright yellow, filaments fused at the base c. 1 mm long, anthers obovate c. 1 mm long, dehiscing by short slits near the tip. *Pistillate* flowers pedicels pale green or dark red, 5−10 mm long; tepals 4, unequal; outer 2 orbicular, 4−6 × 4−7 mm, apex rounded, margin entire, base rounded, outside with a few minute echinate hairs, inside glabrous, inner 2 oblanceolate, 4−5 × 2 mm, apex obtuse, margin entire, base cuneate, glabrous on both sides; styles 3, fused at the base, bright yellow, stigmatic band crescent-shaped and covered with minute papillae; ovary with 3 unequal wings, pale green with red striations, 3-locular, placenta bilamellate. *Fruits* capsules, glossy, pale green, pendulous, drying light brown, 5 × 10−11 mm; locules ellipsoid, 5−6 × 5 mm, abaxial wing 10−12 mm long, 5–6 mm at base, 2 lateral wings shorter, triangular, 4−5 mm long. *Seeds* numerous, brown, barrel-shaped, 0.3−0.5 mm long.

Thailand.— SOUTHWESTERN: Kanchanaburi [collected by road side from city centre from Thong Pha Phum district to Wachiralongkorn dam].

Distribution.— Endemic to southwestern Thailand.

Ecology.— Growing in limestone rock crevices in mixed deciduous forest.

Etymology.— The species is named after the province to which it is endemic.

Phenology.— Flowering May to November; fruiting November to January.

Proposed IUCN category.— *Begonia kanburiensis* is currently known from a single site. The populations are narrowly distributed in an area of karst limestone and the location is not in a protected area. Therefore, the population ‘is prone to the effects of human activities especially deforestation (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 the authors consider a category of VUD2 to be appropriate.

Notes.— *Begonia kanburiensis* is endemic to karst limestone cliffs in Kanchanaburi Province, a habitat with well-documented threats and high biodiversity (Clements et al., 2006). It is only known from the type locality, despite extensive surveys of *Begonia* in Thailand (Phutthai et al., 2009). Hence deforestation and habitat disturbance would have great impact on the small populations of *B. kanburiensis*. A conservation action plan for the habitat of this species is urgently needed.

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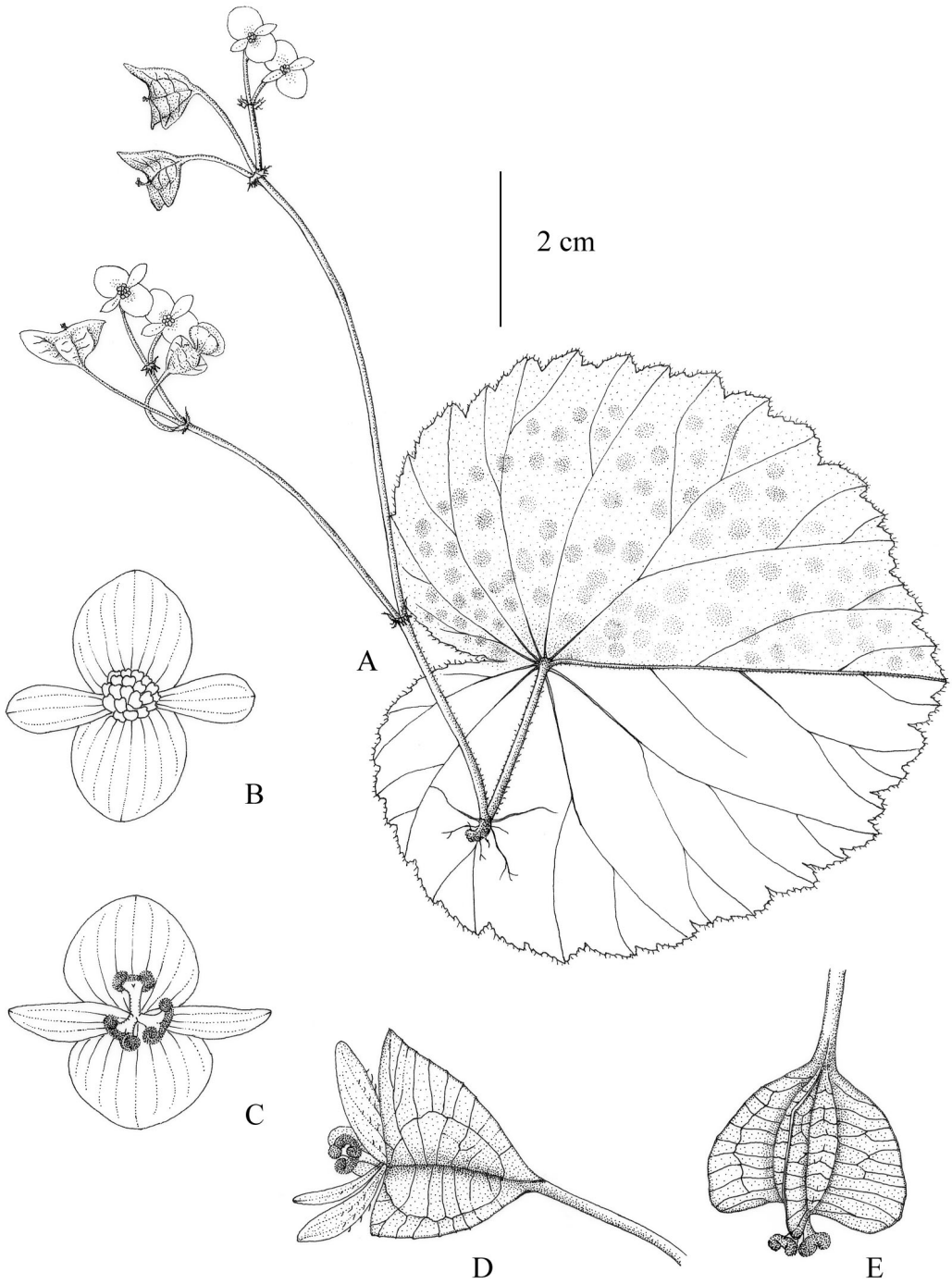

Figure 1. *Begonia kanburiensis* Phutthai: A. habit; B. staminate flower; C−D. pistillate flower; E. young fruit.

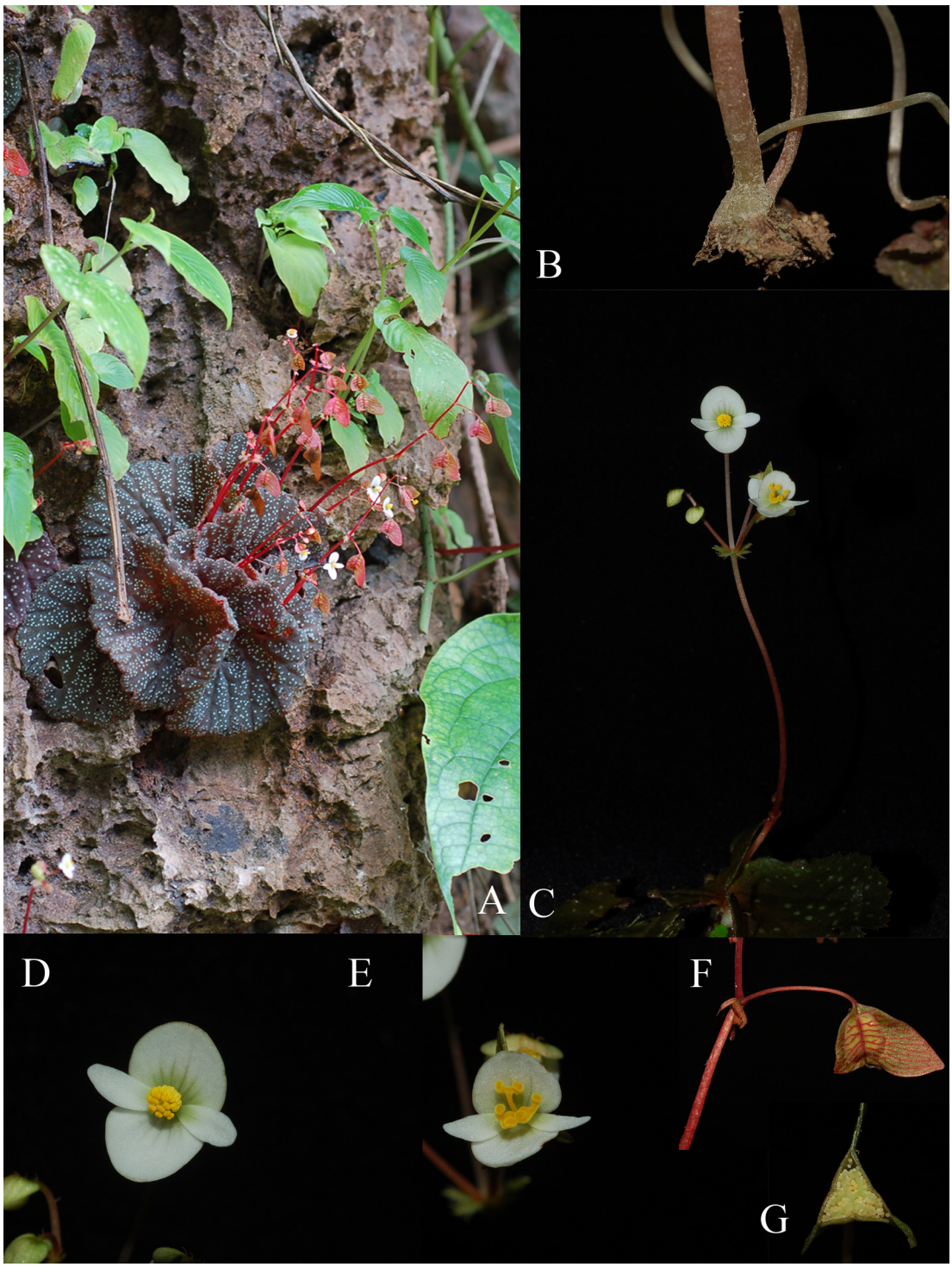

Figure 2. *Begonia kanburiensis* Phutthai: A. habitat and habit; B. tuber; C. inflorescence and bracts; D. staminate flower; E. pistillate flower; F. capsule; G. placentation.

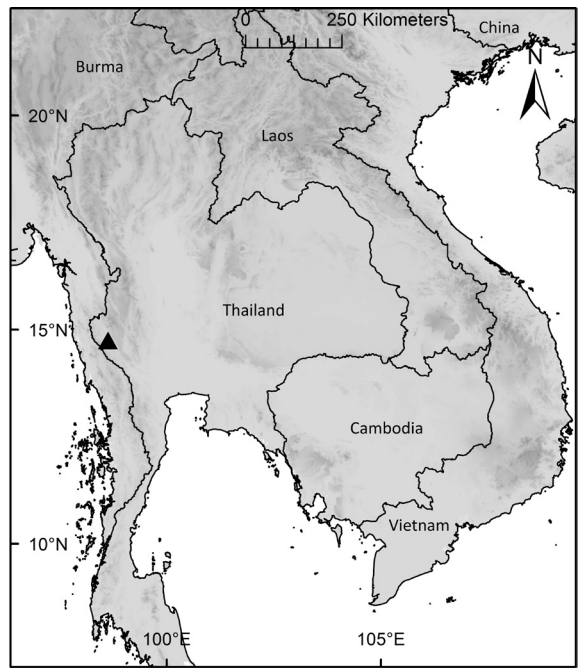

Figure 3. The distribution of *Begonia kanburiensis* Phutthai: (black triangle) in southwestern Thailand.

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