

***Begonia colliculata* (Begoniaceae), a new species from Nam Kading National Protected Area, Bolikhamxai Province, Laos**

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ABSTRACT

Begonia colliculata is described and illustrated with photographs from Nam Kading National Protected Area, in the Bolikhamxai Province of Laos.

KEYWORDS: *Begonia*, Biodiversity, Laos, new taxon, taxonomy.

Accepted for publication: 15 July 2020. Published online: 24 July 2020

INTRODUCTION

Twenty-seven native *Begonia* L. taxa are recorded from Laos (Hughes, 2008; de Wilde *et al.*, 2011; Averyanov & Nguyen, 2012; Souvannakhoummane *et al.*, 2016, 2018; Yang *et al.*, 2018; Hughes *et al.*, 2018; Averyanov *et al.*, 2019; Ding *et al.*, 2020; Lanorsavanh *et al.*, 2020). The Nam Kading National Protected Area, located in the centre of Laos, has a diverse vascular flora yet remains under-surveyed. Floristic research was carried out in this area between 2017–2019, allowing the discovery and description of several new species (Souladeth *et al.*, 2017, 2019; Tagane *et al.*, 2018; Yang *et al.*, 2018; Souvannakhoummane *et al.*, 2019) as well records of various new taxa for the flora of Laos (Tagane *et al.*, 2017). In a field survey in deciduous forest of this Protected Area, a population of *Begonia* characterized by beautiful red flowers, cane-like stems and variegated leaves with a dark red under-surface was observed. Based on living collections and herbarium investigations, material collected from this population was found to represent a new species of *Begonia* sect. *Platycentrum* A.DC., and

is described and illustrated below; ecological information, conservation status and affinities are also provided.

TAXONOMIC TREATMENT

***Begonia colliculata* Souvann. & Lanors., sp. nov.,**
(Section *Platycentrum*). Figs. 1 & 2.

Begonia colliculata is similar to *Begonia hekouensis* S.H.Huang, but differs in having verrucous peduncles (vs densely villous), bracts with a strigose margin (vs ciliate), sparsely strigose tepals (vs villous), a sparsely strigose and colliculate ovary with a broadly falcate-elongate dorsal wing (vs densely purplish brown villous and not colliculate, dorsal wing ligulate). It is also similar to *B. crocea* C.-I Peng but differs in having a cane-like stem (vs stemless), leaf blade ovate-lanceolate (vs broadly ovate), inflorescences arising from axils on the stem (vs arising directly from the horizontal rhizome) and anthers elliptic-oblong, apex rounded (vs fusiform-obovate, apex acuminate) (Table 1). Type: Laos, Bolikhamxai Province, Pak Kading District, Nam

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Kading National Protected Area, 18°34'17.9"N, 104°03'26.6"E, 297 m elevation, 22 Oct. 2019, *Lanorsavanh & Xayalath SL 1999* (holotype **HNL!**; isotypes **E**, **FOF!**, **KKU**, **QBG**, Biology Herbarium of National University of Laos).

Monoeocious rhizomatous herb, 30–45 cm tall. *Rhizomes* elongate, stout, 8–12 × 1.2–2 cm, grayish with many fibrous roots. *Stems* cane-like, 25–35 cm long, 3–5 mm thick, dark brown-green, succulent, pilose. *Leaves* 3–5 per stem, alternate, lamina succulent when fresh, membranous when dry, asymmetric, ovate-lanceolate, 15–27 × 8–12 cm, base oblique cordate, apex acuminate, margin biserrate; adaxial surface waxy, dark green, slightly verrucous and sparsely scabrid; abaxial surface reddish, scabrid and densely pilose on veins; venation palmate, veins 7–9, prominent beneath. *Petioles* 5–22 cm long, dark brown-green, fleshy, pilose. *Stipules* triangular, 12–22 × 3–6 mm, margin entire, apex acuminate, outer surface pilose, reddish-green. *Inflorescences* compound cymes, arising from axils of the leafy stem, branched 2–4 times, bisexual, 10–15 cm long, staminate flowers distal and pistillate flowers basal, protandrous. *Peduncles* 5–10 cm long, green-reddish to dark brown, terete, verrucose. *Bracts* lanceolate, 10–20 × 5–8 mm, apex acute, margin strigose, pilose on outer surface, glabrous on inner surface, pale

green. *Staminate flowers*: pedicels 10–15 mm long, straight, recurved near apex, reddish, strigose; tepals 4, reddish, outer pair elliptic-orbulate, 14–15 × 10–12 mm, apex obtuse-rounded, strigose on outer surface, inner pair elliptic-oblong, 8–10 × 3.5–5 mm, apex rounded to obtuse, glabrous; stamens ca 119, bright yellow, filaments free, cluster, 1.2–2.2 mm long, anthers elliptic-oblong, 1.8–2 mm long, dehiscing by longitudinal slits near the apex, apex rounded. *Pistillate flowers*: pedicels 10–15 mm long, dark red to green, sparsely villous, scabrid on surface; tepals 5, red, outer pair unequal, elliptic, 14–15 × 10–11 mm, apex rounded, sparsely strigose and scabrid on outer surface, inner 3 smaller, narrowly elliptic, 9–13 × 5–8 mm, apex rounded, glabrous to scabrid on outer surface; ovary green, red-brown toward on wings, few sparsely strigose, colliculate on surface (event distinctive on wings), with 3 unequal wings; dorsal wing broadly falcate-elongate or elongate-triangular, lateral wing triangular, apex acute; 2-locular, placentation axillary, two branches per locule; styles 2, connate at the middle into common stalk, dark yellow, stigma spiral and minutely papillose. *Fruits* green, globose, 20–25 × 50–55 mm (including wigs), strigose, colliculate on surface. *Seeds* numerous, ellipsoid, ca 0.4 × 0.25 mm, reticulate, brownish-yellow.

Table 1: Comparison of characters among *Begonia colliculata*, *B. crocea* and *B. hekouensis*

Characters	<i>Begonia colliculata</i>	<i>B. crocea</i> ¹	<i>B. hekouensis</i> ²
Stems	25–35 cm long, pilose	stemless	ca 30 long, brown appressed hairy
Leaves	ovate-lanceolate, 15–27 × 8–12 cm	broadly ovate, ca 30.5 × 24 cm	ovate, ca 16.5–22 × 13–15 cm
Inflorescences	cymes arising from axils in leafy stem, peduncle verrucous	cymes arising from rhizomes, peduncle glabrous	cymes arising from axils in leafy stem, peduncle densely villous
Bracts	margin strigose	margin entire	margin villous
Staminate flowers	tepals outer pair elliptic-orbulate, strigose, inner pair elliptic-oblong, stamens ca 119, anther apex rounded	tepals outer pair ovate, glabrous, inner pair elliptic or narrowly obovate, stamens ca 100 or more, anther apex acuminate	tepals outer pair broadly ovate, villous, inner pair elliptic, stamens numerous, anther apex rounded
Pistillate flowers	tepals unequal, elliptic, narrowly elliptic, sparsely strigose	tepals subequal, obovate, glabrous	tepals unequal, largest broadly ovate, villous
Ovary	Strigose, colliculate, dorsal wing broadly falcate-elongate	glabrous, dorsal wing narrowly oblong	densely purplish brown villous, dorsal wing ligulate

¹Peng *et al.*, 2006; ²Huang & Shui, 1994

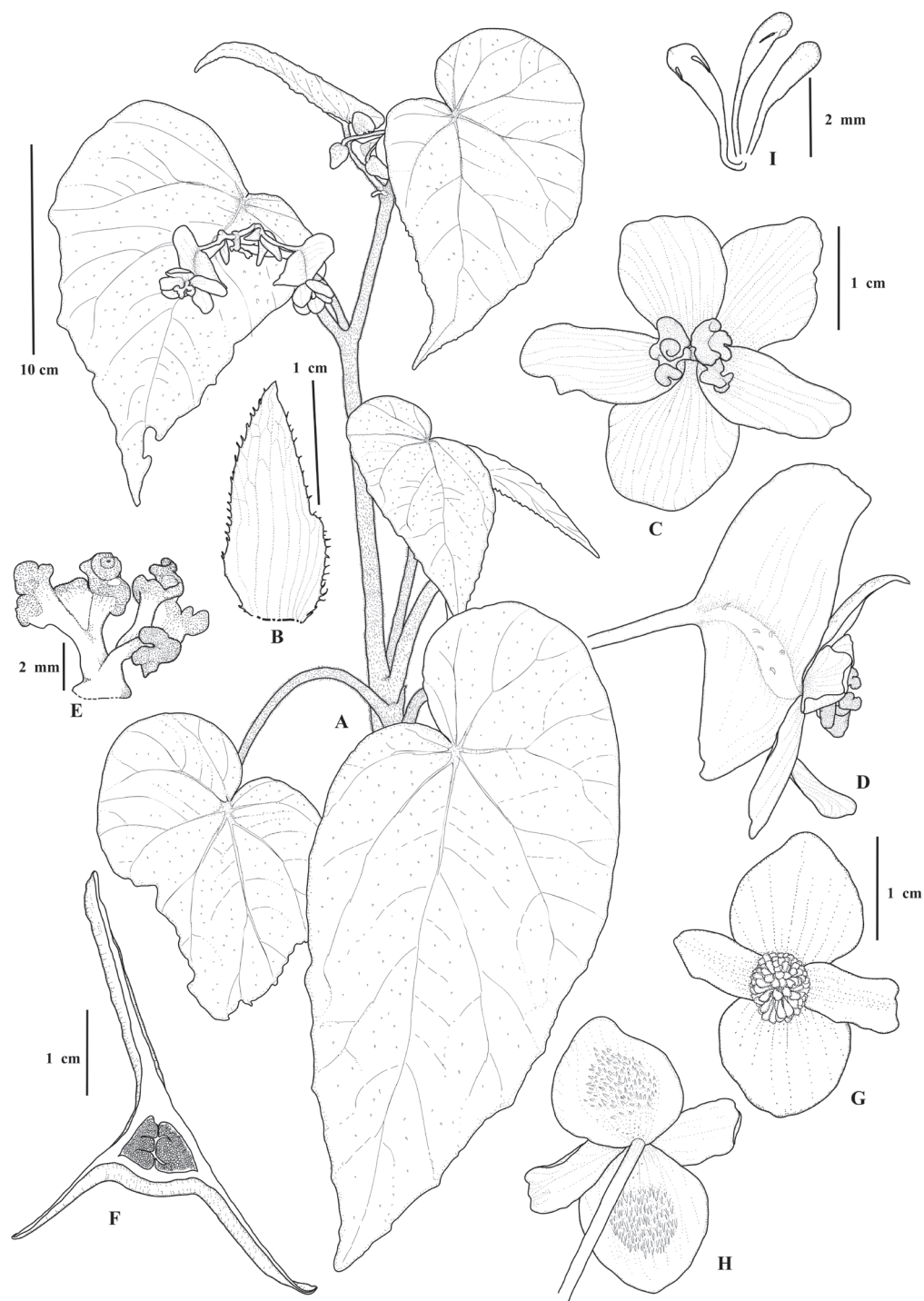


Figure 1. *Begonia colliculata* Souvann. & Lanors.: A habit; B. stipule; C. pistillate flowers, front view; D. pistillate flowers, lateral view; E. styles and stigma; F. cross section of fruit; G. staminate flowers, front view; H. staminate flowers, back view; I. stamens; Drawn by K. Souvannakhoummane from SL1999 (HNL).

Distribution and habitat.—To date, known only from the type locality in Nam Kading National Protected Area, Bolikhamxai province, Laos (Map 1). Plants are found in evergreen montane forest on rocks near stream and growing on humus-rich cliffs and rocks in sandy soil slopes with *Elatostema* sp. (Urticaceae), Asteraceae and Poaceae.

Phenology.—Flowering recorded in October, estimated between September to October and fruiting October to December.

Entomology.—The specific epithet “*colliculata*” refers to the colliculate surface of the ovary and fruit.

Vernacular.— Som kOUNg deang (Red begonia).

Preliminary conservation assessment.— Vulnerable VU D2. This species is known only from a single locality in Nam Kading National Protected Area with an occurrence of around 1,690 km². The overall population size is estimated to the number of less than 50 mature individuals. It is assessed here as Vulnerable, VU criterion D2, following IUCN criteria (2019).

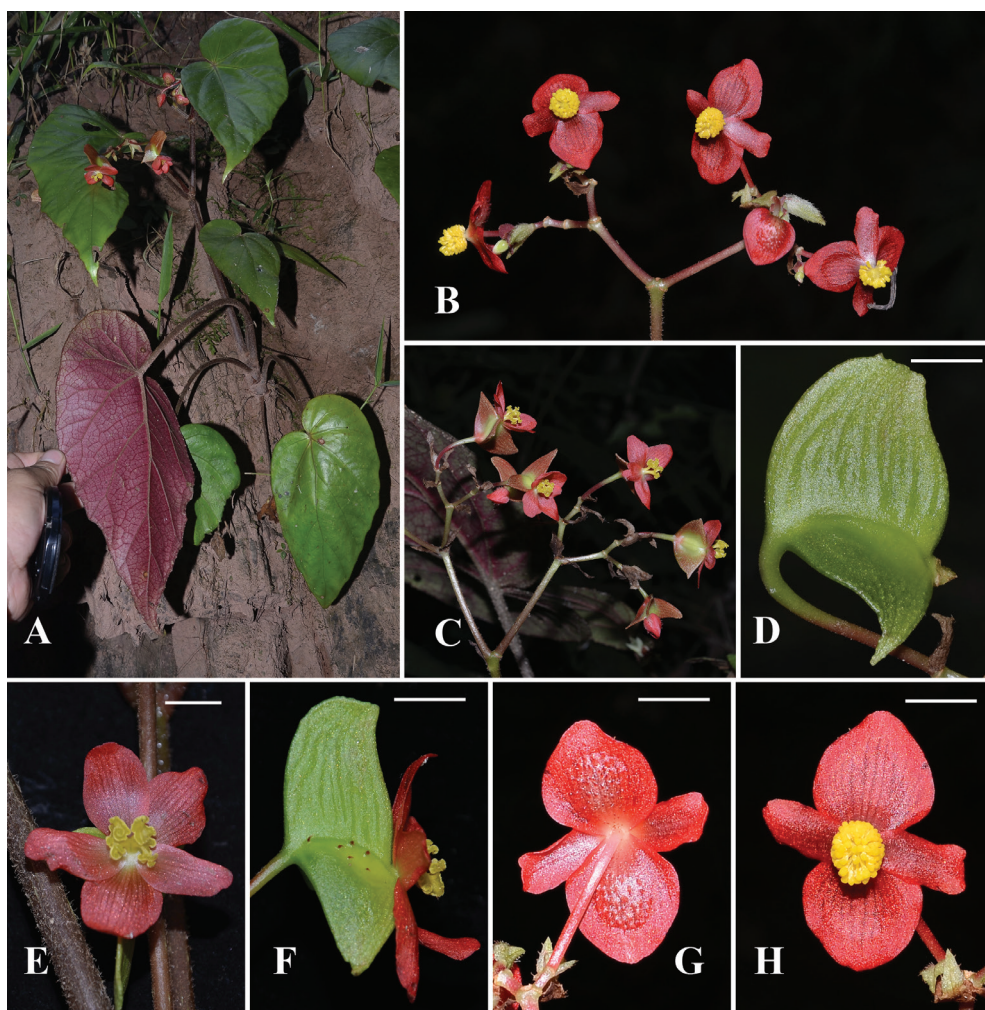
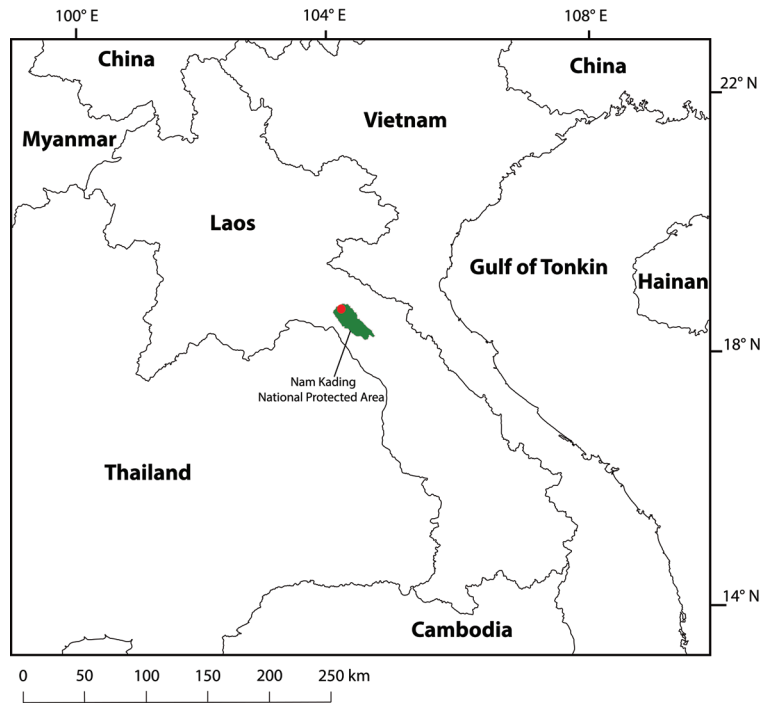


Figure 2. *Begonia colliculata* Souvann. & Lanors.: A habit; B. staminate inflorescence; C. pistillate inflorescence; D. fruit, lateral view; E. pistillate flower, front view; F. pistillate flower, lateral view; G. staminate flowers, back view; H. staminate flowers, front view; scale bar: 1 cm; photo by S. Lanorsavanh from SL1999 (HNL).



Map 1: Type locality (red circle) in Nam Kading National Protected Area (green area).

ACKNOWLEDGEMENT

This study is supported by the Korea National Arboretum, Korea Forest Service under the Project No. KNA 1-2-23, 15-4 for the field survey. We thank Mr Chaloun Bounithiphonh from National Agriculture and Forest Research Institute, Ms Hye Young Jin from Korea National Arboretum and Mr. Tae Hyeong Kim from Asia Forest Institute who provided insight and expertise that greatly assisted the field works. Thanks to staffs of Nam Kading National Protected Area and Department of Biology, Faculty of Natural Science, National University of Laos for their facilities during survey.

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