

A NEW SPECIES OF *BEGONIA* (BEGONIACEAE, SECT. *PLATYCENTRUM*) FROM THE SIANG VALLEY OF ARUNACHAL PRADESH, INDIA

S. Kishwan , T. U. Thackeray  & N. V. Page *

Begonia siangensis sp. nov., a rhizomatous, procumbent herb, from the Upper Siang District of Arunachal Pradesh, India, is described and illustrated. The species, belonging to the section *Platycentrum*, is morphologically similar to *Begonia iridescens* but can be readily differentiated by the subequal and decurrent wings of its ovary, drooping pistillate flowers, and papillose abaxial surface of the leaf. Line drawings, photographs, and a table of characters that distinguish this species morphologically from similar species is provided, as is a key to the Indian species of *Begonia* sect. *Platycentrum*.

Keywords. Eastern Himalaya, Northeast India.

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Introduction

Begonia L. (Begoniaceae) is one of the largest genera of flowering plants, with 2171 accepted species (POWO, 2026). This mega-diverse genus is presently divided into 70 sections (Moonlight *et al.*, 2018) distributed across the tropics and subtropics of Asia, Africa and the Americas (Doorenbos *et al.*, 1998; Moonlight *et al.*, 2018). It is one of the fastest-growing genera in the world (Liu *et al.*, 2020; Begonia Phylogeny Group, 2022), with more than 300 species described since the sectional revision by Moonlight *et al.* (2018). The genus is still poorly understood due to its high endemism and a lack of documentation from species-rich areas (Borah *et al.*, 2021).

In India, around 100 species and 13 varieties of *Begonia* are recorded, which are divided into 11 sections (Hughes *et al.*, 2015–). *Platycentrum* is the most diverse section in Northeast India (which includes Sikkim, Arunachal Pradesh, Assam, Nagaland, Manipur, Mizoram, Tripura and Meghalaya), with 55 species and 9 varieties (Hughes *et al.*, 2015–; Moonlight *et al.*, 2018). The most recent revision of the genus in Northeast India (Camfield & Hughes, 2018) included 38 species. The state of Arunachal Pradesh holds the highest concentration of species, with 58 species and 6 varieties of *Begonia* described from four sections: *Begonia* sect. *Diploclinium* (Lindl.) A.DC., *Begonia* sect. *Monophyllon* A.DC., *Begonia* sect. *Parvibegonia* A.DC. and *Begonia* sect. *Platycentrum* (Klotzsch) A.DC. (Hughes *et al.*, 2015–; Borah *et al.*, 2025, 2026).

In 2024, while conducting floristic field exploration along the Siang River Basin in Arunachal Pradesh, we found a rhizomatous species of *Begonia* growing next to a perennial

stream. The specimens collected were compared with the species from India, Myanmar and China, using the keys and descriptions in published literature (Doorenbos et al., 1998; Hughes et al., 2015–; Camfield & Hughes, 2018; Moonlight et al., 2018; Maw et al., 2020, 2021). The presence of anthers with an extended connective, pistillate flowers with 5 tepals, 3-winged and bilocular ovary, and axile placentation revealed this species as belonging to *Begonia* sect. *Platycentrum* (Doorenbos et al., 1998; Moonlight et al., 2018). However, a number of unique morphological features were observed, which differentiated it from other species of *Begonia* in the section. The species is described here as new to science, with detailed description, line drawings, photographs, and a table of characters that distinguishes it from morphologically similar species. A taxonomic key to the Indian species of *Begonia* sect. *Platycentrum* is also provided to facilitate identification.

Materials and methods

The description of the putative new species is based on field observations, as well as fresh material and dried specimens collected from Upper Siang District, Arunachal Pradesh. To confirm that the collections represented a new species, morphological examination of specimens in multiple herbaria, including ARUN, ASSAM, BM, CAL, K, P, PE and WU (herbarium codes follow Index Herbariorum, [updated continuously](#)), were made of published species from the Indian, Burmese and Chinese regions. Published keys and descriptions, along with the images and illustrations available from the Begonia Resource Centre (Hughes et al., 2015–), were also used for comparison. Examination of specimens, including the types, was conducted using high-resolution digital images accessed through online herbarium databases, namely the Chinese Virtual Herbarium (<https://www.cvh.ac.cn/>), the Indian Virtual Herbarium (<https://ivh.bsi.gov.in/>), the Global Biodiversity Information Facility (GBIF, <https://www.gbif.org/>) and the Begonia Resource Centre (<https://padme.rbge.org.uk/begonia/>).

The specimens were collected, dried and mounted following Davies et al. (2023) and deposited in the Herbaria of the Botanical Survey of India, Northern Regional Circle, Dehradun (BSD), Forest Research Institute, Dehradun (DD), and Wildlife Institute of India, Dehradun (WII). The photographs of the leaf underside and stamens were taken using a stereomicroscope (Leica Stereozoom M205c; Leica, Wetzlar, Germany).

Taxonomic treatment

Species description

***Begonia siangensis* Kishwan, T.U.Thackeray & N.V.Page, sp. nov. [§ *Platycentrum*]**

Begonia siangensis can be readily distinguished from the other species of *Begonia* sect. *Platycentrum* by its combination of subequal wings of the ovaries that are decurrent on the pedicel, drooping pistillate flowers, a distinctively zygomorphic androecium, and

papillose abaxial surface of the leaves. It is morphologically most similar to *Begonia iridescens* Dunn. in leaf shape and symmetry, 3–4 times branched inflorescence, and zygomorphic androecium with 15–25 stamens but differs by its non-variegated leaves (vs conspicuously variegated leaves with blue iridescence and large silver spots between the veins), glabrous to sparsely pilose inflorescence (vs densely pilose peduncles), and subequal (vs distinctly unequal) wings of the ovaries. – Type: India, Arunachal Pradesh, Upper Siang District, Between Bomdo and Jengging, 28°43'46.1"N, 94°55'13.5"E, 10 xi 2024, N.V. Page & S. Kishwan 101124 (holotype BSD [137842]; isotypes DD [175222], WII [013363]). **Figures 1–4.**

Rhizomatous herbs to 35 cm long. *Stem* creeping, to 5 mm in diameter, nodes thickened and rooting, internodes 3–8 cm long, reddish brown, glabrescent or glabrous. *Stipules* persistent, papery when dry, pale to yellowish green, ovate-triangular to ovate-lanceolate, 5–8 × 2–4 mm, margin entire, apex acute, glabrous, 3-nerved. *Leaves* alternate, strongly asymmetrical along the midrib, ovate to ovate-lanceolate, 7–12 × 4–7.5 cm, base obliquely cordate, lobes not overlapping, apex acute to shortly acuminate, margin coarsely and distantly crenate, sometimes entire, adaxial surface glabrous and dark green, abaxial surface with ovate projections giving a corrugated texture, sparsely papillose between the

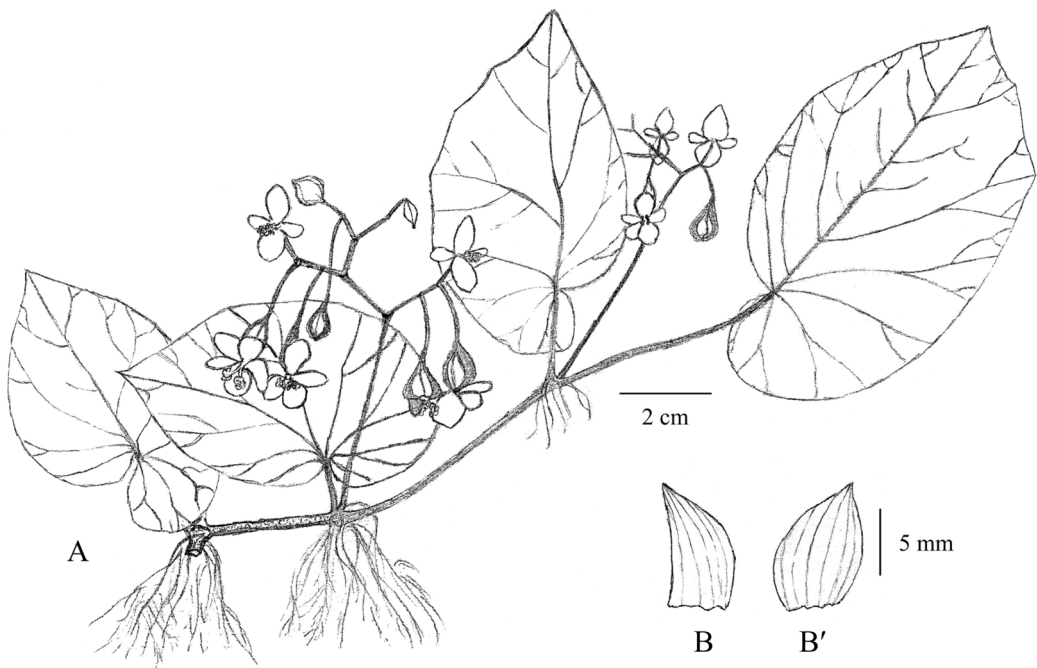


Figure 1. *Begonia siangensis* Kishwan et al., sp. nov. A, Habit; B and B', adaxial view of stipules. Drawn by Shivam Kishwan from the holotype (BSD [137842]).

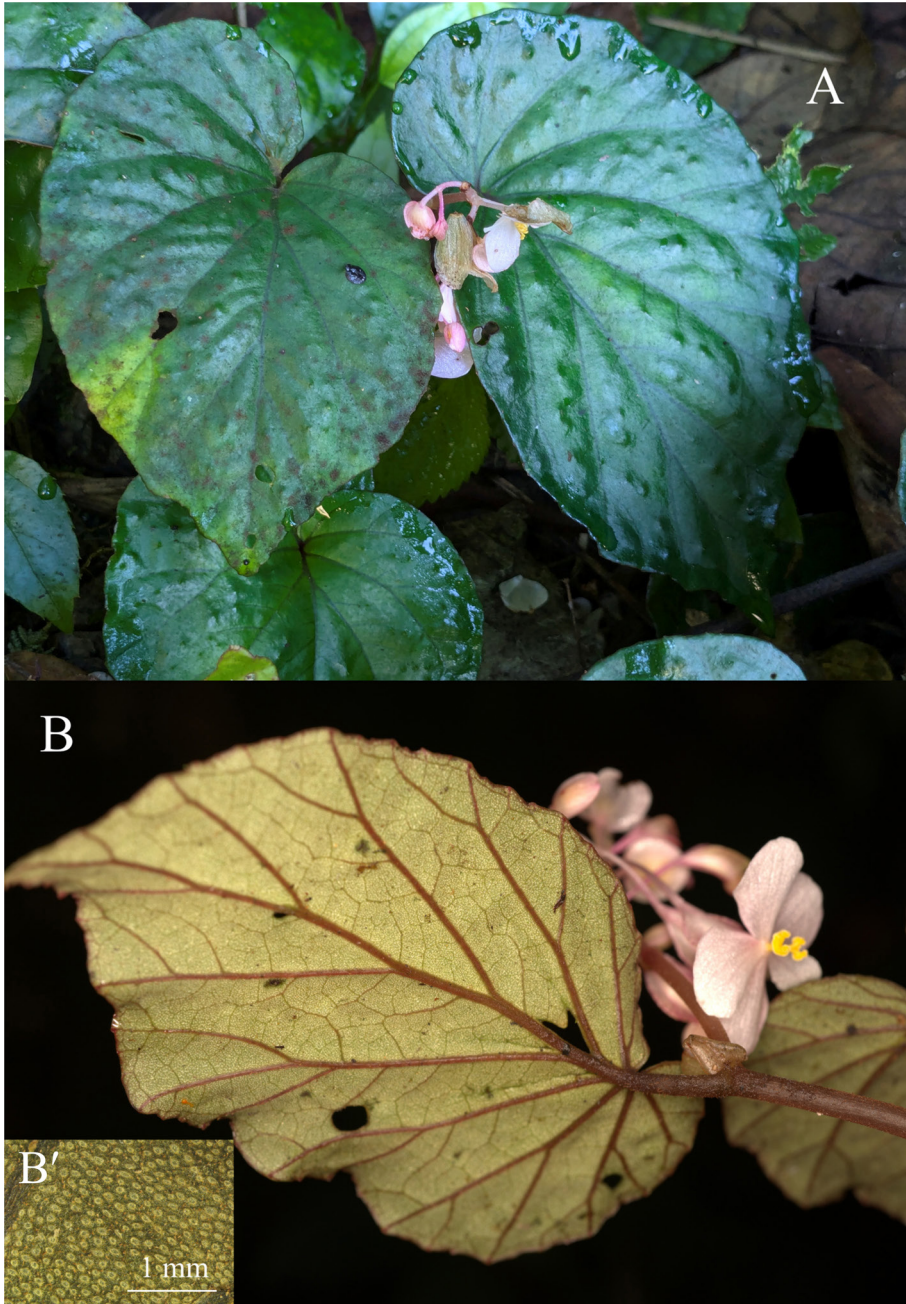


Figure 2. *Begonia siangensis* Kishwan et al., sp. nov. A, Flowering plant, showing adaxial leaf surface and inflorescence; B, leaf (abaxial side); B', portion of leaf (of the holotype), showing abaxial side (under a microscope). Photographs, taken by Navendu Page, of plants from the same population as the holotype.

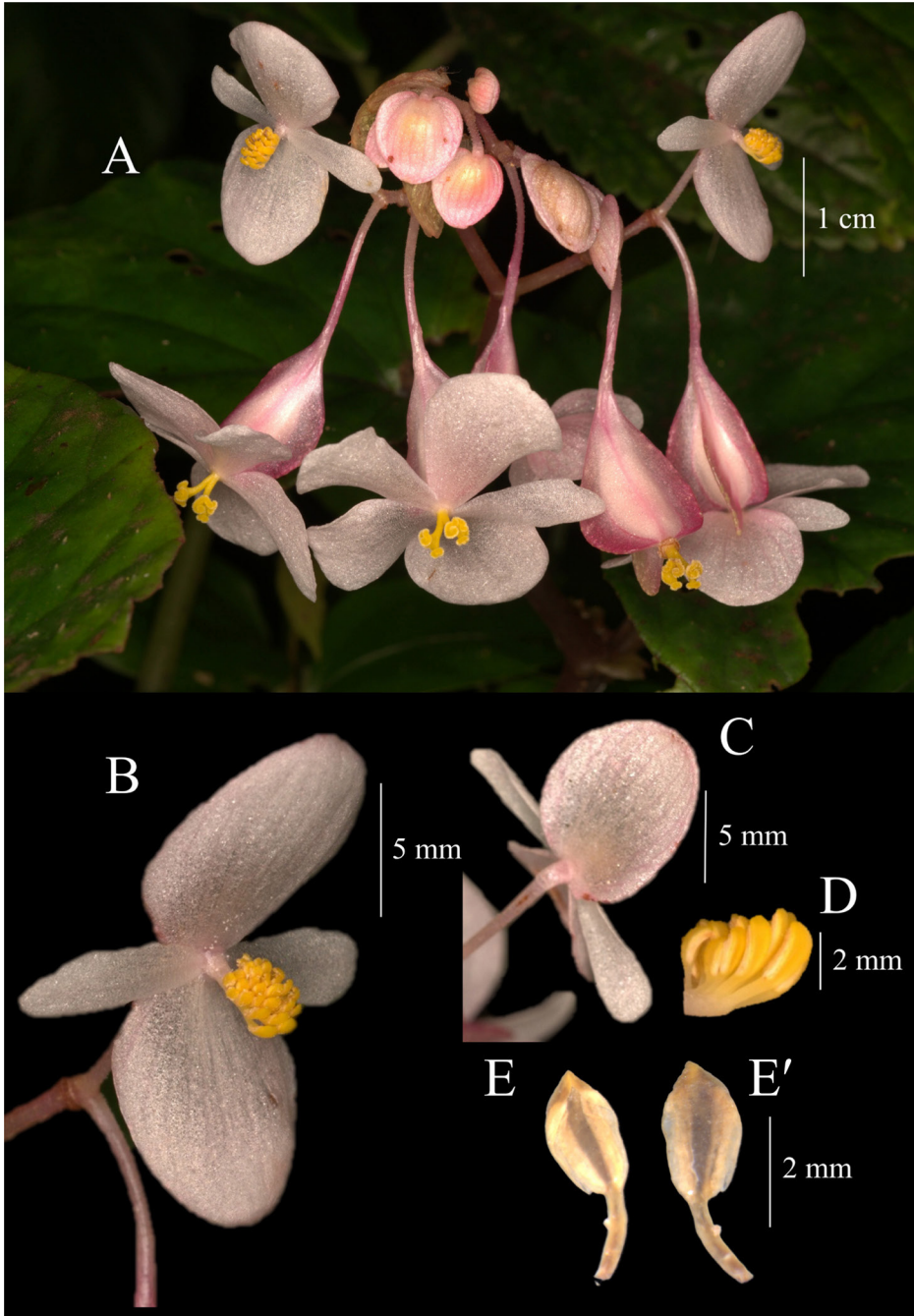


Figure 3. *Begonia siangensis* Kishwan et al., sp. nov. A, Inflorescence; B, staminate flower; C, abaxial side of staminate flower; D, androecium; E and E', stamen under a microscope. Photographs, taken by Navendu Page, of plants from the same population as the holotype.

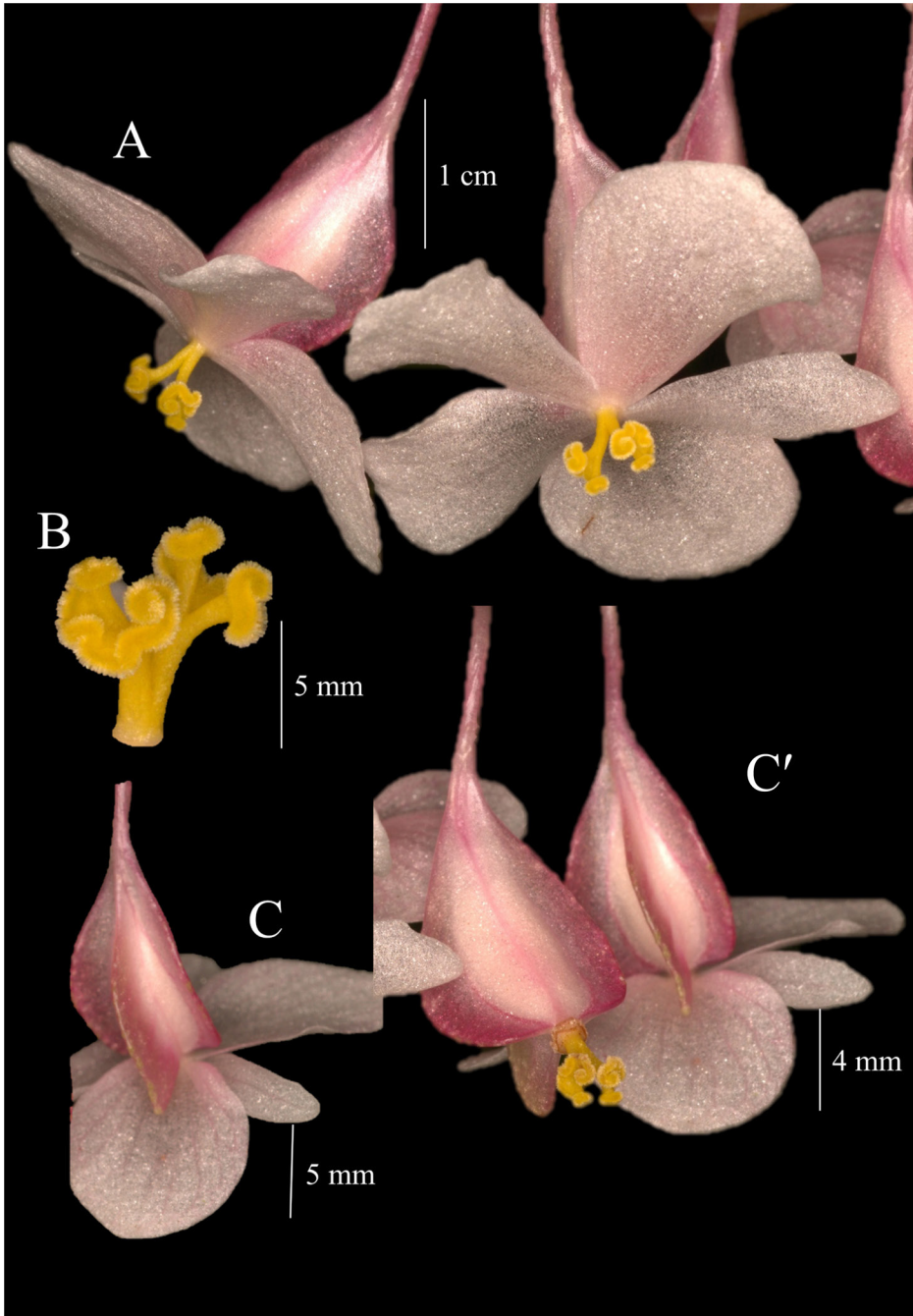


Figure 4. *Begonia siangensis* Kishwan et al., sp. nov. A, Pistillate flowers; B, style and stigmas; C and C', ovary and wings. Photographs, taken by Navendu Page, of plants from the same population as the holotype.

projections; *venation* palmate-pinnate with 7–9 basal nerves including the midrib; *midrib* appressed adaxially, prominent and raised abaxially, reddish brown, glabrous to glabrescent, with 3 or 4 secondary veins alternating on each side; *basal* and *secondary veins* appressed adaxially, prominent abaxially, reddish brown, splitting multiple times before reaching the margin, glabrous; *tertiary veins* invisible adaxially, prominent abaxially, $\pm$ reticulate; *petiole* (1–)2–3 cm long, terete, reddish brown, glabrous, sometimes with a few hairs near the lamina base. *Inflorescences* bisexual, axillary, dichasial cymes, branched 3–4 times, arising directly from the rhizome and from the axils of the basal leaves, up to 15-flowered, with staminate and pistillate flowers usually paired; *primary peduncle* pink or pale pink, 2–7 cm long, shorter on the distal leaves, glabrous or sparsely glandular hairy; *secondary peduncle* 1–1.5 cm long, glabrous or sparsely glandular hairy; *bracts* caducous, leaving a dark pink scar, ovate, acute at apex, c.1.2 $\times$ 0.6 cm, with 4 or 5 faint nerves, glabrous. *Staminate flowers* erect; *pedicels* 0.8–1.2 cm long, sparsely glandular hairy; *tepals* 4, pink; *outer tepals* 2, broadly ovate to obovate, 8–10 $\times$ 6–8 mm, glabrous, with up to c.13 faint nerves ($\pm$ prominent when dried); *inner tepals* 2, narrowly elliptic to oblanceolate, 6–7 $\times$ 2–3 mm, apex obtuse to rounded, glabrous, with up to 3 faint nerves; androecium c.4 mm across, zygomorphic; stamens yellow, 15–30, pointing upwards; *filaments* c.2 mm long, subequal, fused on a short stalk; *anthers* c.2 mm long, obovoid, apex rounded or rarely acute, connective slightly extended beyond the anther sacs. *Pistillate flowers* drooping; *pedicels* 1.5–2 cm long, sparsely pilose; *tepals* 5, pink; *outer tepals* 3, the 2 dorsal ones broadly ovate to obovate or sometimes rounded, usually broader than longer with up to c.10 faint nerves, 1.6–2 $\times$ 1.5–1.8 cm, lateral one slightly smaller, 1.5–1.8 $\times$ 1–1.2 cm, glabrous; *inner tepals* 2, oblanceolate to obovate, 1.2–2.2 $\times$ 0.5–0.8 cm, apex obtuse, glabrous; *styles* 2, fused at the base, splitting above the middle, yellow, c.5 mm long; *stigma* spirally twisted; *ovary* ellipsoid, 6–8 mm long, c.4 mm thick (excluding wings), whitish pink, glabrous, 3-winged; *wings* decurrent on the pedicel, subequal; *abaxial wing* crescent shaped to rhomboid, c.4 mm wide; *lateral wings* crescent shaped, c.3 mm wide. *Capsule* not seen.

Distribution. The species is so far known only from the Upper Siang District in Arunachal Pradesh, India, between the towns of Jengging and Bomdo.

Habitat and ecology. The species was found along a perennial stream at around 600 m elevation, growing in shaded habitats with other moisture- and shade-loving species such as *Elatostema* sp., *Henckelia oblongifolia* (Roxb.) D.J.Middleton & Mich.Möller, *Leptoboaea* sp. and *Selaginella* sp.

Etymology. The specific epithet refers to Siang River Valley in Arunachal Pradesh, from where the species was collected.

Proposed IUCN conservation category. *Begonia siangensis* is so far recorded from only a single location. Systematic and focused surveys need to be carried out between elevations

of 500–1000 m, along the small, perennial and shaded stream habitats in the Upper Siang Valley, to document locations and populations sizes of additional occurrences. We feel that the current information on distribution range and population is insufficient to make a meaningful assessment of the species' IUCN conservation status. It is therefore provisionally assessed as Data Deficient.

Notes. The [Table](#) summarises the differences between *Begonia siangensis* and the morphologically similar species *B. iridescens*

Keys to species of *Begonia* sect. *Platycentrum* in India

The taxonomic keys provided below cover 55 species of *Begonia* reported from India and belonging to the section *Platycentrum* (all the species of this section known from the country so far are restricted to Northeast India). The first key divides the 55 species into four groups, and the second key is to the species of group 4, including *Begonia siangensis* sp. nov.

Key to the groups of *Begonia* sect. *Platycentrum* in India

- 1a. Fruit berry-like, fleshy, indehiscent; ovary 3- or 4-loculed (rarely more) _____ Group 1
- 1b. Fruit capsular, dehiscent; ovary 2-loculed _____ 2
- 2a. Fruit with one large wing and two ridges _____ Group 2
- 2b. Fruit with 3 unequal or subequal wings _____ 3
- 3a. Leaf blades scalloped or deeply to shallowly lobed _____ Group 3
- 3b. Leaf blades unlobed _____ Group 4

Table. Key characters distinguishing *Begonia siangensis* from the morphologically similar *B. iridescens*

Character	<i>B. siangensis</i>	<i>B. iridescens</i>
Habit	Rhizomatous caulescent herbs; stem creeping and rooting at nodes	Acaulescent herbs with subterranean rhizome
Petiole length (cm)	(1–)2–3	5–12
Abaxial surface of leaves	Pale green; with ovate projections producing a corrugated texture	Green; pubescent on the veins only
Adaxial surface of leaves	Without variegation	Variegated with large silver spots between the veins
No. of flowers	Up to 15	Up to 20
Peduncles	Glabrous or sparsely glandular hairy	Densely pilose
Wings of ovaries	Subequal, decurrent on the pedicel	Unequal; abaxial wing much longer than the two lateral wings, not decurrent on the pedicel
Distribution	Upper Siang District, Arunachal Pradesh, India	Siang region of Arunachal Pradesh, India; Myanmar

Group 1 includes species of *Begonia* previously placed or likely to have been in *Begonia* sect. *Sphenanthera*. This section was subsequently synonymised under *Begonia* sect. *Platycentrum* (Moonlight et al., 2018). The fruit is berry-like and fleshy, and the ovary has 3 or 4 (rarely more) locules (Doorenbos et al., 1998). This group contains 13 species: *Begonia aborensis* Dunn, *B. acetosella* Craib, *B. burkillii* Dunn, *B. dalaiensis* B.Das et al., *B. handelii* Irmsch., *B. longifolia* Blume, *B. macrantha* B.Das et al., *B. mizoramensis* Vanlalawmpuia et al., *B. pseudoheydei* Y.M.Shui & W.H.Chen, *B. quadricorniculata* R.Maity et al., *B. roxburghii* (Miq.) A.DC., *B. silletensis* (A.DC.) C.B.Clarke and *B. tessaricarpa* C.B.Clarke.

Group 2 includes species of *Begonia* previously placed in *Begonia* sect. *Monopteron*. This section was synonymised under *Begonia* sect. *Platycentrum* by Moonlight et al. (2018). The ovary is bilocular, with one large wing and two ridges (Doorenbos et al., 1998). This group contains three species: *Begonia griffithiana* (A.DC.) Warb, *B. nepalensis* (A.DC.) Warb. and *B. pasighatensis* D.Borah et al.

Group 3 is an informal group that includes species from *Begonia* sect. *Platycentrum* s. str. The ovary is bilocular and 3-winged, and the species have lobed leaves. It contains 15 species: *Begonia atrofusca* Wahlsteen & D.Borah, *B. difformis* (Irmsch.) W.C.Leong et al., *B. flaviflora* H.Hara, *B. koelzii* R.Camfield, *B. lorentzonii* Wahlsteen & D.Borah, *B. manhaoensis* S.H.Huang & Y.M.Shui (sometimes shallowly lobed), *B. megaptera* A.DC., *B. palmata* D.Don., *B. panchtharensis* S.Rajbh., *B. pedatifida* H.Lév., *B. rushforthii* Wahlsteen & D.Borah, *B. shilendrae* Rekha Morris & P.D.McMillan, *B. sikkimensis* A.DC., *B. watsonii* Sherpa et al. and *B. ziroensis* D.Borah et al. A few species present in the key above can occasionally have shallowly lobed leaves: *Begonia cathcartii* Hook.f., *B. markiana* Taram et al. and *B. thomsonii* A.DC.

Group 4 is an informal group that includes 24 species of *Begonia* sect. *Platycentrum* distributed in Northeast India. This group is characterised by its capsular fruits with 3 unequal or subequal wings, bilocular ovaries and unlobed leaf blades.

Key to the species of group 4

- 1a. Ovary variously hairy or tuberculate 2
- 1b. Ovary glabrous (rarely with a few long hairs in *B. limprichtii* Irmsch.) 13
- 2a. Flowers yellow or yellow-orange *B. zhongyangiana* W.G.Wang & S.Z.Zhang
- 2b. Flowers white or pink 3
- 3a. Leaves two-coloured, variegated and/or iridescent (*B. thomsonii* occasionally concolorous) 4
- 3b. Leaves concolorous green 8
- 4a. Leaves blue iridescent adaxially 5
- 4b. Leaves not blue iridescent adaxially 6

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- 5a. Leaves variegated with silver-white spots adaxially, green abaxially _____ *B. iridescens*
- 5b. Leaves not variegated, reddish abaxially _____ *B. naraharii* B.Hajong et al.
- 6a. Variegation of continuous silver-white ring _____ *B. annulata* K.Koch
- 6b. Variegation of purple or red spots or patches _____ 7
- 7a. Leaves with a central dark patch, densely white pilose on both surfaces ____ *B. markiana*
- 7b. Leaves with reddish or purple patches, densely red villous on both surfaces
B. thomsonii
- 8a. Androecium asymmetrical _____ *B. egamii* D. Borah et al.
- 8b. Androecium symmetrical _____ 9
- 9a. Ovary with subequal wings _____ *B. obversa* C.B.Clarke
- 9b. Ovary with unequal wings _____ 10
- 10a. Petiole with reddish scales _____ *B. nyishiorum* A. Shenoy et al.
- 10b. Petioles hairy, without scales _____ 11
- 11a. Leaves entire or coarsely dentate _____ *B. tripurensis* Dixit et al.
- 11b. Leaves serrate-dentate _____ 12
- 12a. Plants up to 30 cm high; internodes less than 3 cm long; leaves with short dense hairs
B. kekarmonyngensis Taram et al.
- 12b. Plants 30–60 cm high; internodes up to 20 cm long; leaves and stems with sparse red strigose hairs _____ *B. cathcartii*
- 13a. Flowers yellow or yellow-orange _____ *B. xanthina* Hook.
- 13b. Flowers white, pink or red _____ 14
- 14a. Undersurface of leaves red, maroon or purple _____ 15
- 14b. Undersurface of leaves variously green _____ 16
- 15a. Flowers white to pale pink; outer tepals with dark pink stripes
B. hatacoa Buch.-Ham. ex D.Don
- 15b. Flowers white; outer tepals (in male flowers) with folded margins at the apex
B. dicressine Wahlsteen
- 16a. Leaves variegated _____ 17
- 16b. Leaves not variegated _____ 21
- 17a. Leaves broadly dentate to serrate _____ *B. beddomei* Hook.
- 17b. Leaves entire or obscurely dentate _____ 18
- 18a. Leaf surface bullate; variegation of continuous silver-white ring _____ *B. rex* Putz.
- 18b. Leaf surface not bullate; variegation not continuous _____ 19

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- 19a. Anther's extension obovate or truncate; variegation of both silver-white circular spots and brownish-red patches _____ *B. neisti* B.Hajong et al.
- 19b. Anther's extension acute or acuminate; variegation of either silver-white spots or purplish patches _____ 20
- 20a. Petiole grooved; variegation of silver-white spots conspicuous on the adaxial surface
B. murlenensis N.Krishna & Pradeep
- 20b. Petiole terete; variegation of purple patches conspicuous on the abaxial surface
B. himalaica D.Borah et al.
- 21a. Androecium symmetrical; ovary wings unequal _____ 22
- 21b. Androecium asymmetrical; ovary wings subequal _____ *B. siangensis*
- 22a. Leaves covered with red strigose hairs, strongly asymmetrical _____ *B. limprichtii*
- 22b. Leaves glabrous or slightly hairy, slightly asymmetrical _____ 23
- 23a. Stems and petioles glabrous _____ *B. siamensis* Gagnep.
- 23b. Stems and petioles densely pubescent _____ *B. medogensis* JianW.Li et al.

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