
Contributions Toward a Revision of *Begonia* Section *Weilbachia* (Begoniaceae)

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ABSTRACT. Characteristics of *Begonia* sect. *Weilbachia* (Klotzsch & Oersted) A. DC. (Begoniaceae) are discussed, and four new species in the section, *B. almedana*, *B. hondurensis*, *B. faustinoi*, and *B. turrialbae*, are described, illustrated, and compared with other species in the section.

The genus *Weilbachia* was described by Klotzsch and Oersted (1855) for those species in *Begonia* with four staminate and three pistillate perianth segments and bilocular ovaries with two parted styles. Although Klotzsch and Oersted did not include capsular orientation in their generic description, both species placed in the genus, *W. reptans* Klotzsch & Oersted and *W. pustulata* (Liebmann) Klotzsch & Oersted, were characterized as having nutant capsules. Alphonse De Candolle (1859) reduced *Weilbachia* to a section within *Begonia*. Its description was emended subsequently to include species with apetalous staminate perianths, pistillate flowers with two "lobes," and nutant capsules (De Candolle, 1864). Individuals of many species within the section have pistillate flowers with two or three styles (Burt-Utley, 1985), including *B. pustulata*, which De Candolle (1864) characterized as having two styles. When three styles are present, a stigma borne on one of the styles sometimes appears smaller and less well developed than the other two. Section *Liebmannia* Ziesenhenné was described for a species with apetalous pistillate flowers, three styles, and bilocular ovaries (Ziesenhenné, 1976). Although Ziesenhenné (1976) discussed the cane-like habit of the type species, he chose not to include this character in his Latin diagnosis and relied on floral characters exclusively. Because style number is variable within a species and section *Liebmannia* cannot be distinguished from section *Weilbachia* using other floral or vegetative characters (Burt-Utley, 1985), section *Liebmannia* is herein considered synonymous with section *Weilbachia*. A similar conclusion was recently published by Doorenbos et al. (1998) relying solely on plant habit.

Begonia sect. *Weilbachia* is the only neotropical section having species with characteristically biloc-

ular ovaries. With the exception of sections *Gobenia* A. DC. and *Tetrachia* Brade, which have quadriocular ovaries, species in all other neotropical sections have trilocular ovaries. Capsules of species in section *Weilbachia* are also unusual among neotropical Begoniaceae in having a succulent or fleshy outer layer that must erode before the capsules can dehisce (pers. obs.). In other neotropical sections, as capsules mature they begin drying without first shedding an outer layer of tissue and then dehisce near the base of the locules or rarely through the wings. Section *Weilbachia* includes about 25 species that are distributed from the states of Veracruz, Puebla, and Jalisco in Mexico to northwestern Panama. Of these, almost half are endemic to Mexico. As a result of our continued research with neotropical *Begonia*, a planned revision of section *Weilbachia*, and treatment of the family for *Flora Mesoamericana*, four species are herein proposed as new within section *Weilbachia*.

Begonia* sect. *Weilbachia (Klotzsch & Oersted) A. DC., Ann. Sci. Nat. IV. 11: 134. 1859. *Weilbachia* Klotzsch & Oersted, Abh. Königl. Akad. Wiss. Berlin. 1854: 239. 1855.

Begonia sect. *Liebmannia* Ziesenhenné, The Begonian 43: 64. 1976.

Begonia hondurensis Burt-Utley & Utley, sp. nov.
TYPE: Honduras. Atlántida: along Danto River, slopes of Mt. Cangrejal, 1200 ft., 2 Aug. 1938, T. G. Yuncker, J. M. Koepper & K. A. Wagner 8773 (holotype, F; isotypes, BM, GH, MICH, MO, NY, US). Figure 1.

Rhizomata repentia; internodia squamosa. Petioli indumentis (1-)2-4 mm longis dense squamosi. Florum ♂ petala 4.5-8 × 1.4-3.5(-5) mm; stamina 22-49. Ovaria bilocularia.

Herbaceous perennials; rhizomes repent, internodes usually elongate and slender, rarely short, 0.5-6.6 cm long × 1-3(-4) mm diam., glandular-squamosa with lacinate scales to 3 mm long; stipules persistent, narrowly ovate-triangular, 0.8-1.7 cm × 4.5-9 mm, glandular-pilose, strongly keeled, with the keel lacinate; petioles 6.5-23 cm long,

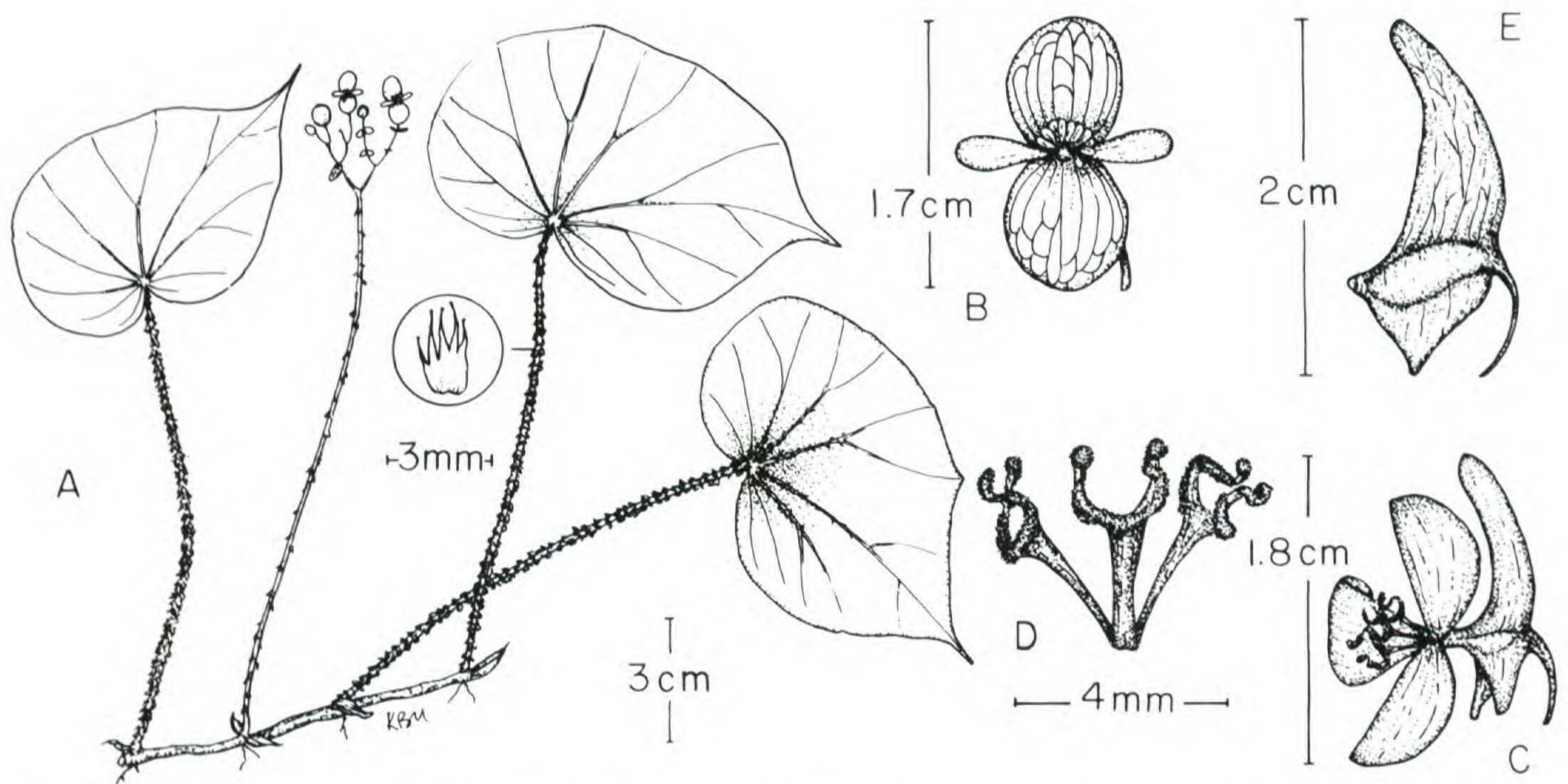


Figure 1. *Begonia hondurensis* Burt-Utley & Utley. —A. Habit with insert showing petiole scale. —B. Staminate flower. —C. Pistillate flower. —D. Stigmas. —E. Capsule. (A, B, E from Yuncker et al. 8773; C, D from Evans 1562.)

densely glandular-squamose with broad lacinate scales (1–)2–4 mm long, often appearing glandular-tipped; leaf blades oblique to transverse, asymmetrically ovate to obovate or reniform-elliptic, 6.8–13.8(–14.6) × 4.5–7(–9) cm, basally cordate, apically acute to attenuate-acuminate, marginally sparingly ciliate and irregularly dentate to crenate at the end of major nerves, green throughout to red-maculate at vein junctions and glandular to glabrous above except for villi at the petiole-blade junction, glandular-hirtellous beneath with trichomes most dense on principal nerves, 8–10-palmatinerved; inflorescences shorter than to exceeding the foliage, symmetric to weakly asymmetric, laxly cymose, few-flowered; peduncles 10.5–25 cm long, sparingly glandular-villous becoming glabrate with age; bracts deciduous, the lowermost ovate to narrowly elliptic, 5–8 × 2–5 mm, marginally entire, externally sparingly glandular, weakly keeled; staminate flowers: pedicels 4.5–10 mm long; sepals 2, membranaceous, suborbicular to broadly transversely elliptic, 6–10 × 6.5–10 mm, sparingly glandular and white to pink externally; petals 2, oblanceolate, 4.5–8 × 1.4–3.5(–5) mm; stamens 22–49; filaments 0.2–1.3 mm long, borne on a raised torus; anthers oblong to narrowly obovate, 1–1.5 × 0.4–0.9 mm; pistillate flowers: pedicels 5.5–7.5 mm long; bracteoles wanting; sepals 2, suborbicular to oblong-elliptic, 8.5–11 × 10–11 mm, sparingly glandular and white to light pink; petal only 1, obovate, 10 × 4–7 mm; ovary bilocular with bipartite placentae, 5–8 mm long, sparingly glandular to glandular-villous; styles 3 or rarely 4, 1.5–

2.5 mm long, connate only briefly basally; stigmas broadly lunate with ends beginning to spiral to bicornute; capsules with pedicels 8–11 mm long, strongly nutant, frequently somewhat beaked, thick and fleshy, drying coriaceous, (9–)10.5–12 mm long; wings 3, unequal, the largest falcate to subfalcate, 14–17 × 5–8 mm, the others subequal, triangular, 3–7 × 8–10 mm.

Distribution. Known only from near La Ceiba in the Department of Atlántida, Honduras, where it has been collected between 140 and 365 m on slopes along rivers and streams.

Begonia hondurensis is distinguished from all other species in section *Weilbachia* by a combination of characters including squamose internodes and petioles, coupled with staminate and pistillate flowers with petals. A squamose indumentum has been observed on only one other species in the section, *B. vestita* C. DC. from southern Central America. Although *B. vestita* clearly has bilocular ovaries and capsules consistent with its inclusion in section *Weilbachia*, it was listed in section *Gireoudia* (Klotzsch) A. DC. (Barkley & Golding, 1974; Doorenbos et al., 1998) possibly because Casimir De Candolle (1908) mistakenly characterized the capsules as trilocular. *Begonia hondurensis* differs from *B. vestita* in its petalous staminate and pistillate flowers, as well as its capsules with narrow falcate to subfalcate primary capsule wings (14–17 mm high, 5–8 mm wide). In contrast, primary wings of *B. vestita* are asymmetrically oblong and (5–)8–12 mm high and (4–)8–13 mm wide.

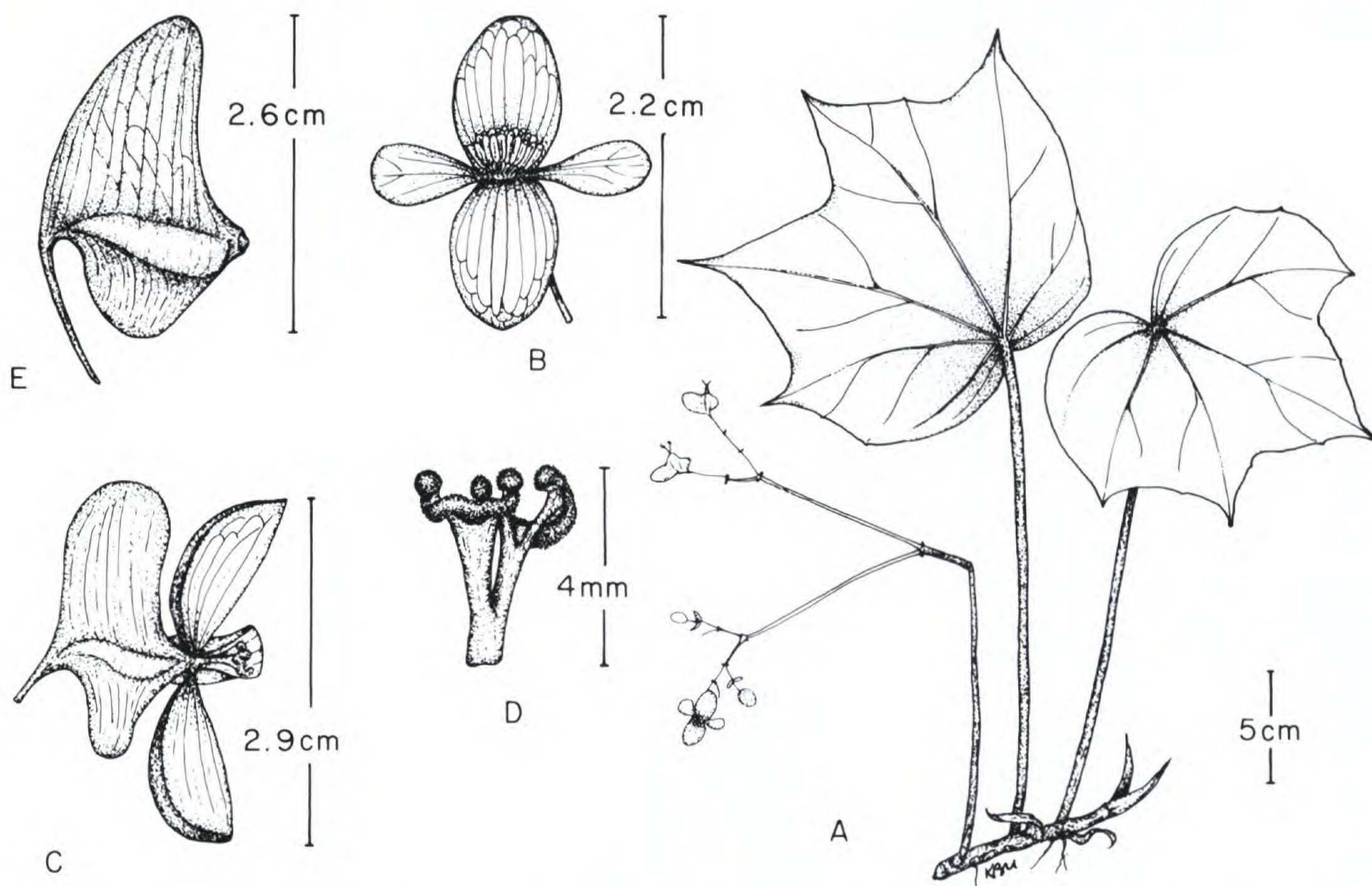


Figure 2. *Begonia almedana* Burt-Utley & Utley. —A. Habit. —B. Staminate flower. —C. Pistillate flower. —D. Stigmas. —E. Capsule prior to dehiscence. (From Utley & Utley 8425.)

Paratypes. HONDURAS. **Atlántida:** Cordillera Nombre de Dios, Quebrada Grande on lower N slope of Pico Bonito, *Blackmore & Chorley 4178* (BM); base of N slope of Pico Bonito, E of new CURLA camp building on Quebrada Grande, ca. 1/3 km above its confluence with Río Bonito, 10 km SW of La Ceiba, Parque Nacional Pico Blanco, 140 m, *Evans 1562* (MO, NOLS); Campamento Quebrada Grande ca. 10 km SW of La Ceiba, at base of N slope of Pico Bonito, 140 m, *Liesner & Mejia 26016* (EAP, MO, NOLS, TEHF), *Liesner & Mejia 26035* (MO); Montaña La Manga, 30 km SE de La Ceiba, *Nelson, Vargas & Aldwin 3299* (TEHF); Ceiba, *Dyer A211* (US).

***Begonia almedana* Burt-Utley & Utley, sp. nov.**

TYPE: Mexico. Chiapas: cloud forest along banks of Río Jol Uk'um, about 43.5 mi. S of Palenque near 100 km marker and 7.8 mi. S of turnoff to Cascadas Agua Azul on MEX 199 to Ocosingo, 1900 ft., 21 July 1989, *J. Utley & K. Utley 8425* (holotype, MEXU; isotypes, B, BM, C, CAS, DUKE, F, MICH, MO, US). Figure 2.

Rhizomata repentia; internodia hirtella. Petioli hirtelli; laminae 3–4-lobatae. Florum ♂ sepala 7.5–11.5(–13) × 5.5–9.5 mm; petala 8–10.5 × 4.5–7(–8) mm; stamina 30–76. Ovaria bilocularia glandulosa hirtella styli duo.

Herbaceous perennials; rhizomes repent, elongate, generally branching, internodes short to elongate, 0.3–1.6(–4.1) cm long × 3–5(–8) mm diam., sparingly glandular-hirtellous with trichomes 0.2–

0.4 mm long; stipules caducous to deciduous, fleshy but becoming chartaceous upon drying, narrowly ovate-triangular, (0.9–)1.3–3.1 cm × 4.5–8.5 mm, marginally entire, glandular to very sparingly glandular-hirtellous, strongly keeled with the keel fimbriate and occasionally lacinate; petioles 10.6–24.8 cm long, glandular-hirtellous with short spreading to ascending villi 0.3–0.8 mm long often appearing glandular-tipped; leaf blades oblique or rarely straight, asymmetric, suborbicular to broadly obovate, transversely elliptic or rarely ovate, 9.3–19.8 × 7.7–17 cm, basally very shallowly cordate to occasionally deeply cordate, apically attenuate-acuminate, rarely appearing bilobed with no distinct apex, marginally serrulate-denticulate and asymmetrically palmately lobed, usually with 3–4 major attenuate-acuminate lobes to 1/3 the blade length, dark green and sparingly glandular to glandular-hirtellous above, pale green and sparingly glandular-hirtellous beneath with trichomes most dense on principal nerves, (6–)8–9(–11)-palmatinerved; inflorescences much shorter than to exceeding the foliage, weakly to strongly asymmetric, laxly cymose, few- to many-flowered; peduncles often unusually short, (3–)9.1–23(–31) cm long, glandular and very sparingly hirtellous; bracts caducous to deciduous, the lowermost often smaller than secondary bracts, ovate to narrowly ovate, ovate-tri-

Table 1. Comparison of *B. almedana* with *B. ludicra*.

	<i>B. almedana</i>	<i>B. ludicra</i>
Stipule length (cm)	(0.9-)1.3-3.1	0.6-1.2
Petiole pubescence (mm)	0.3-0.8	0.3-2
♂ sepal size (mm)	7.5-11.5(-13) × 5.5-9.5	(8-)12-22 × (7-)12.5-18
♂ petal size (mm)	8-10.5 × 4.5-7(-8)	11-16 × 3-4.5(-6)

angular or rarely transversely broadly ovate, to orbicular, 3-15.5 × 3.5-7.5 mm, apically attenuate-acuminate or infrequently rounded, marginally entire, sparingly glandular, occasionally keeled; staminate flowers: pedicels 8-14 mm long, glabrous to sparingly glandular, sepals 2, fleshy, elliptic to broadly elliptic, ovate-elliptic, obovate, or rarely suborbicular, 7.5-11.5(-13) × 5.5-9.5 mm, glabrous to sparingly glandular, pink externally; petals 2, broadly oblanceolate, 8-10.5 × 4.5-7(-8) mm, white, apically frequently obcordate, rarely rounded; stamens 30-76; filaments 0.3-1.3 mm; anthers narrowly oblong-elliptic to obovate, 1.6-3.3 × 0.4-0.5(-0.7) mm; pistillate flowers: pedicels 6-16 mm long, ebracteolate or often with 1 or 2 bracteoles to 3.5 mm long; sepals suborbicular to transversely broadly elliptic, 7-13 × 7.5-15 mm, dark pink; petal only 1, oblanceolate, 9.5-12.5 × 5-8 mm, white; ovary 5.5-10 mm long, glandular to glandular-hirtellous; styles 2, connate only briefly basally or rarely to over half their length; stigmas dilated-lunate to weakly bicornute; capsules with pedicels (0.9-)1.2-2.5 cm long, strongly nutant, bilocular with bipartite placentae, thick and fleshy but drying cartilaginous, (0.9-)1.1-1.7 cm long; locules 6.5-10(-11.5) mm long; wings 3, unequal, the largest often falcate, narrowly triangular, oblong or rarely broadly ovate, (0.8-)1.1-2.2 × 0.9-1.5 cm, the second and third subequal, triangular, (0.5-)0.7-1.2 × 0.8-1.1 cm.

Distribution. Known from limited collections from Chiapas, Mexico, in primary forests between 450 and 580 m elevation. It is common at the type locality on forested banks of the Río Jol Uk'um.

Begonia almedana is most similar in its conspicuously lobed leaf blades to a group of species within section *Weilbachia* that includes *B. purpusii*, *B. ludicra*, and *B. confusa*. It differs from the generally erect stems of *B. purpusii* in its repent habit and flowers with both sepals and petals. Although both *B. almedana* and *B. purpusii* occur in Chiapas, they are found in different physiographic regions recognized by Breedlove (1973); *B. almedana* is known only from the Gulf Coastal Plain at 450 to 580 m elevation, while *B. purpusii* occurs in the

Sierra Madre de Chiapas between 1100 and 2400 m, and extends into Guatemala and northwestern El Salvador. *Begonia confusa* is only known from immature flowers on the type collection from Guatemala, but its densely villous sepals distinguish it from *B. almedana*. Distribution and a suite of characters (Table 1) effectively separate *B. almedana* from *B. ludicra*, which ranges from Puebla and Veracruz to the wet, northern slopes of the Sierra Madre in central Oaxaca.

Begonia almedana is named in honor of Frank Almeda who first collected this unusual species along with Dennis Breedlove.

Paratypes. MEXICO. **Chiapas:** Mpio. Ocosingo, 70 km SW of Palenque on rd. to Ocosingo along the Río Jol Uk'um, 550 m, *Breedlove 47468* (CAS), *Breedlove & Almeda 48274* (CAS), *Breedlove & Almeda 48291* (CAS), *Breedlove & Keller 49588* (CAS), *Breedlove 52539* (CAS); Mpio. Chontal, rd. between San Cristóbal de las Casas and Palenque, 136 km NE of San Cristóbal, Villa Paraíso, 17°29'N, 92°05'W, 450 m, *Hammel, Martínez & Merello 15645* (MO); banks of Río Jol Uk'um 43.5 mi. S of Palenque on MEX 199 to Ocosingo, 1900 ft., *Utley & Utley 8356* (MEXU).

Begonia faustinoi Burt-Utley & Utley, sp. nov.

TYPE: Mexico. Chiapas: Mpio. Berriozábal, 13 km N of Berriozábal in vicinity of Pozo Turpache, 900 m, *J. Utley & K. Utley 8343* (holotype, MEXU; isotypes, B, C, CAS, DUKE, F, GH, MICH, MO, NY, US). Figure 3.

Rhizomata repentia; internodia villosa. Laminae ad marginem duplicato-dentatae vel duplicato-serratae; petioli trichomatibus 1.5-3(-4) mm longis villosi. Bracteeae ad marginem ciliatae laciniatae. Stamina 31-63. Ovaria bilocularia villosa.

Herbaceous perennials; rhizomes repent, often branching; internodes slender, very short to elongate, 0.6-10.5 cm × 1.5-3(-4) mm, villous with trichomes 1-3 mm long; stipules persistent, very narrowly triangular to lanceolate, 8-17(-23) × 3-6(-8) mm, often strongly keeled, marginally entire, glabrous to villous throughout; petioles (2.8-)7.8-13(-21.5) cm long, villous with spreading trichomes 1.5-3(-4) mm long; leaf blades chartaceous, usually oblique, asymmetrically ovate, (5-)

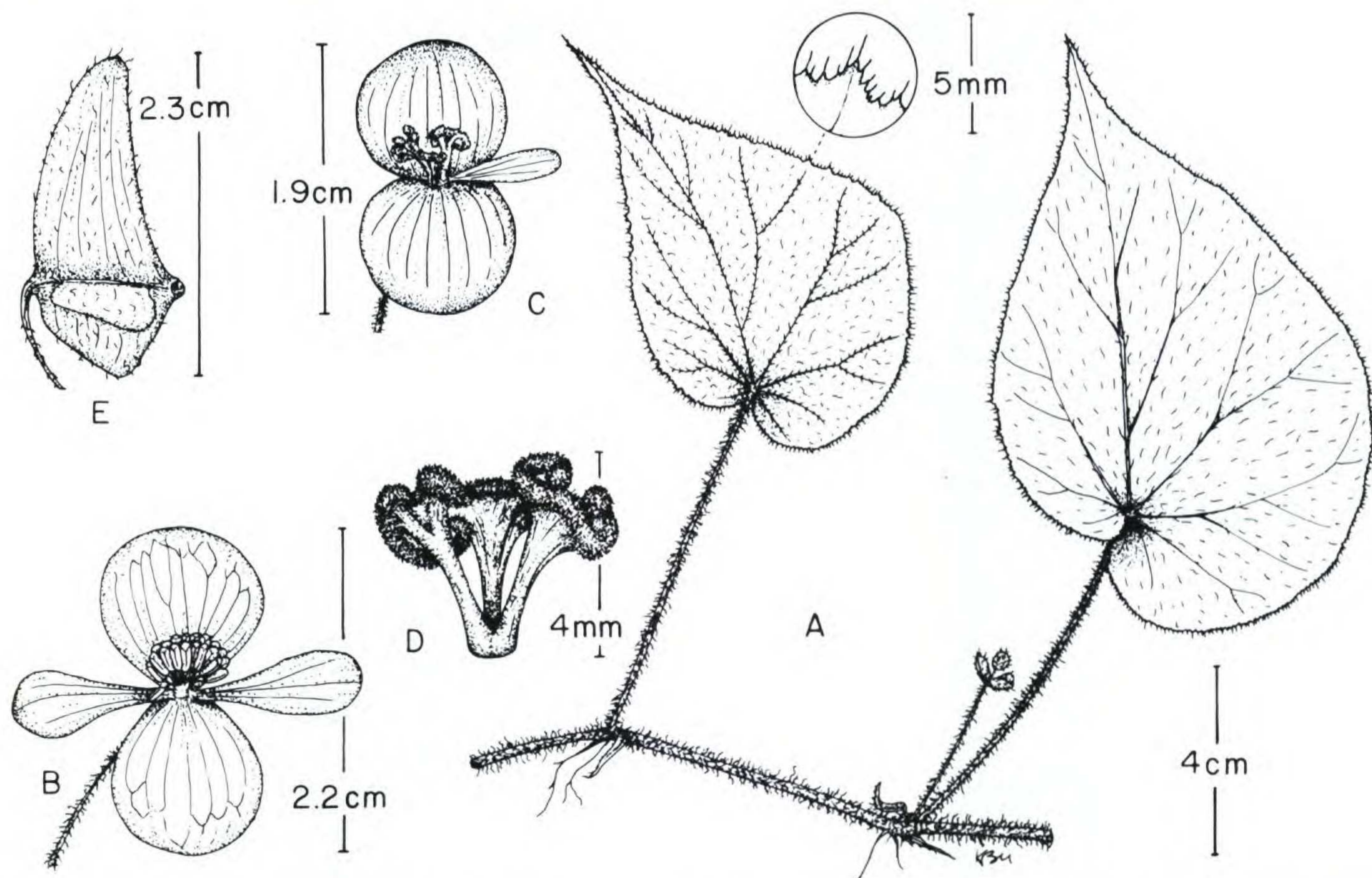


Figure 3. *Begonia faustinoi* Burt-Utley & Utley. —A. Habit with insert showing leaf margin. —B. Staminate flower. —C. Pistillate flower. —D. Stigmas. —E. Capsule. (From Utley & Utley 8343.)

7.5–12.5(–16) × (3.5–)5–8(–10.6) cm, basally cordate, apically attenuate-acuminate, marginally ciliate-denticulate to ciliate-serrulate and doubly dentate to doubly serrulate, villous above and below with trichomes to 3 mm long, (8–)9–10(–11)-palmatinerved; inflorescences generally shorter than the foliage, cymose, few-flowered; peduncles (4–)6.2–13.5(–17.3) cm long, villous with trichomes 0.5–3.5(–5) mm long; bracts deciduous, the lowermost occasionally navicular, elliptic to ovate, 5–7(–9.5) × 3.5–6 mm, marginally ciliate-laciniate, villous; staminate flowers: pedicels (3.5–)7–22(–31) mm long; sepals 2, fleshy but chartaceous upon drying, suborbicular to elliptic, ovate or obovate, 5–14(–17) × (3–)5.5–14 mm, externally villous; petals 2, narrowly obovate to oblanceolate, 5–13(–17) × (1.5–)2.5–5(–6) mm; stamens (20–)31–63; filaments (0.4–)1–2 mm, inserted on a low torus; anthers narrowly oblong to obovate, 0.8–1.5(–1.8) × (0.3–)0.5–0.7 mm; pistillate flowers: pedicels 6–11.5(–14) mm long; bracteoles wanting or if present 1 or 2 and borne on the pedicel, 1–2.5 mm long; sepals 2, chartaceous, suborbicular to broadly ovate or transversely elliptic, 6–12.5(–15) × 4.5–13.5(–15) mm, externally villous; petal only 1 or wanting, oblanceolate, 7–10 × 2–4.5(–7) mm; ovary bilocular with bipartite placentae, 5.5–8.5(–10.5) mm long, villous; styles 3, 2–3 mm long,

fused briefly basally; stigmas dilated-lunate or weakly bicornute, but 1 often smaller than the other 2; capsules with pedicels 10–26 mm long, 9–14 mm long; locules narrowly oblong-elliptic, 6.5–10 × 1.5–2.5 mm; wings 3, unequal, the largest asymmetrically ovate-triangular to oblong, 12–18 × 7–10.5 mm, marginally ciliate, the second and third subequal to each other, 3.5–5 × 8–12 mm.

Distribution and habitat. Known only from Chiapas, Mexico, between 600 and 900 m elevation, but should also occur in adjacent parts of Guatemala. *Begonia faustinoi* is locally abundant on karstic formations near Pozo Turpache.

Begonia faustinoi is most similar to *B. pustulata* Liebm., which is not known to occur in Chiapas. These species share a similar villous indument, staminate and pistillate flowers with sepals and petals, as well as nutant, bilocular capsules. *Begonia faustinoi* can be distinguished from *B. pustulata* by its smooth upper leaf surfaces; those of *B. pustulata* are consistently pustulate or bullate. These two species are also distinguished from each other by additional leaf characters and peduncle length summarized in Table 2.

This species is named in honor of Faustino Miranda who contributed significantly to knowledge of the vegetation of Chiapas.

Table 2. Comparison of *B. faustinoi* with *B. pustulata*.

	<i>B. faustinoi</i>	<i>B. pustulata</i>
Blade length (cm)	(5-)7.5-12.5(-16)	(7.7-)12-23
Blade width at widest point (cm)	(3.5-)5-8(-10.6)	(4.6-)8-16.7
Blade margin	ciliate-denticulate to serrulate; doubly dentate to serrate	ciliate-denticulate
Number of nerves	(8-)9-10(-11)	(9-)11-14
Petiole length (cm)	(2.8-)7.8-13(-21.5)	(4.5-)12.5-33
Peduncle length (cm)	(4-)6.2-13.5(-17.3)	(8.5-)15-39

Paratypes. MEXICO. Chiapas: Mpio. Berriozábal, 13 km N of Berriozábal, 1000 m, *Breedlove & Smith 21659* (DS); 13 km N of Berriozábal near Pozo Turpache and Finca El Suspiro, 900 m, *Breedlove & Dressler 29711* (DS, MO), *Breedlove & Thorne 30856* (DS, MEXU, MICH, MO), *Utley & Utley 8747* (CAS, MEXU, MICH, MO, US); Mpio. Palenque, near Agua Azul, 600 m, *Breedlove & Almeda 57270* (CAS).

Begonia turrialbae Burt-Utley & Utley, sp. nov.

TYPE: Costa Rica. Cartago: about 7.2 km E of Tuis and 5.3 km E of Platanillo along rd. to Bajo Pacuare and Moravia, 2900 ft., *J. Utley & K. Utley 7261* (holotype, MO; isotypes, CAS, CR, DUKE, F, US). Figure 4.

Rhizomata repentia; internodia villosa. Petioli villosi; laminae pustulatae. Inflorescentiae paucifloribus. Florum

♂: sepala 6.5-17 × 4.5-12 mm; petala 5.5-12.5 × 1-3.8 mm; stamina (19-)25-46. Florum ♀: sepala 4.5-8 × 4.5-9 mm; ovaria bilocularia; styli 3.

Herbaceous perennials; rhizomes repent, internodes short to elongate, 0.3-5.4 cm × 1-3.5 mm, villous with trichomes to 2.5 mm long; stipules persistent, lance-ovate to lanceolate, 3.5-6(-8.5) × 2.5-4(-5) mm, marginally entire, sparingly villous throughout to glabrous; petioles 3-7(-14.5) cm long, glandular and villous with spreading trichomes to 3 mm long; leaf blades simple, oblique, asymmetrically ovate to oblong, 3.5-9(-11) × 2.5-5(-7.8) cm, basally cordate with lobes often overlapping, apically acute to acuminate, marginally ciliate-denticulate, papillose and finely pustulate above with trichomes 0.5-2.5 mm long terminating

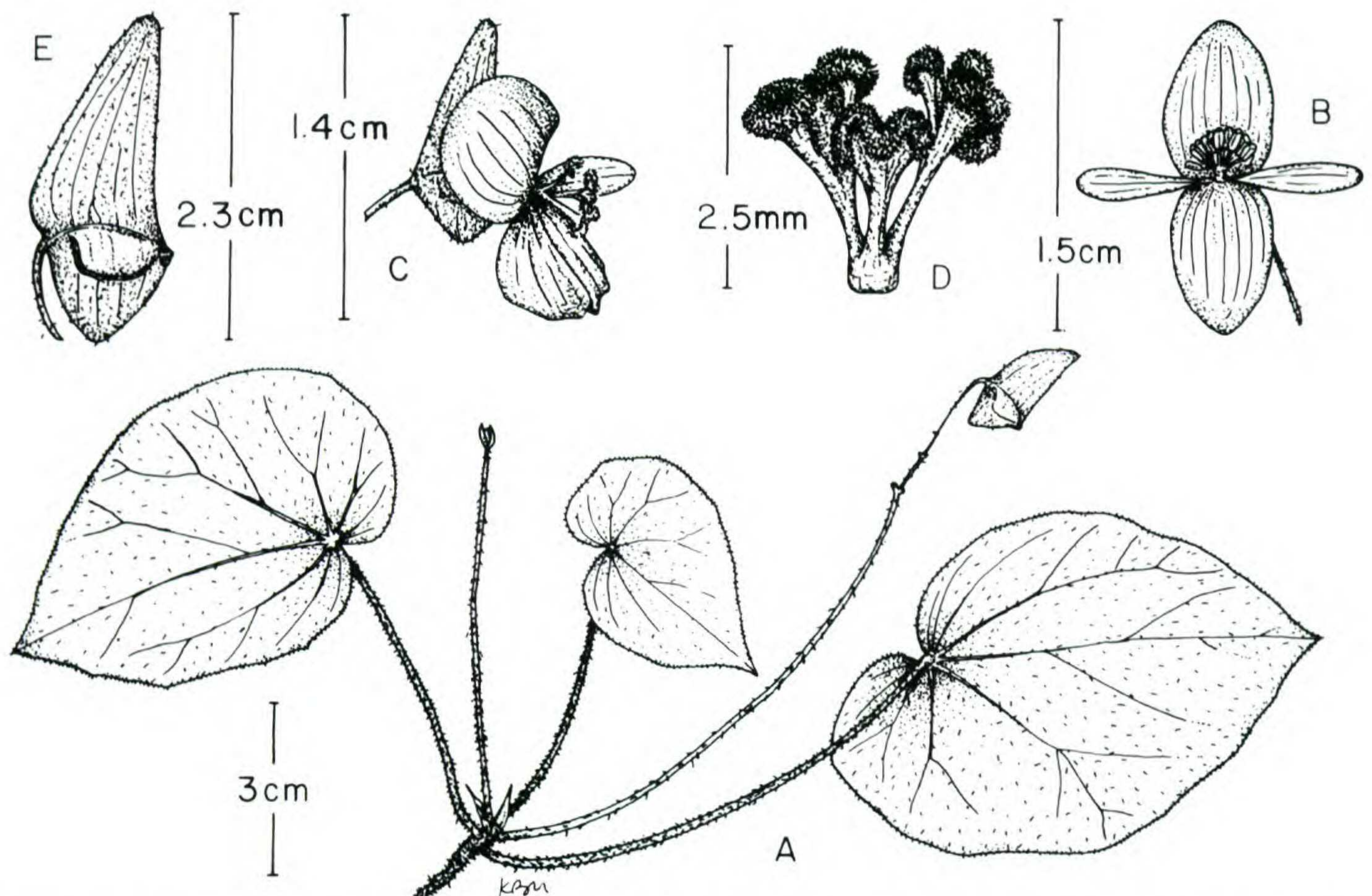


Figure 4. *Begonia turrialbae* Burt-Utley & Utley. —A. Habit. —B. Staminate flower. —C. Pistillate flower. —D. Stigmas. —E. Capsule. (From *Utley & Utley 7261*.)

pustules, glandular and villous throughout below with trichomes to 1.3 mm long, (8-)10-11-palmatinerved; inflorescences cymose, very few-flowered; peduncles 2.3-9.7 cm long, glandular and sparingly to densely villous with trichomes to 1.5 mm long; bracts caducous to deciduous, the lowermost ovate to elliptic, 3-3.5(-6) × 0.5-1.5(-3) mm, glabrous, marginally entire; staminate flowers: pedicels 6.5-16 mm long; sepals 2, chartaceous, elliptic to ovate or obovate, 6.5-17 × 4.5-12 mm, externally villous; petals 2, oblanceolate, 5.5-12.5 × 1-3.8 mm; stamens (19-)25-46; filaments 0.7-1.3 mm long inserted on a conspicuously raised torus; anthers narrowly oblong to obovate, 0.7-1.6 × 0.3-0.6 mm diam.; pistillate flowers: pedicels 3.5-9 mm long; bracteoles wanting; sepals 2, chartaceous, suborbicular to broadly transversely elliptic, 4.5-8 × 4.5-9 mm, externally villous; petal only 1, oblanceolate, 5-5.5 × 1.5-2 mm; ovary bilocular with bipartite placentae, 4-7.5 mm long, glandular and villous; styles 3, 1.5-2 mm long, fused only briefly basally; stigmas dilated-lunate with the ends just beginning to spiral to weakly bicornute, often with 1 of the 3 reduced; capsules with pedicels 6-12 (-14) mm long, 7-11 mm long; locules 4.2-6.5 mm long; wings 3, unequal, the largest asymmetrically triangular, 7-15 × 5.5-9 mm, marginally ciliate, the remaining 2 subequal, asymmetrically triangular, 2.5-5 × 5-9 mm.

Distribution and habitat. Known only from moist, forested stream- and riverbanks between 600 and 900 m elevation in Cartago Province, Costa Rica.

This is an attractive species with finely pustulate, often silver-variegated and discolored leaf blades. It is most similar to *B. carletonii* Standley, which occurs along the Caribbean coast of southern Costa Rica and western Panama. It may be distinguished readily from this latter species by its finely pustu-

late leaves and fine, spreading petiolar villi. Leaves of *B. carletonii* examined all lacked pustules and had a petiolar indument of stiff, strongly reflexed villi.

Paratypes. COSTA RICA. **Cartago:** Turrialba, across Río Reventazón from Interamerican Institute, 2000 ft., *DeWolf 194* (NY); between 9 and 12.5 km E of Tuis or 1.3-4.8 km W of Bajo Pacuare along rd. to Moravia de Chirripó, 800-900 m, *Utley 6014* (DUKE); about 2.3 km E of Tuis, Calle Rival along Río Tuis, *Utley & Utley 7259* (NOLS), *Utley & Utley 9036* (NOLS).

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Literature Cited

- Barkley, F. A. & J. Golding. 1974. The Species of the Begoniaceae, 2nd ed. Northeastern Univ., Boston.
- Breedlove, D. 1973. The phytogeography and vegetation of Chiapas, Mexico. Pp. 149-165 in A. Graham (editor), *Vegetation and Vegetational History of Northern Latin America*. Elsevier Scientific, Amsterdam.
- Burt-Utley, K. 1985. A revision of Central American species of *Begonia* section *Gireoudia* (Begoniaceae). *Tulane Stud. Zool. Bot.* 25: 1-131.
- Candolle, A. de. 1859. Mémoire sur la famille des Bégoniacées. *Ann. Sci. Nat.* IV. 11: 93-149.
- . 1864. Begoniaceae. *Prodromus systematis naturalis regni vegetabilis* 15(1): 266-408.
- Candolle, C. de. 1908. Begoniaceae Novae. *Bull. Herb. Boiss.* II. 8: 309-328.
- Doorenbos, J., M. S. M. Sosef & J. J. F. E. de Wilde. 1998. The sections of *Begonia*. *Wageningen Agric. Univ. Pap.* 98-2: 1-266.
- Klotzsch, J. F. & A. Oersted. 1855. *Weilbachia*. Pp. 239-241 in J. F. Klotzsch, *Begoniaceen-Gattungen und Arten*. *Abh. Königl. Akad. Wiss. Berlin* 1854: 121-255.
- Ziesenhenné, R. 1976. *Begonia alice-clarkae* Ziesenh. *The Begonian* 43: 63-67.