

**Novae Gesneriaceae Neotropicarum VI: Five new
Gesneriaceae from northwestern South America.**

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Novae Gesneriaceae neotropicarum VI: five new Gesneriaceae from northwestern South America

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Laurence E. Skog (Department of Botany, NHB-166, U.S. National Museum of Natural History, Smithsonian Institution, Washington, DC 20560-0001, U.S.A.) and Lars P. Kvist [Unit of Forestry, Royal Veterinary and Agricultural University, DK-1871 Frederiksberg C (Copenhagen), Denmark]. Novae Gesneriaceae neotropicarum VI: five new Gesneriaceae from northwestern South America. *Brittonia* 46: 317–330. 1994.—*Columnnea chrysostricha*, *C. cuspidata* (both *Columnnea* sect. *Collandra*), and *Gasteranthus recurvatus* are described from Colombia; *C. sulcata* (*Columnnea* sect. *Collandra*) from Ecuador and Colombia; and *Drymonia anisophylla* from the Amazonian lowland rain forests of Brazil, Colombia, Ecuador, and Peru.

Key words: Gesneriaceae, *Columnnea*, *Drymonia*, *Gasteranthus*, Brazil, Colombia, Ecuador, Peru.

Columnnea

Columnnea L. is the largest genus of neotropical Gesneriaceae (150–200 species) with diversity centered in the area from Ecuador to Costa Rica. Kvist and Skog (1993) and Skog (1979) recognized 57 and 50 species in Ecuador and Panama, respectively. In Colombia there are at least 75 species with the following numbers of species in the six sections of *Columnnea* recognized by Kvist and Skog (1993): *Bucinellina* (2), *Collandra* (at least 32, of which 26 have so far been named), *Columnnea* s.str. (5), *Ortholoma* (at least 26, of which 17 are named), *Pentadenia* (1), and *Stygnanthe* (7 according to Smith, 1994). The most prominent taxonomic problems in the genus are found mainly in the sections *Collandra* and *Ortholoma*, both of which have their centers of diversity in Colombia, the former apparently along the Pacific coast and the latter in the department of Antioquia. Most species of sect. *Ortholoma* are rarely collected, but species of sect. *Collandra* are relatively abundant. Plants of the latter section are particularly noticeable in premontane

and lower montane forests by their characteristic dorsiventral shoots with extremely anisophyllous leaves mostly with purple patterns on their lower surfaces. We are focused currently on sect. *Collandra*, and here three new species from that section are described.

Columnnea chrysostricha L. E. Skog & L. P. Kvist, sp. nov. (Fig. 1)

TYPE: COLOMBIA. Caquetá: eastern slopes of the Eastern Cordillera, Guadalupe-Florencia road, 1100 m, 7 Feb 1987, X. Londoño & L. P. Kvist 107 (HOLOTYPE: COL!; ISOTYPES: AAU!, US!).

A *Columnnea fuscihirta* L. P. Kvist & L. E. Skog indumento aureo-brunneo, in floribus caulibusque villosa in foliorum paginis inferioribus piloso vel strigoso, necnon calycis lobis ovatis, oblongis vel lanceolatis atropurpureis differt.

Terrestrial or less commonly epiphytic herbs or subshrubs, to 3 m tall, the shoots horizontal, strongly dorsiventral, to 2 m long, the stems glabrescent at base to golden-brown villous toward the apex, diam. to

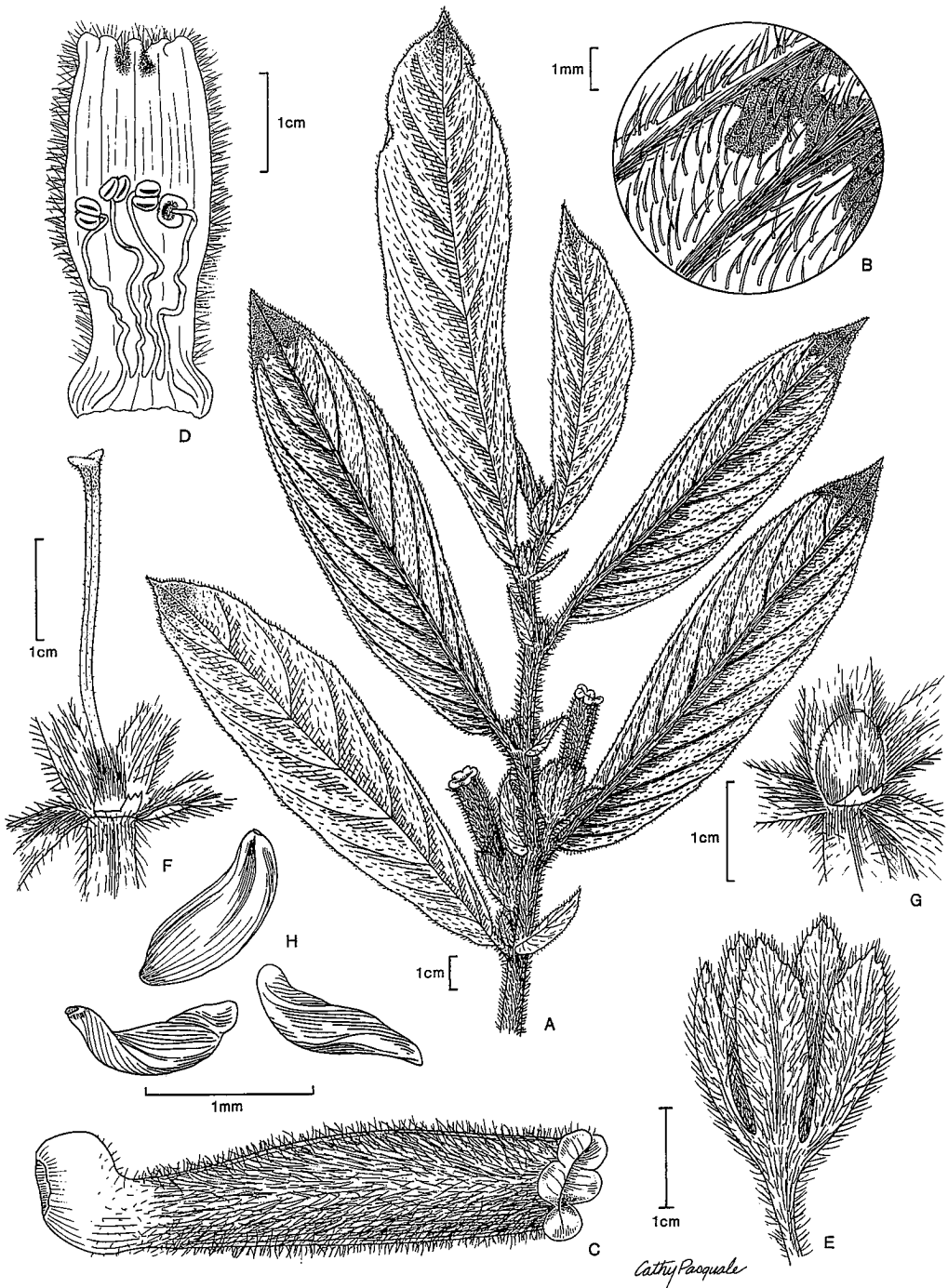


FIG. 1. *Columnnea chrysotricha*. A. Branch with flowers. B. Detail of abaxial leaf surface. C. Lateral view of corolla. D. Interior of corolla with stamens after shedding of pollen. E. Calyx. F. Calyx, pistil, and nectary. G. Young fruit. H. Seeds. (A, C, E, Cuatrecasas 9004; B, G, H, Cuatrecasas 12266; D, F, Londoño & Kvist 149.)

1 cm, the internodes 1–4 cm long. *Leaves* strongly anisomorphic, petiolate; blade of the larger leaf in each pair oblanceolate, 8–22 × 2–6 cm, the base oblique, cuneate, the apex acuminate, the margin weakly serrulate, the upper surface dull green, hirsute, lower surface lighter green to yellow-green, with a contrasting red to purple area in the apical fifth, pilose to strigose and pilose to sericeous at veins, the secondary veins ca. 8 per side; petioles 2–7 mm long; blade of the smaller leaf in a pair conspicuously oblique and lanceolate-subulate, 1.2–2.5 × 0.5–1 cm. *Inflorescences* in axils of the larger leaf in each pair, of 1 (2 or 3) flowers; bracts 2–4, lanceolate, the largest bract to 15 mm long, the others to 5 mm long, the apex acuminate, entire, purplish, golden-brown villous; pedicels to 5 mm long. *Calyx* deep purple, golden-brown villous, the lobes subequal, lanceolate, oblong to ovate, 12–16 mm long, 3–6 mm wide medially, the apex acute to acuminate, entire to weakly serrulate; corolla cylindric to subventricose, 3.5–4.5 cm long, basally dorsally gibbous and 5–8 mm wide, narrowed to 2–3 mm above, widened to 4–7 mm medially and in throat, orange-red or yellow-red and villous externally, puberulent especially basally, and sparsely glandular-puberulent apically internally, the limb subequal, yellow or yellow-brown, the lobes rotund, 1–1.5 mm long and 1.5–2.5 mm wide at base, yellow, with 2 brown dots on the dorsal lobes extending into the throat, the apex rounded, entire; filaments 20–30 mm long, connate ca. 3 mm at base, glabrous, the anthers included, coherent, ca. 2.5 × 2 mm; nectary a 3-lobed dorsal gland, ca. 2 mm high, 3 mm wide at base; ovary pilose-sericeous, the style 25–30 mm long, reddish, glandular-puberulent overall, the stigma stomatomorphic. *Berries* globose, ca. 7 × 6 mm; seeds narrowly ellipsoid, ca. 1.2 × 0.3 mm, smooth, striate.

Specimens examined: COLOMBIA. **Caquetá:** Sucre, along Río Hacha, 3 Apr 1940, *Cuatrecasas 9004* (COL—2, US); Florencia–Guadalupe road, Km 21–26, 9 Feb 1987, *Londoño & Kvist 130* (AAU, COL, US), 10 Feb 1987, *149* (AAU, COL, US); Florencia–Garzón road, Km 41, 12 Jan 1974, *Davidse 5776A* (MO, US, USM). **Cauca:** Mocoa–Pitalito road, 3 km after bridge across Río Caquetá, 25 Jan 1990, *Ramos et al. 2506* (US). **Putumayo:** Between Achipayaco and Mocoa, 25 Dec

1940, *Cuatrecasas 11266* (COL, US); Mocoa, Quebrada of Río Afán, 27 Dec 1940, *Cuatrecasas 11338* (COL, US); Umbría, Oct–Nov 1930, *Klug 1670* (F, US), Oct–Nov 1930, *1692* (US).

Distribution: *Columnnea chrysotricha* occurs in the very humid premontane and lower montane forests on the eastern slopes of the Eastern Andean Cordillera in the Colombian departments of Caquetá, Cauca, and Putumayo. The species has been collected between 300 and 1100 m elevation and appears to be the most common *Columnnea* on the Andean slopes along the road to Florencia in Caquetá (*Londoño & Kvist 107, 130, 149*).

Columnnea chrysotricha is set apart in the genus by having conspicuous, ovate, oblong or lanceolate, deep purple calyx lobes with a nearly entire margin, and a yellow-brown indumentum that is villous on the stems and flowers and pilose to strigose on the lower leaf surfaces. *Columnnea chrysotricha* is distinctive but it does have (in contrast to the other two new species of *Columnnea* described below) several close relatives, e.g., *C. fuscihirta* L. P. Kvist & L. E. Skog and *C. villosissima* Mansf. Both of these related species differ, however, by having green and lacinate (or at least marginally dissected) rather than ovate and purple calyx lobes and yellow rather than red corollas. There are indications, however, that the other species may occasionally hybridize with *C. chrysotricha* to form rare intermediate populations or individuals. Hybridization may be a fairly common phenomenon in *Columnnea* (Kvist & Skog, 1993), although Smith (1994) recognized no hybrids in sections *Pentadenia* and *Stygnanthe*.

Columnnea fuscihirta has a wide distribution in the montane forests of Ecuador and Colombia, and its brown-hispid indumentum is usually distinctive. One collection from the Colombian department of Putumayo (*Klug 1809*) seems, however, to be intermediate between *C. fuscihirta* and *C. chrysotricha* and is referred to the former because of its dissected calyx lobes. *Columnnea villosissima* is distributed on the eastern Andean slopes from northern Peru to Colombia. The only known Colombian collection (*Schultes & Smith 2063*, from near

Mocoa in the department of Putumayo) has some features in common with *C. chrysotricha*—e.g., purple (but dissected) calyx lobes—which have not been seen in the Ecuadorian populations of *C. villosissima*. Another collection (*Cuatrecasas 11338*) from the same area seems intermediate between that collection and typical *C. chrysotricha* (but is referred to the latter due to its entire calyx lobes).

Another close relative of *Columnnea chrysotricha* may be *C. capillosa* L. P. Kvist & L. E. Skog, which is vegetatively very similar since it also has a yellow-brown indumentum. That both species have dorsal, 3-lobed rather than 2-lobed nectary glands and globose rather than ovoid berries—features otherwise uncommon in sect. *Ortholoma*—supports their affinity. Fertile material of the two species is, however, easily distinguishable. *Columnnea capillosa* has inflorescences with two conspicuous ovate (vs. one smaller and lanceolate) bracts and corollas ca. 2 cm long (vs. 3–3.5 cm long). *Columnnea capillosa* occurs further to the south on the eastern Andean slopes of Ecuador (Kvist & Skog, 1993).

Columnnea cuspidata L. E. Skog & L. P. Kvist, sp. nov. (Fig. 2)

TYPE: COLOMBIA. Valle: Bajo Calima, 6 km N of Buenaventura (20 km by road), Cartón de Colombia area, 50 m, 13 Dec 1981, *Gentry 35648* (HOLOTYPE: COL!; ISOTYPES: MO!, US!).

A *Columnnea sanguinea* (Pers.) Hanst. foliis apice cuspidatis, bracteis ovatis purpureis viridibusque et corollae ca. 2 cm longae flavae limbo 7–9 mm lato rubro differt.

Epiphytic, rarely terrestrial herbs to subshrubs, the shoots mostly horizontal, strongly dorsiventral and frequently branched, to 2 m long, the stems glabrescent at base to villous toward the apex, diam. to 6 mm, the internodes 0.8–1.8 cm long. *Leaves* strongly anisomorphic, sessile; blade of the larger leaf in each pair oblique, oblanceolate, 10–15 (20) × 2.5–4 (5) cm, the base cuneate, the apex cuspidate, the margin weakly serrulate, the upper surface dull

green, hirsute, the lower surface lighter green, with a contrasting red-purple area in apical third, pilose and villous along veins, the secondary veins ca. 8 per side; blade of the smaller leaf in a pair oblique and lanceolate, 1.5–3 × 0.3–1.2 cm. *Inflorescences* in axils of the larger leaf in each pair, of 1 or 2 flowers; bracts 3–7, the largest ovate with an acuminate-cuspidate apex, 2–3 × 0.5–2 cm, green and contrasting purple along its primary vein and/or apically (and rarely entirely) purple, pilose to villous, dentate to entire, the others lanceolate, 0.5–1.5 cm long; pedicels 4–8 mm long. *Calyx* pale green to white, the lobes subequal, lanceolate to subulate, 10–22 mm long, 2–5 mm wide medially, apex acuminate, with 1 or 2 “teeth” each ca. 1 mm long on each side, outside pilose, inside glabrous; corolla cylindrical, 1.8–2.5 cm long, basally dorsally gibbous and 4–5 mm wide, narrowed to 2–3 mm above, widened to 5–7 mm medially and in throat, yellow and pilose externally, glandular-puberulent internally particularly in the throat, the limb subequal, red, the lobes ovate, 4–6 mm long and 2–4 mm wide at base, red, with yellow margin inside, glandular-puberulent, the apex acute-obtuse; filaments 12–15 mm long, connate ca. 3 mm at base, apically puberulent and glandular-puberulent, the anthers included, coherent, ca. 1.5 × 1.5 mm; nectary a 2- to 4-lobed dorsal gland, 1–1.5 mm high, 1–2 mm wide at base; ovary pilose-sericeous, the style 15–20 mm long, glandular-puberulent apically, the stigma stomatomorphic. *Berries* ovoid, 10–15 mm long, 5–10 mm in diam. at the widest part, white; seeds ovoid-ellipsoid, ca. 1 × 0.5 mm, longitudinally striate.

Specimens examined: COLOMBIA. Valle: Bajo Calima Agroforestry Station, 4 Aug 1979, *Cabrera 5121* (MO); Río Cajambre, Barco, 21–30 Apr 1944, *Cuatrecasas 17039* (US); Río Calima, Quebrada de López, 23 Sep 1961, *Cuatrecasas & Willard 26033* (COL, US); 15 km N of Buenaventura, Cartón Colombia, 18 Feb 1983, *Gentry & Juncosa 40489* (COL, MO); 15 km N of Buenaventura, 9 Apr 1987, *Gentry et al. 56662* (MO); 18 km E of Buenaventura, 14 Feb 1939, *Killip & García 35626* (US); Cali–Pasto Road, *Saravia & Jaramillo 1766* (COL); Trail from Campoalegre into area controlled by Corporación Valle del Cauca, 16 Feb 1989, *Smith et al. 1311* (COL), 16 Feb 1989, *1318* (COL, US, USM), 17 Feb 1989, *1349* (US), 18 Feb 1989, *1373* (COL, US, WIS), *1430* (COL). **Chocó:** Upper Río

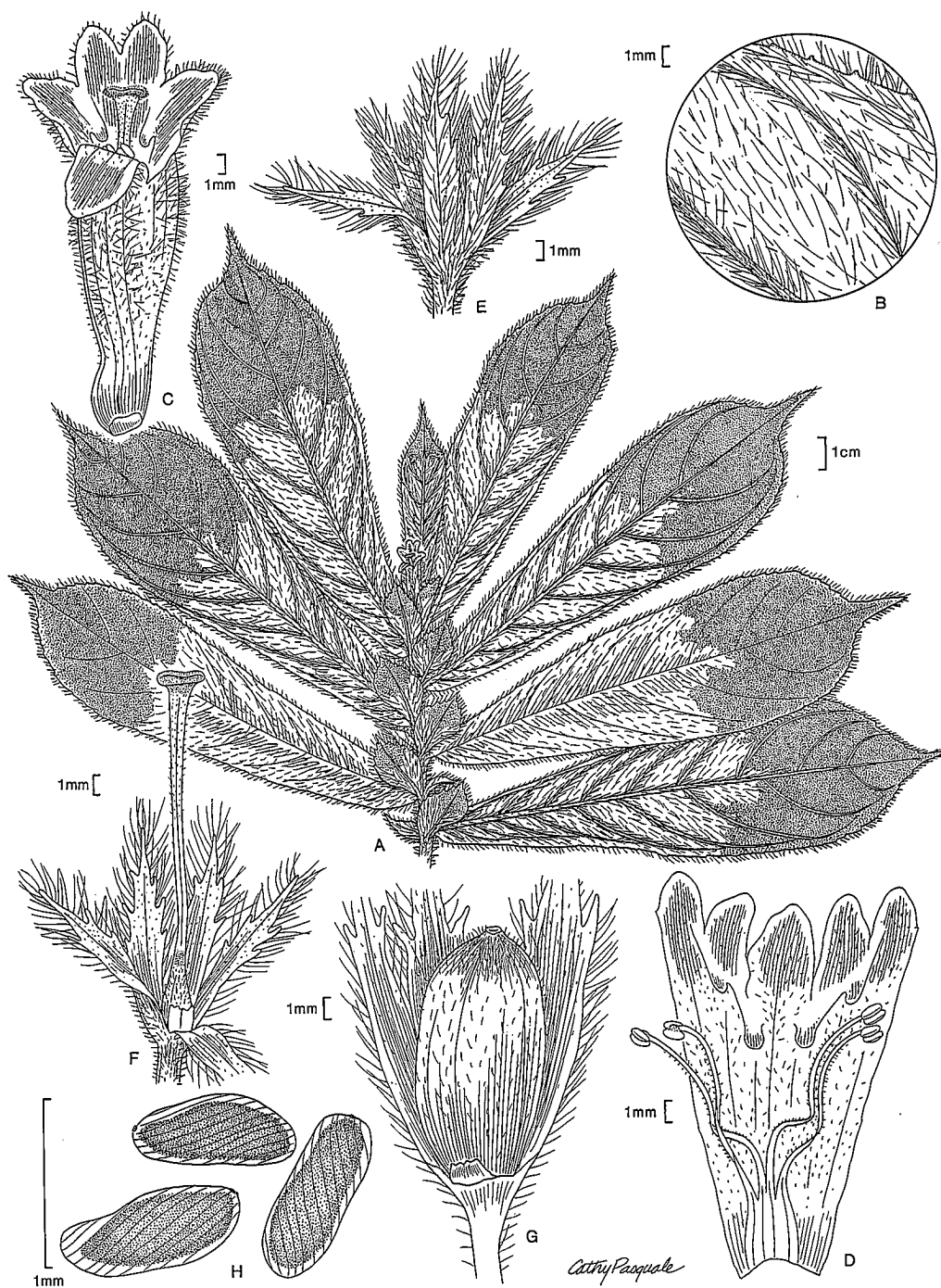


FIG. 2. *Columnea cuspidata*. A. Branch with flower. B. Detail of abaxial leaf surface. C. Front view of corolla. D. Interior of corolla with stamens. E. Calyx. F. Calyx, pistil, and nectary. G. Young fruit. H. Seeds. (A, Cuatrecasas & Willard 26033; B, Smith et al. 1373; C-F, Gentry & Juncosa 40489; G, H, Cuatrecasas 17039.)

San Juan, Corcovada [sic] Valley, Yeraçú [sic], 24–25 Apr 1939, Killip 35308 (COL, US).

Distribution: *Columnea cuspidata* occurs on the Pacific coast of Colombia in the departments of Valle and Chocó in extremely humid lowland rain forest with an annual precipitation exceeding 5000 mm. The species has been found up to 700 m elevation, but most collections come from near sea level.

The flowers of *Columnea cuspidata* are distinctive by having small yellow corollas approximately 2 cm long and with a conspicuous red limb 7–9 mm wide, supported by an ovate but usually contrasting green and purple bract 2–3 cm long. Vegetatively the species is set apart by its slender shoots with relatively small leaves (compared with those of most species in sect. *Collandra*), which have a contrasting purple area on the distal third of the lower surface and a cuspidate apex (to which the specific epithet refers).

The flowers of *Columnea cuspidata* are also among the smallest found in sect. *Collandra*, but sympatric populations of *C. sanguinea* have equally small (but yellow or red rather than yellow and red) flowers. *Columnea sanguinea* is also easily distinguished by having smaller, usually lanceolate, and entirely red-purple bracts rather than conspicuous, ovate, green and purple bracts and by having uniformly colored lower leaf surfaces (in this part of the species' range) rather than a contrasting purple apical part.

Columnea cuspidata has no obvious close relatives, except perhaps for an undescribed species known only from a single collection (Killip & García 33244). The latter has the same slender habit and similar leaves and indumentum but differs by having laciniate-pectinate rather than nearly entire calyx lobes, by lacking the conspicuous ovate bracts, and by being purple along the primary vein of the lower leaf surface rather than apically. Unfortunately, no flowers of this latter taxon have been seen.

Columnea sulcata L. E. Skog & L. P. Kvist, sp. nov. (Fig. 3)

TYPE: COLOMBIA. Valle: Pacific coast, Río Cajambre, 5–80 m, 5–15 May 1944, J.

Cuatrecasas 17575 (HOLOTYPE: US!; ISOTYPE: F—n.v.).

Planta glabrata caule ligneo, internodiis sulcatis, floribus bracteis 2 magnis 2 parvis appressis subtentis corollae lobis ventralibus longitudinaliter carinatis dorsales excedentibus ab omnibus congeneribus diversa.

Epiphytic subshrubs or shrubs to 1.5 m tall, the shoots mostly horizontal, strongly dorsiventral, the stems rather woody, glabrous with an irregularly sculpted cortex, diam. to 1.2 cm; the internodes 1.5–3.5 cm long, each with a lateral furrow from just above the large leaf at the node below and ending between the two leaves at the next node above, the nodes considerably wider than the internodes, surrounded by a circular, narrow fissure between the attachment of the opposite petioles. *Leaves* strongly anisomorphic, petiolate; blade of the larger leaf in each pair oblique, oblanceolate, 14–22 × 3–6 cm, the base cuneate, the apex acuminate, the margin entire, the upper surface often undulate (at least in dried material), dull green, glabrous, lower surface lighter green with one large or several smaller contrasting purple translucent blotches near the midvein ca. $\frac{3}{4}$ of the distance from its base mostly between the 2 apical pairs of secondary veins, glabrous, the secondary veins ca. 6 per side, occasionally sparsely appressed pilose; petioles 1–2 cm long; blade of the smaller leaf in a pair subulate, 1–2 × 0.2–0.4 cm, caducous. *Inflorescences* in axils of the larger leaf in each pair, of 1 flower; bracts 4, obovate-rotund, the two lowest 1–1.5 cm long and 1–1.5 cm wide medially, with obtuse apex, the other 2 ca. 0.5 cm long and 0.5 mm wide, green, glabrous, entire; pedicel 2–4 mm long. *Calyx* green, glabrous, the lobes unequal, the ventral lobes largest, lanceolate-ovate, 12–20 mm long and 6–12 mm wide, the dorsal lobe smallest, lanceolate, 6–10 mm long and 2–3 mm wide, acute, serrulate-entire; corolla tubular-subventricose (as dried) to ventricose (on rehydration), 2.8–3.2 cm long, basally dorsally gibbous and white, diam. 4–7 mm medially narrowed above to 2–3 mm in the throat, red and hirsute externally, paler red and nearly glabrous internally but sparsely glandular-puberulent mainly basally, with 10–



FIG. 3. *Columnea sulcata*. A. Branch with flower. B. Detail of abaxial leaf surface. C. Lateral view of corolla. D. Interior of corolla with stamens. E. Pistil and nectary. F. Calyx. (A, Gentry & Juncosa 40608; B, Sneidern 4655; C, E, F, Monsalve 2046; D, Cuatrecasas 17575.)

15 parallel, longitudinal veins, the limb unequal, red, glabrous, the two dorsal lobes connate for 1–2 mm and with free, ternate lobes ca. 1 mm long and ca. 1 mm wide at base, lateral and ventral lobes ternate-lanceolate, ca. 2 mm long and ca. 2 mm wide at base, keeled along central vein externally, extending approximately 0.5 mm beyond the acute apex of the lobes; stamens included, the filaments ca. 15 mm long, basally connate ca. 3 mm (and surrounding the ovary with the nectary located in the dorsal slit), glabrous, the anthers coherent, ca. 2×1.5 mm; nectary a bilobed dorsal gland, ca. 1.5 mm high and ca. 2 mm wide; ovary ca. $4 \times$ ca. 1 mm, appressed pilose mainly at the shallow longitudinal ribs, the style ca. 20 mm long, glabrous, the stigma stomatophytic. *Fruits* and seeds not seen.

Specimens examined: COLOMBIA. **Cauca:** Río Naya near El Pastico, 23 Feb 1983, *Gentry & Juncosa 40608* (MO, US). **Valle:** Bajo Calima, Concesión Pulpapel/Buenaventura, 22 Oct 1987, *Monsalve 2046* (MO); Córdoba, 15 Aug 1945, *Sneidern 4655* (US–3).

ECUADOR. **Esmeraldas:** Río Lita 5 km WNW of Lita, 8 May 1987, *Daly & Acevedo 5155* (NY); Ibarra–San Lorenzo railway near Lita, *Madison 5219* (SEL).

Distribution: *Columnea sulcata* occurs on the Pacific coast of Ecuador and Colombia in lowland rain forest up to 600 m elevation in areas with an annual precipitation exceeding 5000 mm.

Columnea sulcata is not very distinctive at first glance, and specimens have frequently been annotated as *C. dimidiata* (Benth.) O. Kuntze, which has similar leaves and corollas (with a patent pilose to villous rather than hirsute indumentum). A closer look, however, reveals *C. sulcata* to be a very unusual species with several unique attributes and no known close relatives.

The species epithet refers to the plant's internodes each of which has a lateral furrow starting and deepest above the larger leaf at a node and continuing to the next node. Each flower is supported by two larger and two smaller bracts appressed to the stems in these furrows, apparently mostly below the branches (*Daly & Acevedo 5155*). In addition, the node is circular in cross-section and often considerably wider than that of the internode. The nodes are surrounded by a narrow fissure connecting the

bases of the petioles that is similar to the stipular, interpetiolar markings of the Rubiaceae but of unknown origin since Gesneriaceae never have stipules.

Columnea sulcata also differs from all other known species (except possibly from another, as yet undescribed, Colombian species) by having corolla lobes with a central, longitudinal, dorsal keel that is a little longer than the lobes. In three other recently described species of *Columnea* from Pacific coastal Colombia and Ecuador—*C. fililoba* L. P. Kvist & L. E. Skog (1993), *C. incredibilis* L. P. Kvist & L. E. Skog (1988), and *C. nematoloba* L. P. Kvist & L. E. Skog (1992)—narrow appendages up to several cm long rise from the dorsal side of the corolla lobes. These appendages may have evolved from keels similar to those found in *C. sulcata*.

Columnea sulcata is also unusual in being nearly glabrous, apart from the inconspicuous, hirsute indumentum on the outside of the corollas and the woodiness of the stems even more pronounced than that of other species of *Columnea*. The single flower supported by two larger and two smaller bracts may also be a unique inflorescence in *Columnea*.

Columnea sulcata was not included in the treatment of *Columnea* in Ecuador (Kvist & Skog, 1993), since only the sterile collection *Madison 5219* was known then. This collection was tentatively cited as *C. kalbreyeriana* Masters, since at that time it was the only species with translucent blotches on its leaves known from Ecuador. The latter species differs, however, in its conspicuous, large, bilabiate, yellow flowers.

Drymonia

The genus *Drymonia* Mart. is characterized by having long narrow anthers which are connate at anthesis by their thecae and which shed their pollen through apical pores (Wiehler, 1983). *Drymonia* is among the larger genera of neotropical Gesneriaceae, with 50–100 species of mostly lianous epiphytes, but the genus has never been revised and is poorly understood. The new species described here is the only known species of *Drymonia* with extremely unequal leaf pairs

and is, therefore, superficially more similar to species in *Columnnea* sect. *Collandra* than to other species of *Drymonia*. The plant described below may also resemble *Alloplectus* Mart. superficially. *Alloplectus* is probably closely related to *Drymonia* and differs mainly in the character of the anthers. Most species of *Alloplectus* are terrestrial and have equal or subequal leaves, differing from many species of *Drymonia* and the one described below. The two genera share the character of having a fleshy capsular display fruit, differing from the berry-fruited *Columnnea*. Like *Drymonia*, *Alloplectus* has numerous but poorly known species. However, because of the anthers that open by pores initially, we feel confident in placing the new species in *Drymonia*.

Drymonia anisophylla L. E. Skog & L. P. Kvist, sp. nov. (Fig. 4)

TYPE: PERU. Loreto: Trail to Pinto Yacu and Raya Cocha, NE of Santa María de Río Nanay, 130 m, 1 Mar 1968, *J. Schunke* V. 2471 (HOLOTYPE: US!; ISOTYPES: F!, G!, MO!).

Species insignis foliis oppositis per paria valde inaequalibus, folio majori oblanceolato, obovato vel elliptico 7–22 × 2–10 cm, folio altero ovato 2–5 × 1.5–3 cm, caulibus dorsiventralibus villosis vinaceis calycisque lobis purpureis a *Drymonia* speciebus nobis notis facile distincta.

Epiphytic and climbing, or less commonly a terrestrial subshrub to 4 m tall, the shoots mostly horizontal, strongly dorsiventral, the stems glabrescent at base to villous with wine-red trichomes toward the apex, diam. to 8 mm, the internodes 1.5–4 (8) cm long. *Leaves* strongly anisomorphic, petiolate; blade of the larger leaf in each pair oblanceolate, less commonly obovate or elliptic, 7–22 × 2–10 cm, the base usually oblique, cuneate-acute, the apex acute-acuminate, the margin entire, ciliate and often undulate (possibly only in dried material), the upper surface dull green, pilose-sericeous, the lower surface usually with a purple sheen but not deep purple (and often more purple basally than apically and in younger rather than in older leaves), appressed pilose and pilose-villous along veins; the secondary veins mostly 6 per side; petioles 1–2.5 cm

long; blade of the smaller leaf in a pair sessile, ovate, 2–5 × 1.5–3 cm, apex acuminate. *Inflorescences* in axils of the larger leaf in each pair, of 1 or 2 (4) flowers; bracts 3–10, lanceolate, 5–15 mm long, apex acute, subentire, purplish, pilose; pedicels to 3 mm long. *Calyx* purple, pilose to sericeous, the lobes unequal, lanceolate to ovate, the largest 1.5–2.5 × 1–2 cm, the smallest 1–2 × 0.5–1 cm, the apex acute, weakly serrulate to entire; corolla cylindric, 2.5–4.5 cm long, basally dorsally gibbous and 4–9 mm wide, narrowed to 3–5 mm above, widened to 5–9 mm medially and in throat, red or orange-red, densely villous externally, glabrous internally, the limb subequal, red, lobes rounded, 1.5–3 mm long and 2–4 mm wide at base; filaments 15–25 mm long, connate ca. 3 mm at base, glabrous, the anthers included, coherent, ca. 5 × 1 mm, apparently first dehiscing apically from pores and later splitting longitudinally to 1/2–2/3 of their length; nectary a bilobed gland, ca. 1 mm high; ovary sericeous, the style 12–18 mm long, puberulent particularly toward the apex, the stigma stomatomorphic. *Capsule* ca. 1.5 cm long, flattened, ca. 1.5 cm wide and ca. 0.5 cm thick, dehiscence not observed but probably with two valves—the seed-mass was seen to be attached to a conspicuous placenta similar to the placentas displayed by other species of *Drymonia*; seeds ellipsoid, ca. 1 × 0.3 mm, smooth, striate, each attached to a funiculus.

Specimens examined: BRAZIL. Amazonas: São Paulo de Olivença, near Palmares, 11 Sep–26 Oct 1936, *Krukoff* 8246 (G, MO), 8602 (U); Río Javari, Estirão de Ecuador, *Lleras et al.* P17243 (INPA).

COLOMBIA. Amazonas: Mouth of Río Loretoyacu near Barracón Cauchero, 28 Nov 1945, *Duque-Jaramillo* 2226 (COL–2); Río Caquetá, close to Chorro Córdoba, 12 Mar 1990, *Galeano et al.* 2062 (COL–2); Puerto Nariño, *Lozano C. et al.* 592 (COL); Loretoyacu river, Oct 1946, *Schultes & Black* 8493 (GH, US); Leticia, *Ule* 6184 (HBG, MG). Caquetá: San José del Fragua, 10 Mar 1981, *Bernal & Téllez* 465 (COL); SW of Florencia, 10 km SW of Belén along road to San José del Fragua, 10 Jan 1974, *Davidse et al.* 5687 (COL), 10 Jan 1974, 5690A (MO, US), 10 km S of Belén, 10 Jan 1974, *Gentry et al.* 9111 (MO); Río Caquetá, vicinity of La Pedrera, Apr 1944, *Schultes* 5882 (US). Putumayo: Río Caucaya between Puerto Jaramillo and Río Putumayo, 16 May 1942, *Schultes* 3738 (COL, F). Vaupés: Mount Chiribiquete, Macaya–Ajaju river confluence, 15–16 May 1943, *Schultes* 5397 (COL).

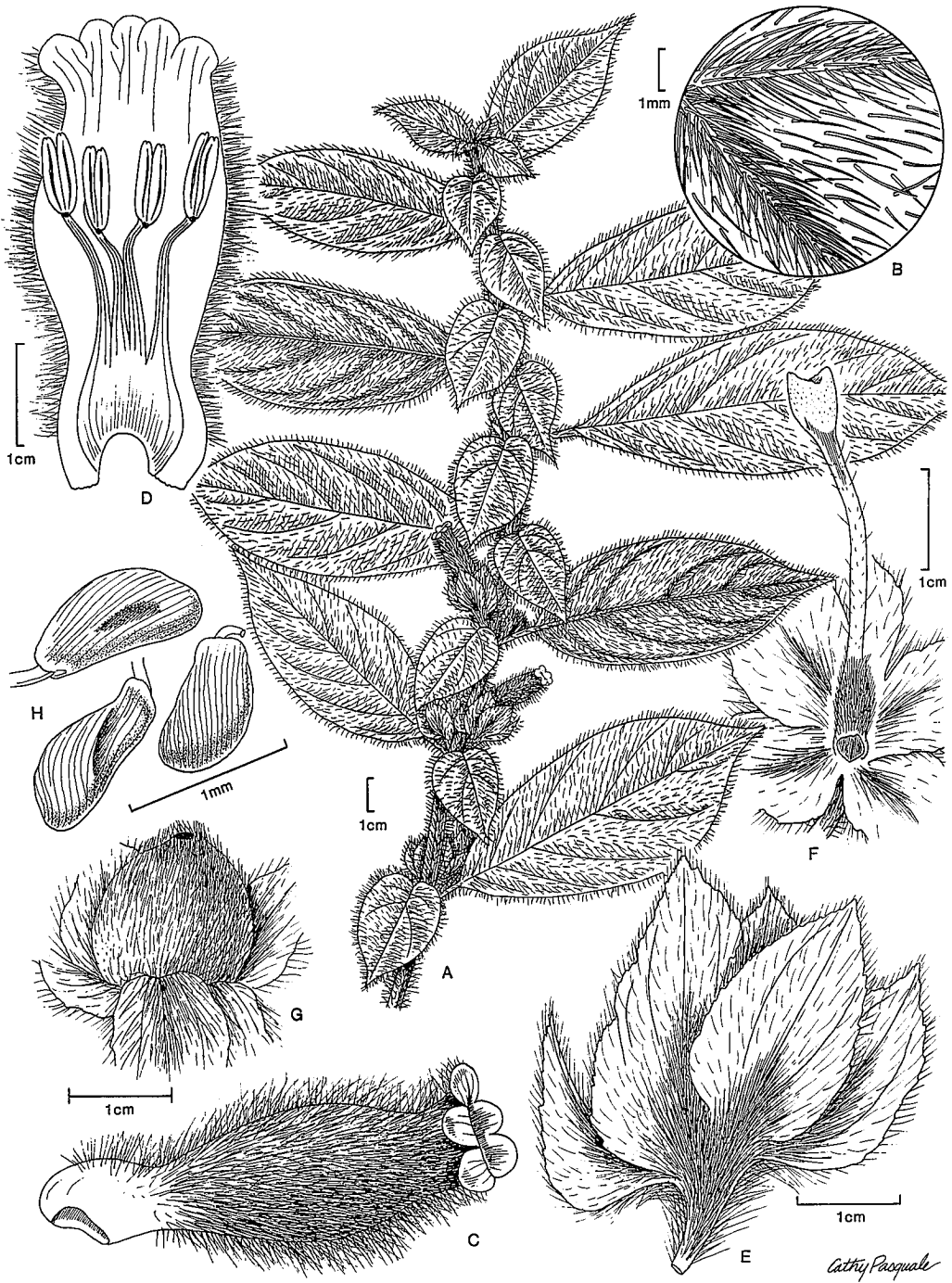


FIG. 4. *Drymonia anisophylla*. A. Branch with flowers. B. Detail of abaxial leaf surface. C. Lateral view of corolla. D. Interior of corolla with stamens. E. Calyx. F. Calyx, pistil, and nectary. G. Young fruit. H. Seeds. (A, *Plowman et al.* 6781; B-E, *Webster* 23339; F, *Davidson* 5325; G, H, *Schultes* 5882.)

ECUADOR. Napo: Parque Nacional Yasuní, Lagunas de Garza Cocha, 22 Sep 1988, *Cerón & Gallo 5095* (US); Parque Nacional Yasuní, Pozo Petrolero "Amo II" de Conoco, 29–30 Mar 1988, *Coello 159* (MO). *Sucumbios*: along trail between Río Güepi (Cabo Minacho) and Río Putumayo (Puerto Rodríguez), 9 May 1980, *Brandbyge & Asanza C. 30621* (US); Lagunas de Cuyabeno, 23 Aug 1981, *Brandbyge et al. 33978* (US).

PERU. Loreto: Allpahuayo, Iquitos, *Ayala 4473* (AMAZ); 15 km down river from Iquitos, Santa María del Ojeal, 7 Dec 1976, *Davidson 5325* (F, LAM, MO, NY, US); Maynas, San Francisco at Río Momón, 7 Mar 1978, *Díaz & Jaramillo 98* (AMAZ, MO, US, USM); upper Río Mazán, N of Santa María de Nanay, 9 Jul 1976, *Gentry & Revilla 16584* (MO); upper Río Yaguasyacu, tributary of Río Ampiyacu, near Brillo Nuevo, 8 Nov 1977, *Gentry & Revilla 20462* (MO, US); Río Güepi, tributary to Río Putumayo, near border with Ecuador, 15 May 1978, *Gentry et al. 21930* (MO, US); along trail from Indiana on Río Amazonas to Río Napo, 24 May 1978, *Gentry et al. 22192* (AMAZ, MO, US, USM); Negro Urco at Río Napo, 20 Jan 1983, *Gentry & Emmons 39617* (AMAZ, US); Quebrada Sursari, Río Napo, 5 Jul 1983, *Gentry et al. 42615* (MO, US); San Antonio on Río Itaya, 18 Sep 1929, *Killip & Smith 29435* (NY, US); Río Javari [=Yavari], behind Angamo Garrison, 5 Aug 1973, *Lleras et al. P17171* (INPA, US); Santa María de Ojeal, 4 km below mouth of Río Nanay near Río Amazonas, 21 Dec 1974, *McDaniel & Rimachi Y. 19559* (F, IBE, US); Río Momón, tributary of Río Nanay, 7 Mar 1978, *Rimachi Y. 3415* (F, IBE, MO, NY, US); Río Marañón ca. 8 km above Nauta, 13 Jun 1979, *Rimachi Y. 4463* (IBE, US); Río Yaguasyacu, tributary of Río Ampiyacu, Brillo Nuevo, 12 Apr 1977, *Plowman et al. 6781* (F, SEL); Puerto Almendras, Río Nanay, *Ruiz 155* (AMAZ); San Miguel along Río Tamshiyacu, *Vásquez & Jaramillo 3450* (AMAZ, USM); Allpahuayo, Estación Experimental de IIAP, Iquitos, 12 Sep 1990, *Vásquez et al. 14380* (MO); near confluence of Napo and Amazon rivers, 28 Aug 1978, *Webster 23339* (US–2).

Distribution: *Drymonia anisophylla* is the most widespread of recently described neotropical Gesneriaceae. Its geographical range includes the northwestern Peruvian Amazon area (the department of Loreto), most of the Colombian Amazonian forest, and adjacent parts of Brazil and Ecuador. The species is locally common, e.g., near Iquitos, Peru.

Drymonia anisophylla has never been collected above 300 m elevation (except one collection at 600 m from an isolated summit in the Amazonian forest of Colombia, *Schultes 5397*). The species apparently grows in nonflooded, upland forests (according to habitat information on herbarium labels and personal observations). *Drymonia aniso-*

phylla has not been observed in flood-plain forests near Iquitos (although many collections have been made in this area), but it was seen in upland-forest on an extremely nutrient-poor soil of white sand (pers. obs.).

Drymonia anisophylla cannot be confused with other species of *Drymonia*, because it is the only known species in the genus with strongly anisomorphic leaves and dorsiventral shoots. Although it has been frequently confused with species of *Columnea* [e.g., *C. inaequilatera* Poepp. and *C. tenensis* (Wiehler) B. D. Morley], it is easily distinguished by its stamens that are 5 mm long and 1 mm wide (vs. 3 mm long and ca. 1.5 mm wide). *Drymonia anisophylla* is also distinctive vegetatively by the combination of villous, wine-red stems, purple calyx lobes, and 2–5 cm long, ovate blade of the smaller leaf in each pair (compared to the smaller, usually lanceolate blades in superficially similar species of *Columnea*).

Hoehne (1970: plate 16) illustrated *Drymonia anisophylla* as *Alloplectus* sp., based on the collection of *Ule 6184* from Leticia on the border of Brazil and Colombia.

Gasteranthus

Gasteranthus Benth. is a genus of ca. 20 species related to *Besleria* L. but having fleshy capsules rather than berries, leaves with stomata in groups, and a dorsal or dorsally thickened nectariferous disc rather than annular (Wiehler, 1975). Two subgroups within *Gasteranthus* are easily distinguished. The first subgroup with subventricose to funnelliform, white, yellow, or red corollas apparently comprises 14 species ranging from Costa Rica to Ecuador. The second subgroup with urceolate flowers apparently comprises seven species ranging from Mexico to Peru, all of which are represented in eastern Ecuador except for the new species described here.

Gasteranthus recurvatus L. E. Skog & L. P. Kvist, sp. nov. (Fig. 5)

TYPE: COLOMBIA. Valle: Trail from Campoalegre into area controlled by Corporación Valle del Cauca, 400–500 m, 16 Feb 1989, *J. F. Smith, R. Bernal, X. Lon-*

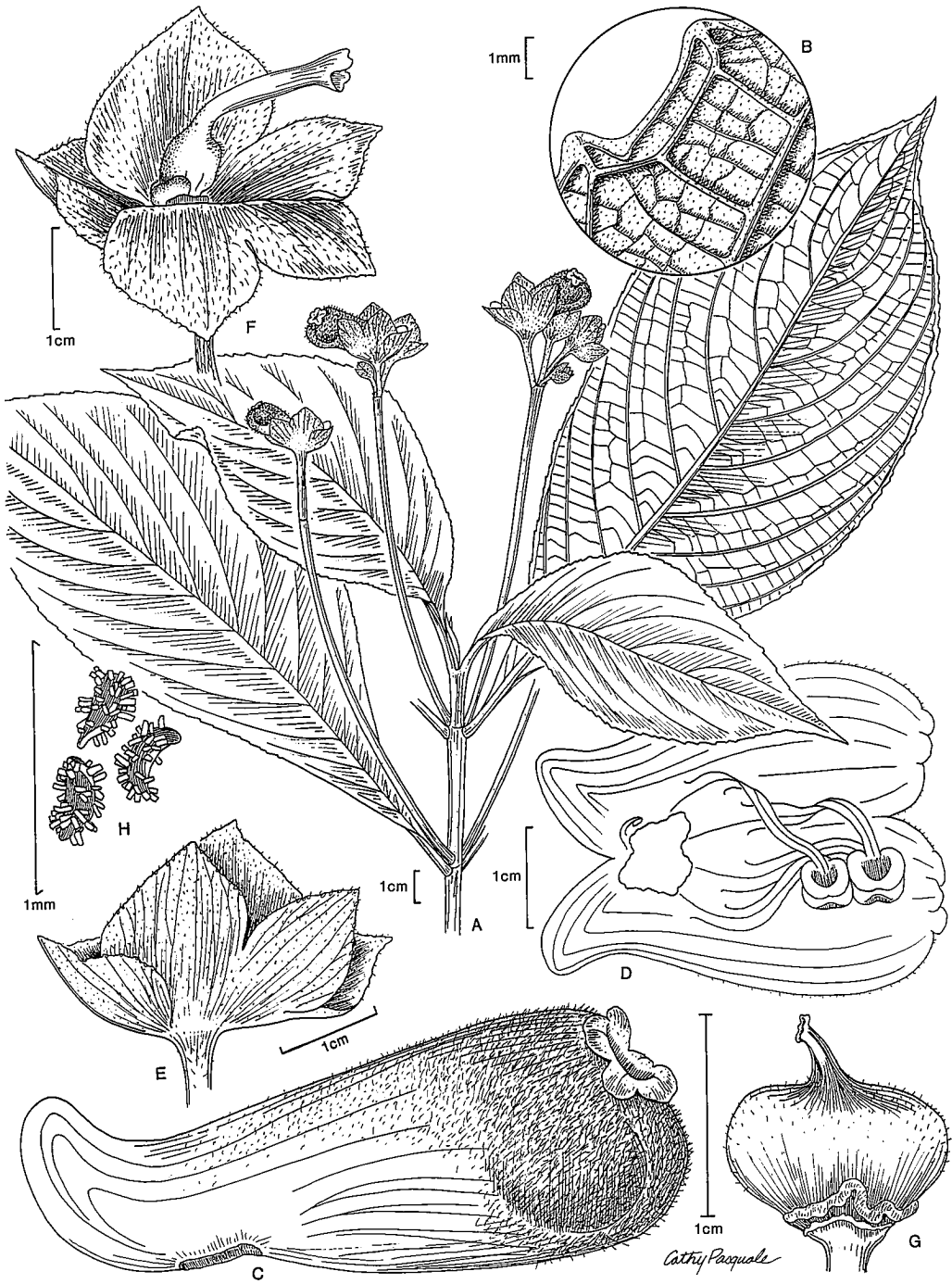


FIG. 5. *Gasteranthus recurvatus*. A. Branch with inflorescences. B. Detail of abaxial leaf surface. C. Lateral view of corolla. D. Interior of corolla with stamens. E. Calyx. F. Calyx, pistil, and nectary. G. Young fruit. H. Seeds. (A-C, E, F, Robinson 391; D, Devia 594; G, H, Vogel 93.)

doño & W. Devia 1314 (HOLOTYPE: COL—n.v.; ISOTYPES: SEL—n.v., WIS—n.v., US!, TULV—n.v.).

A *Gasterantho corallino* (Fritsch) Wiehler inflorescentiis 1–5-floris, corollis urceolatis sed (calcare incluso) 3–3.5 cm longis, calcaribus recurvatis corollaque extra dense glanduloso-puberula differt.

Terrestrial herbs; stems 1–2 m tall, quadrangular, apparently rarely branched, puberulent, diam. to 8 mm, the internodes 1.5–4.5 cm long. *Leaves* opposite, isomorphic, petiolate; blades ovate, elliptic to obovate, 10–28 × 4.9–12.4 cm, the base oblique, cuneate-acute, the apex acute-acuminate, the margin serrate, the upper surface flat, dark green, glabrous but puberulent when young, the lower surface lighter green, glabrous or weakly puberulent, with puberulent to tomentose veins, the secondary veins 8–10 per side; petioles 1–4 cm long. *Inflorescences* in upper leaf axils, of cymes of 1–5 flowers, puberulent-tomentose; peduncles 6–16 cm long; ebracteate; pedicels 2–5 cm long. *Calyx* green; lobes unequal, basally connate for 3–5 mm, glabrous to sparsely puberulent externally, glandular-puberulent to glandular-tomentose internally, with ca. 8 parallel veins which reticulate near the denticulate-subentire and glandular-puberulent margin, the ventral lobes lanceolate to ovate, ca. 10 mm long, 8 mm wide at base, the lateral lobes ovate, ca. 12 mm long and 12 mm wide at base, the dorsal lobe ovate, ca. 15 mm long, ca. 12 mm wide at base, dorsally keeled along primary vein; corolla urceolate, 2–2.5 cm long (including spur), tube 3–3.5 cm long, pink-red and densely glandular-puberulent externally, glabrous internally, diam. 1–1.5 cm and gradually expanding, the pouch ventral, the throat apical and dorsal, diam. 3–4 mm, the lobes subequal, rotund, 1–2 mm long and 2–3 mm wide at base, the spur ca. 1 cm long, bent upward, apex blunt; stamens included, the filaments ca. 10 mm long, glabrous, the anthers ca. 2.5 × 1.5 mm; nectary irregular but to 2–3 mm high dorsally at both sides of the ovary; ovary glabrous-puberulent, the style 10–12 mm long, the stigma weakly bilobed-stomatomorphic. *Berry* flattened, ca. 8 mm long, ca. 10 mm wide and ca. 4 mm

thick, dehiscence not observed; seeds subellipsoid, ca. 0.2 mm long, somewhat striate, with surface crystals.

Specimens examined: COLOMBIA. Valle: Buga-Loboguerrero road along Calima lake, 13 May 1973, Croat 56733 (MO); Alto Anchicayá, Corregimiento El Danubio, 20 Jun 1984, Devia 594 (MO, US); NW of Darién, Río Bravo, 21 Jul 1962, Robinson 81 (COL, US); Calima gorge, 7 Sep 1962, Robinson 391 (US); Anchicayá, 1 Sep 1956, Vogel 93 (US).

Distribution: *Gasteranthus recurvatus* is known only from the Colombian department of Valle, where it grows on the western slope of the Western Cordillera in extremely humid premontane and low montane forests between 400 and 1700 m elevation.

Gasteranthus recurvatus differs from the other six species of *Gasteranthus* with urceolate corollas by having a spur that is bent upward rather than downward (reflected in the species epithet). The corolla also differs from those of all related species except *G. corallinus* (Fritsch) Wiehler by having a ventral pouch which is not considerably longer than the tube measured as the distance from the base of the flower to the tip of the pouch and the throat, respectively, and by having a densely glandular-puberulent indumentum outside. *Gasteranthus corallinus*, however, has much smaller flowers (maximally 1.5 cm long), which are usually found in congested cymes of 8–20 flowers, and this species also has a conspicuous indumentum on its stems and inflorescences.

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