

FOUR NEW SPECIES OF *COLUMNEA* (GESNERIACEAE)
WITH PRIMARY DISTRIBUTIONS IN COLOMBIA

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ABSTRACT

Recent studies investigating the species of *Columnea* sections *Ortholoma* and *Collandra* have uncovered several new species to science. In the present paper we describe four species, ***Columnea ceticeps***, ***C. ferruginea***, ***C. fractiflexa***, and ***C. laciniata*** with a primary distribution in Colombia as part of ongoing studies in the revised subgeneric classification of the genus and revision of the species of section *Ortholoma*.

RESUMEN

Estudios recientes en el género *Columnea* secciones *Ortholoma* y *Collandra* han revelado varias especies nuevas para la ciencia. En este artículo, como parte de los estudios en curso sobre la clasificación subgenérica del género y la revisión de especies de la sección *Ortholoma*, describimos cuatro especies nuevas ***Columnea ceticeps***, ***C. ferruginea***, ***C. fractiflexa***, y ***C. laciniata***, con distribución principal en Colombia.

INTRODUCTION

Within Gesneriaceae, classification systems based on morphological characters have been notoriously challenging when trying to align them with evolutionary relationships (Wiehler 1983). Recent molecular work has uncovered multiple cases of para- and polyphyletic genera (Möller & Cronk 1997; Smith et al. 1998, 2004; Smith 2000; Clark & Zimmer 2003; Roalson et al. 2005a, 2005b, 2008; Clark et al. 2006, 2011, 2012; Möller et al. 2009; Wang et al. 2010, 2011). Although the genus *Columnea* has been regularly recovered as monophyletic in molecular systematics studies (Clark et al. 2012), its classification has not been entirely stable as Wiehler (1973, 1983) split the genus into four genera (*Columnea*, *Dalbergaria*, *Trichantha*, and *Pentadenia*) and described a fifth, *Bucinellina* (Wiehler 1981). Wiehler considered earlier classifications within *Columnea* s.l. to reflect convergent evolution by pollinator selection on corolla form rather than the evolution of the plants themselves (Wiehler 1983). This split was not widely accepted and alternative subgeneric systems that treated *Columnea* as a single genus were proposed (Morley 1974, 1976; Kvist & Skog 1993; Smith 1994). Currently the genus is estimated to comprise 200 species (Kvist & Skog 1993; Weber 2004; Skog & Boggan 2007).

As part of the process of revising the subgeneric classification and placement of species in section *Ortholoma* (sensu Kvist & Skog 1993; Smith 1994), several specimens have been discovered that do not fit within the range of variation for the previously described species in this section.

Colombia is home to tremendous species diversity in the genus *Columnea* with 90 species recorded there (Clavijo et al. 2011) and numerous recent papers reflect the large number of species yet to be described from this country (Amaya-Márquez 2010a, b; Amaya-Márquez & Marín-Gómez 2012; Amaya-Márquez & Smith 2012; Clark & Clavijo 2012; Clavijo & Clark 2013; Mora & Clark 2012; Amaya-Márquez & Smith submitted).

Here we describe four species whose primary distribution is in Colombia.

Columnnea ceticeps J.L. Clark & J.F. Smith, sp. nov. (**Figs. 1 & 2**). TYPE: COLOMBIA. ANTIOQUIA: Municipio Jardín, Vereda La Mesenia, Reserva Natural Mesenia-Paramillo (Fundación Colibrí), Cordillera Occidental, Sendero Transilvania, from Río San Juan to Cuchilla Paramillo, 2200–2800 m, 5°29'18"N 75°54'20"W, 17 May 2012, J.L. Clark, J. Anderson, L. Clavijo & U. Rendón 12950 (HOLOTYPE: COL; ISOTYPES: MO, NY, US).

Pendent epiphytic herb with red bilabiate corollas. Differing from other species in section *Columnnea* by having a narrow galea curved downward.

Epiphytic herb; stems to 2.8 mm in diameter, red-brown, with zigzag appearance proximally glabrous, distally appressed pilose with multicellular gold-colored trichomes; internodes 1.3–4.8 cm long; leaf scars flush with the stem. **Leaves** opposite, anisophyllous, larger lamina 2.5–8.8 cm long, 0.8–3.0 cm wide, ovate to elliptic, apex acuminate, base oblique, lateral veins 3–5 per side, adaxially green, appressed pilose with multicellular trichomes with more or less pustulate bases, abaxially green, pilose with gold-colored multicellular trichomes, denser on veins, margin crenulate to serrulate; petioles 0.1–0.15 cm long, pilose with multicellular gold-colored trichomes; smaller lamina 1.7–2.5 cm long, 0.7–1.15 cm wide, lateral veins 1–3 per side, petiole 0–0.08 cm long, otherwise similar to larger lamina. **Inflorescence** of 1 flower per axil of leaf; bracts not seen, presumably caducous. Pedicels 9.5–19.5 mm long, green, appressed pilose with multicellular trichomes. Calyx loosely clasping, lobes 14.0–21.0 mm long, 0.8–3.5 mm wide, lanceolate, apex acute, exterior appressed pilose with multicellular gold-colored trichomes and single-celled white trichomes or densely spreading pilose with multicellular gold-colored trichomes (the latter true for most specimens from Nariño), red, interior glabrous; margin subentire to denticulate. Corolla 4.2–6.5 cm long, 0.55–1.4 cm at widest point which is the opening of the throat, tubular, not ventricose, gibbous at base, 0.25–0.35 cm wide at narrowest point at the base, red to orange, exterior pilose with multicellular red-colored trichomes, interior minutely puberulent; limb bilabiate, upper lip formed by the two dorsal and two lateral lobes, lower lip formed by a ventral lobe; dorsal lobes connate, rounded, 0.25–0.55 cm long, 0.5–0.6 cm wide, lateral lobes acute 0.1–0.2 cm long, 0.18–0.3 cm wide, ventral lobe, oblong 1.05–1.8 cm long and 0.14 cm wide, galea 1.8–2.05 cm long. Filaments 1.5 cm long connate 0.25 cm and adnate to corolla another 0.15 cm, tomentose with glandular and non-glandular trichomes, anthers 2.5 mm long, 2.5 mm wide, quadrangular, included in corolla throat. Ovary 4.0 mm long, conical, glabrous, style 34 mm long yellow, minutely puberulent, stigma stomatomorphic, yellow, smooth. Nectary a double dorsal gland. **Fruit and seeds** not seen.

Phenology.—Flowering specimens have been collected from December–February, April, May, and July, presumably flowering continuously, no fruiting specimens are known.

Distribution.—This species is widespread mainly in the Cordillera Occidental of Colombia in the departments of Antioquia, Chocó, Risaralda, Valle, Cauca, Nariño, Putumayo, and Ecuador at elevations from 1900 to 2900 m. In Antioquia the species has been recorded both in Cordillera Occidental and Cordillera Central.

Etymology.—The specific epithet is derived from the combining forms of whale (cetus) and headed (-ceps) due to the similarity of the corolla in profile that looks like a sperm whale's head with an open mouth (Fig. 2).

Additional specimens examined: **COLOMBIA. Antioquia:** Caldas, vereda La Clara. Headwaters of Río Medellín, trail to Alto de San Miguel, Cordillera Central, 12 May 2012, J.L. Clark et al. 12874 (COL); Jardín, Sector alto de Ventanas, 2 Jul 2007, H. David et al. 2125 (HUA). **Chocó:** San José del Palmar, Cerro del Torrá, edge of the mountain, 21 Aug 1988, F.A. Silverstone-Sopkin et al. 4641 (CUVC). **Risaralda:** Santuario, vereda Las Colonias, 2 Feb 1983, J.H. Torres et al. 1446 (COL). **Cauca:** Cerro Munchique, F.C. Lehmann 7636 (US); El Tambo, PNN Munchique, 20 Jun 2001, R. Bernal & P. Lopera 2850 (COL), 8 Feb 2000, C.E. González & M.M. Olives 2702 (COL), 30 Jul 1993, G. Lozano et al. 6587 (COL); El Tambito, Centro de Estudios Ambientales del Pacífico Tambito, trail Cerro del Perro, Río Paloverde, 19 Dec 2000, C.E. González 3354 (COL); La Costa, 7 Sep 1936, K. von Sneider 795 (COL), Sep 1936, K. von Sneider 796 (COL); El Tambo, 4 Aug 1936 K. von Sneider 990 (US), 19 Jul 1993, F. González et al. 2756 (COL); 7 "La Gallera" El Micay 1 Jul 1922 E.P. Killip 7935 (US), Pérez Arbelaiz & Cuatrecasas 6266 (COL), A. Gentry et al. 60502 (MO), 30 Jul 1993, N. Ruiz et al. 204 (COL); El Cairo, vereda El Brillante, 30 May 2011, O.-H. Marin-Gómez & D.A. Gómez-Hoyos 196 (COL-2), 197 (COL), 198 (COL). **Nariño:** Ricaurte, Reserva La Planada, 26 May 1985 O. de Benavides 5553 (US, PSO), 29 Apr 1988 O. de Benavides 9598 (MO, US, PSO), 17 Jan 1990 O. de Benavides 11276 (US, PSO), 25 Sep 1989, O. de Benavides 10809 (PSO), 1 Sep 1990, O. de Benavides 11447 (PSO); Mpio. de Mallama, camino que conduce de la Planada a Pialapí, 15 Aug 1992, R. Giraldo 181 (PSO), 13 May 1992, R. Giraldo 121 (PSO), 3 Mar 1989, J.F. Smith & M. Galeano 1522 (PSO); Barbaçoas, Corregimiento de Altaquer, vereda El Barro, Mar

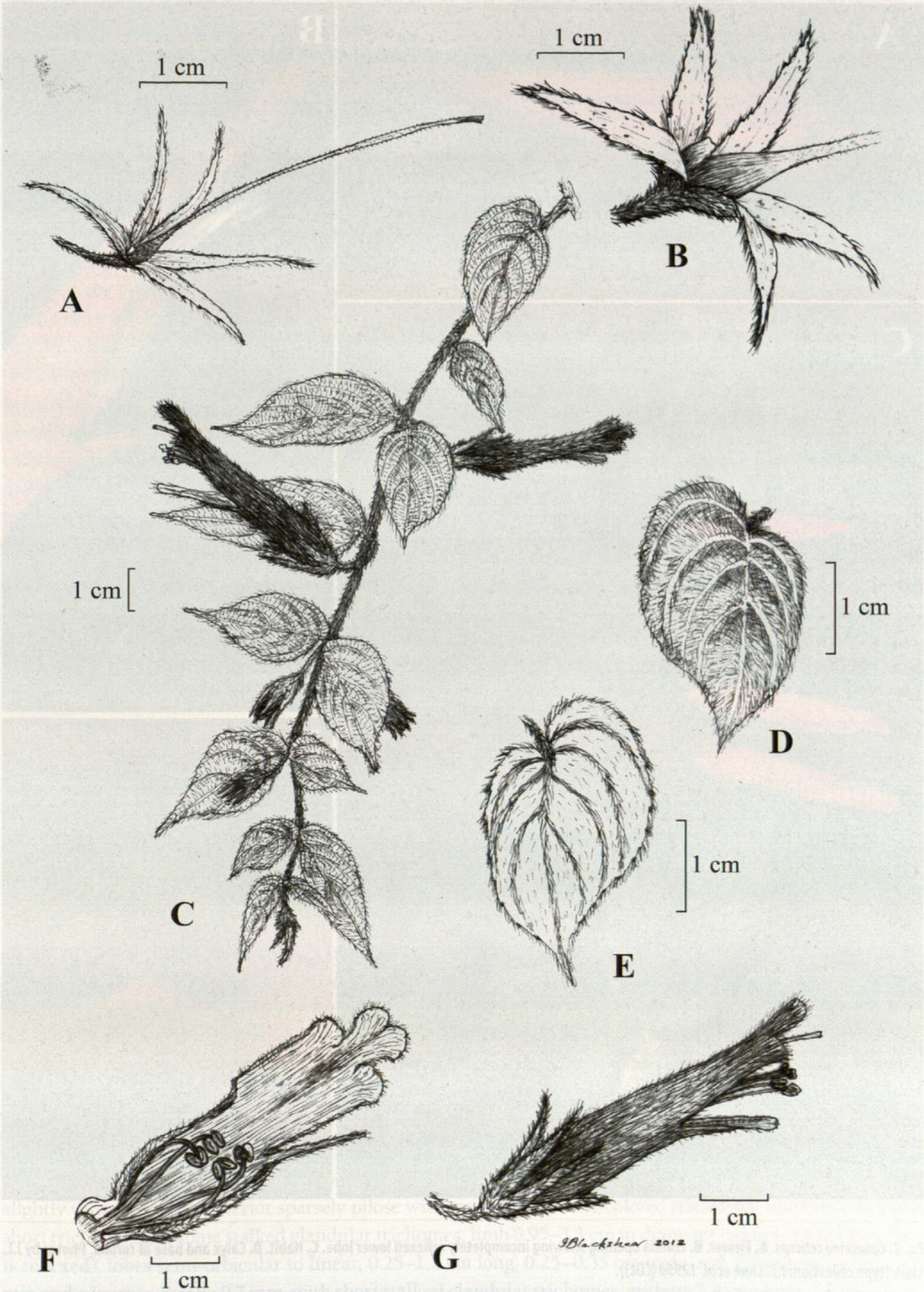


FIG. 1. *Columnnea ceticeps*. A. Calyx with corolla removed to show gynoecium. B. Calyx and base of gynoecium with double dorsal nectary gland. C. Habit. D. Leaf, adaxial surface. E. Leaf, abaxial surface. F. Corolla opened to show androecium. G. Flower. All from L. Figueiras 8379 (US). Illustration by Sue Blackshear.



FIG. 2. *Columnnea ceticeps*. A. Flower. B. Corolla opening showing incompletely reflexed lower lobe. C. Habit. D. Calyx and base of corolla. Photos by J.L. Clark (type collection: J.L. Clark et al. 12950 (COL)).

1995, J.L. Fernández et al. 12387 (COL); Reserva Natural Río Nambi, 25 Dec 2003, N.R. Salinas et al. 409 (PSO). **Putumayo:** San Francisco, km 83 from the highway to the west, 6 Jun 1973, O. de Benavides & J. Riascos 71(PSO); High basin of river Putumayo at the Valle de Sibundoy, 2 Jan 1941, J. Cuatrecasas 11607 (COL); road between Mocoa and La Siberia, 30 Jan 1961, G. López 153 (PSO). **Risaralda:** Municipio de Santuario, vereda Las Colonias, 400 m up from the camp, 2 Feb 1983, J. Torres et. al. 1446 (COL). **Valle:** Cuenca del Río Cali, 23 Jan 1963 L. Figueiras 8360 (US, VALLE), 8379 (US, VALLE); El Cairo, Cerro El Inglés, Serranía Las Paraguas, 1 Apr 1988 F.A. Silverstone-Sopkin et al. 3913 (CUVC, US), May 19 2013, J.F. Smith et al. 10805 (COL). **Valle/Chocó:** El Cairo, 25 Apr 1989, J.L. Luteyn & J. Giraldo 12657 (CUVC, US), May 20 2013, J.F. Smith et al. 10849 (COL); West Cordillera, Observatorio, Aug 1941 E. Dryander 2506 (US), 2517 (US), Sep 1941 E. Dryander 2516 (US). ECUADOR. **Carchi:** Canton Tulcan, Parroquia Maldonado, 8 Dec 2001, J.L. Clark & C. Guiz 6386 (QCNE, MO, US).

Several herbarium specimens were annotated with unpublished names by Wiehler. It is curious that Wiehler considered this species as a member of *Trichantha*, which is a genus that has few species with bilabiate corollas. This species might more likely be placed in section *Columnnea*, and corresponding to Wiehler's genus *Columnnea* based on the bilabiate non-ventricose corolla with spreading corolla lobes. However, the corolla does not expand to a broadened galea (Fig. 2 A, B) as do all of the species in section *Columnnea* and its sectional placement has yet to be tested with molecular data.

The specimens from Nariño, Colombia are marginally different from other collections in that the exterior vestiture of the calyx lobes is densely pilose with the characteristic gold-colored trichomes found in other collections but much less dense. This species is similar to another undescribed species from Colombia and which mostly differs from *C. ceticeps* in having leaves that are glabrous adaxially. Although this seems to be a minor difference, pubescence on vegetative parts of species in *Columnnea* tends to be consistent and glabrous leaves are an unusual trait, therefore these specimens are considered a different species here.

Columnnea ceticeps also is vegetatively similar to yet another undescribed species from Colombia, both of which have been collected from Cerro Munchique. However the corollas are different between the two with the undescribed species having corollas with a subradial limb and *C. ceticeps* with a bilabiate limb (Figs. 1, 2).

Columnnea ferruginea J.F. Smith & J.L. Clark, sp. nov. (**Fig. 3**). TYPE: COLOMBIA. VALLE: Municipio El Cairo, Corregimiento El Boquerón, vereda El Brillante, Reserva Natural Cerro El Inglés, 19 May 2013, J.F. Smith, O.H. Marín Gómez & J. Arango Bermudez 10808 (HOLOTYPE: COL; ISOTYPES: CUVC, HUA, PSO, VALLE, TULV).

Epiphytic herb similar to *C. dictyophylla* but covered in rust-colored rather than gold trichomes and with less conspicuous tertiary venation on the abaxial surfaces of the leaves.

Epiphytic herb; stems to 115 cm long, up to 5.5 mm diameter, brown, proximally pilose with multicellular rust-colored trichomes, distally denser; internodes 1.0–4.5 cm long; leaf scars raised. **Leaves** opposite, anisophyllous, larger lamina 6.2–10.0 cm long, 1.8–3.1 cm wide, oblanceolate to narrowly oblong, slightly falcate, apex acuminate, base oblique, lateral veins 9–12 per side, adaxially green, appressed pilose with multicellular rust-colored trichomes, abaxially green, pilose with multicellular rust-colored trichomes, slightly denser vestiture on veins, margin serrulate and ciliate with multicellular red trichomes; petioles 0.2–0.5 cm long, densely pilose with multicellular rust-colored trichomes, smaller lamina 1.2–2.1 cm long, 0.25–0.6 cm wide, lanceolate, apex acute to acuminate, base oblique, adaxially green, pilose with multicellular rust-colored trichomes, abaxially green, densely pilose with multicellular rust-colored trichomes, denser on veins, margin serrulate, petiole 0.08–0.1 cm long, pilose with multicellular rust-colored trichomes. **Inflorescence** of 1 flower per axil of leaf; bracts 3.5 mm long, 0.2 mm wide, linear, apex acute, red-purple, pilose with multicellular rust-colored trichomes. Pedicels 1.9–2.5 cm long, green or red, densely pilose with multicellular rust-colored trichomes. Calyx loosely clasping, lobes 16.0–27.0 mm long, 1.5–1.8 mm wide, linear, apex acuminate, exterior densely pilose with multicellular rust-colored trichomes, red or bright yellow-green; margin serrulate. Corolla 4.7–6.3 cm long, 0.95–1.4 cm wide at widest point, 0.9–1.25 cm before limb, 0.25–0.3 cm at gibbous base, tubular, slightly ventricose, red, exterior sparsely pilose with multicellular rust-colored trichomes, interior with some short trichomes and some stalked glandular trichomes; limb 0.95–3.3 cm in diameter (widest when lower lobe is reflexed), lobes semi-orbicular to linear, 0.25–1.2 cm long, 0.25–0.35 cm wide, red. Filaments connate 3.5 mm and adnate to corolla 0.7 mm, with short stalked glandular trichomes, anthers 2.8 mm long, 2.8 mm wide, quadrangular, included in corolla tube. Ovary 4.5 mm long, conical, pilose with multicellular transparent trichomes, style pale yellow to white, pilose with multicellular transparent and short stalked glandular tri-

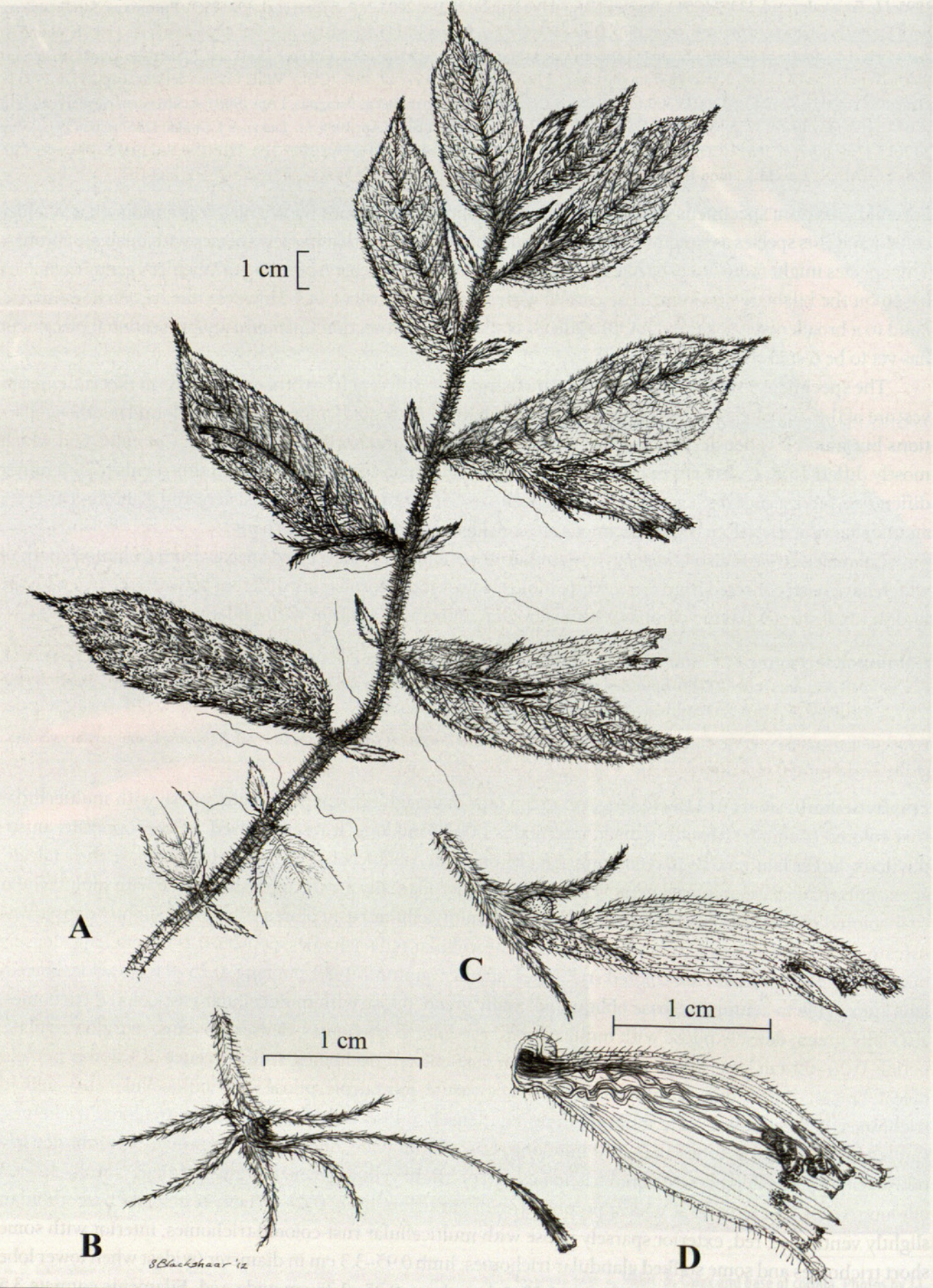


FIG. 3. *Columnea ferruginea*. A. Habit. B. Calyx and gynoecium with corolla removed. C. Flower. D. Corolla opened to show androecium. All illustrations from J.L. Luteyn et al. 12346 (NY). Illustration by Sue Blackshear.

chomes, stigma bilobed, papillate, included in corolla tube. Nectary a dorsal double gland. **Fruit and seeds** not seen.

Phenology.—Flowering only known from January and May, fruits not seen.

Distribution.—Apparently a rare species found in Colombia between 2000–2320 m along the western slopes of the Cordillera Occidental.

Etymology.—The specific epithet is derived from the rust-colored trichomes that cover most of the vegetative portions of this species.

Additional specimens examined: **COLOMBIA. Valle:** Municipio El Cairo, Serranía de los Paraguas, Reserva Natural Cerro El Inglés, 1 Jan 1987, F.A. Silverstone-Sopkin 2850 (US); Corregimiento Boquerón, Vereda La Amarillas, Serranía de los Paraguas, Cerro El Inglés, 14 May 1988, J.L. Luteyn et al. 12346 (NY, US), 19 May 2013, J.F. Smith et al. 10772 (COL); Sector La Florida, camino Los Santicos a La Florida a Río Blanco, 20 May 2013, J.F. Smith et al. 10829 (COL), J.F. Smith et al. 10830 (COL).

Columnnea ferruginea is readily differentiated from all other congeners by the distinctive rust-colored vestiture on the abaxial leaf surface. It is similar to *C. dictyophylla* Donn. Sm. in that it also has a large, red, bilabiate corolla, but differs in lacking the distinctive gold vestiture of the abaxial leaf surface. Additionally, the tertiary leaf venation in *C. dictyophylla* is reticulate, abaxially prominent, and covered in hairs that contrast with the often red-purple color of the lamina. The tertiary venation of *C. ferruginea* is suppressed and inconspicuous.

Columnnea fractiflexa J.F. Smith & J.L. Clark, sp. nov. (**Figs. 4 & 5**). TYPE: COLOMBIA. ANTIOQUIA: Municipio Urrao, Corregimiento La Encarnación, Vereda Calles, Parque Nacional Natural Las Orquídeas, camino Calles-La Encarnación, después de la confluencia del río Polo y antes del río San Pedro, sitio la Quiebra, 06°30'31"N, 76°14'W, 1600–1850 m, 31 Jan–2 Feb 2011, P. Pedraza-Peñalosa, J. Betancur, M.F. González, G. Giraldo, F. Gómez, A. Duque & J. Serna 2137 (HOLOTYPE: COL; ISOTYPES: NY, UNA).

Pendent epiphytic herb similar to *C. minor* but with smaller leaves, a corolla that is entirely red, and lacking appendages that alternate between the corolla lobes.

Pendent to festooning epiphytic herb; stems to 1.5 mm diameter with a characteristic zigzag appearance, tan, proximally sparsely appressed pilose with multicellular red-colored trichomes, distally denser; internodes 2.0–2.2 cm long; leaf scars slightly raised. **Leaves** opposite, anisophyllous, larger lamina 2.8–4.5 cm long, 0.85–2.8 cm wide, ovate, apex acute, base obtuse and slightly oblique, lateral veins 4–7 per side, adaxially red, densely appressed pilose with multicellular red-colored trichomes, abaxially red, sparsely appressed to spreading pilose with multicellular yellowish trichomes, denser on veins, margin serrulate; petioles 0.1–0.15 cm long, pilose with multicellular red-colored trichomes, smaller lamina 0.6 cm long, 0.2 cm wide, lanceolate, sessile, otherwise similar to larger lamina. **Inflorescence** of 1–2 flowers per axil of leaf; bracts 8.0 mm long, 1.5 mm wide, lanceolate, apex acute, green, sparsely pilose with multicellular red-colored trichomes. Pedicels 8.0–11.0 mm long, green, densely appressed to spreading pilose with multicellular red-colored trichomes. Calyx clasping, lobes 7.0–8.0 mm long, 8.0–10.0 mm wide including lobes to the tips of the lobes, ovate, apex acuminate, exterior spreading pilose with multicellular red-colored trichomes, green, interior glabrous; margin deeply fimbriate. Corolla 4.4–5.1 cm long, 0.74–1.0 cm wide at widest point, 0.6–0.95 cm before limb, 0.3–0.35 cm at base, tubular, slightly ventricose, somewhat falcate, gibbous at base, red, exterior sparsely spreading pilose with multicellular trichomes, interior sparsely pilose inside throat dorsally, otherwise glabrous; limb slightly bilabiate, 0.85–1.22 cm in diameter, lobes elliptic, 0.45 cm long, 0.2 cm wide, red. Filaments 47 mm long connate for 8.0 mm and adnate to corolla an additional 0.5 mm, glabrous, anthers 1.7 mm long, 1.4 mm wide, quadrangular, included in corolla tube. Ovary 3.0 mm long, conical, sparsely pilose with multicellular trichomes, style 49 mm long, yellow, glabrous, stigma bilobed, papillate, included in corolla tube. Nectary two dorsal double glands. **Fruit and seeds** not seen, but the label of the type collection indicates the fruits are pinkish-white.

Phenology.—Flowering known from January, April, May, July, and November. Fruits not seen, but are referred to in the type collection made in January.

Distribution.—This species is known only from a narrow region in Antioquia Colombia where all specimens have been collected from 1600–2050 m.

Etymology.—The specific epithet is derived from the zigzag appearance of the pendent stems (Fig. 5B).

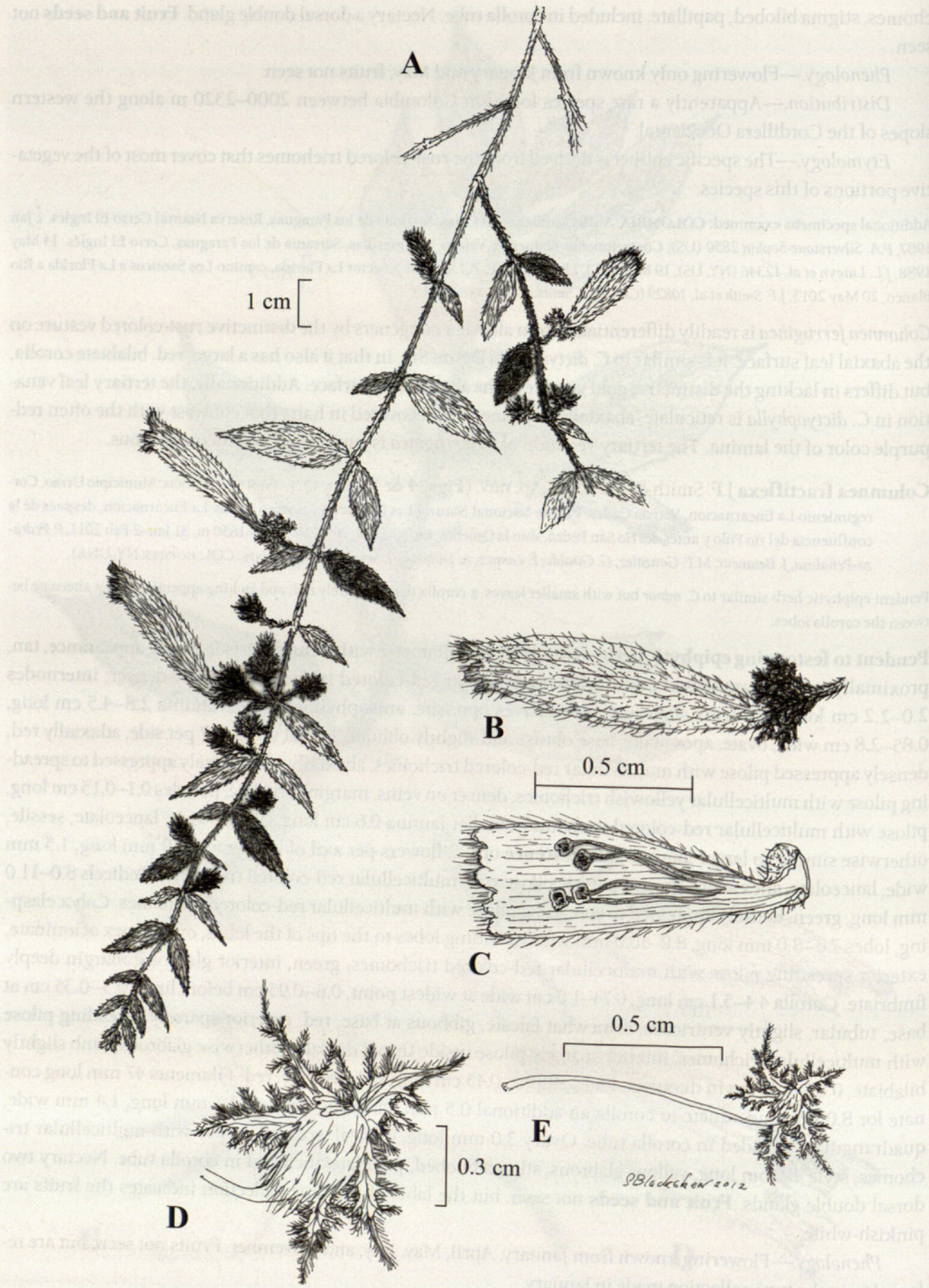


FIG. 4. *Columnea fractiflexa*. A. Habit. B. Flower. C. Corolla opened to show androecium. D. Calyx and ovary. E. Calyx with corolla removed to show gynoecium. All from J.C. Betancur et al. 428 (MO). Illustration by Sue Blackshear.



FIG. 5. *Columnnea fractiflexa*. A. Flower. B. Habit showing zigzag stem and abaxial leaf surface. C. Habit showing zigzag stem and adaxial leaf surface. Photos by Paola Pedraza.

Additional specimens examined: **COLOMBIA. Antioquia:** Municipio de Frontino, Nov 1975, R. Escobar R. s.n. (SEL), 4 May 1983, C. Luer et al. 8997 (SEL, US); Municipio de Frontino, Región Murri, lado de la carretera entre Nutivara y La Blanquita, despues del Alto de Cuevas, 06°43'N, 76°19'W, 1380 m, 13 Apr 1987, J.C. Betancur et al. 428 (MO-2, NY, US); 14 July 1988, R. Callejas et al. 6817 (MO, US); 3 Nov 1988, G. McPherson 12949 (MO); trail from Encarnación to Parque Nacional de los Orquídeas, 1600–1800 m, 27 Jan 1979, A. Gentry & E. Renteria A. 24559 (COL, MO, US).

Columnnea fractiflexa is similar to *C. minor* by the presence of tubular subradial red corollas and pendent to festooning habit (Figs. 4, 5). The leaves of *Columnnea fractiflexa* are significantly smaller (< 4 cm) than *C. minor* (> 5 cm). The presence of corolla appendages alternate between the corolla lobes found in *C. minor* are absent in *C. fractiflexa*. Other species that have pendent habits are mostly confined to a section of *Columnnea* (section *Columnnea*) that is characterized by strongly bilabiate corollas. The subradial corolla of *Columnnea fractiflexa* (Fig. 5A) is different from the strongly bilabiate corollas in section *Columnnea*.

Columnnea laciniata J.L. Clark & M. Amaya, sp. nov. (Fig. 6). TYPE. COLOMBIA. VALLE: Municipio El Cairo, Corregimiento El Boquerón, vereda El Brillante, Reserva Natural Cerro El Inglés, 19 May 2013, J.F. Smith, O. H. Marin-Gómez & J. Arango Bermudez 10806 (HOLOTYPE: COL; ISOTYPE: CUV, PSO, TUL, VALLE).

Different from other congeners by the presence of laciniate margins on the sepals. Similar to *Columnnea fimbriatocalyx* by the presence of fimbriate-laciniate calyx margins. Differs from *Columnnea fimbriatocalyx* by presence of broadly ovate leaves in contrast to narrowly lanceolate leaves. The calyx lobes in *C. laciniata* are spreading and separate in contrast to adjacent lobes that appear congested in *C. fimbriatocalyx*.

Epiphytic herb; stems to 50 cm, up to 3.5 mm diameter, brown, woody at base of stems, proximally nearly glabrous to sparsely pilose with multicellular transparent trichomes, distally denser with multicellular transparent and red-colored trichomes; internodes 1.5–7.2 cm long; leaf scars raised. **Leaves** opposite, anisophyllous, appearing alternate as the smaller leaf is often lost on older portions of stems, larger lamina 3.2–6.8 cm long, 1.6–3.5 cm wide, ovate to elliptic, apex acuminate, base oblique, lateral veins 4–7 per side, adaxially green, sparsely pilose with multicellular transparent trichomes, abaxially red-purple, sparsely pilose with multicellular transparent trichomes to nearly glabrous, slightly denser vestiture on veins, margin entire; petioles 0.5–0.8 cm long, appressed pilose with multicellular red-colored trichomes, smaller lamina 1.3–4.2 cm long, 0.25–2.0 cm wide, ovate to lanceolate, apex acuminate, base oblique, lateral veins 4–5 per side, adaxially green, pilose with multicellular transparent trichomes to nearly glabrous, abaxially red-purple, sparsely pilose with multicellular transparent trichomes to nearly glabrous, margin entire to crenulate, petiole 0.3–0.45 cm long, appressed pilose with multicellular red-colored trichomes. **Inflorescence** of 1–2 flowers per axil of leaf; bracts 3.5–6.0 mm long, 0.4–0.7 mm wide, linear, apex acute, red-purple, pilose with multicellular transparent trichomes. Pedicels 5.0–8.0 mm long, red-purple, appressed pilose with multicellular transparent or red-colored trichomes. Calyx loosely clasping, lobes 14.0–20.0 mm long, 1.0–1.5 mm wide without laciniae, elliptic to lanceolate, apex acute, interior glabrous, exterior pilose with multicellular transparent or red-colored trichomes, red-purple; margin laciniate. Corolla 2.3–3.6 cm long, 0.35–0.45 cm wide at widest point along the tube, 0.35–0.5 cm before limb, 0.2 cm at gibbous base, tubular, slightly ventricose, yellow, exterior pilose with multicellular red-colored trichomes, interior glabrous; limb 0.55–0.7 cm in diameter, lobes semi-orbicular, 0.2–0.3 cm long, 0.2–0.3 cm wide, yellow. Filaments connate 5.5 mm and adnate to corolla 0.5 mm, glabrous, anthers 1.7 mm long, 1.7 mm wide, quadrangular, included in corolla tube. Ovary 1.5 mm long, conical, pilose with multicellular transparent trichomes, style yellow, glabrous, stigma bilobed, papillate included in corolla tube. Nectary two dorsal double glands. **Fruit and seeds** not seen.

Phenology.—Flowering only known from September, December, February to May, fruits not seen.

Distribution.—A rare species from Colombia and bordering northern Ecuador between 800–2430 m.

Etymology.—The specific epithet is derived from the laciniate margins of the calyx lobes.

Additional specimens examined: **COLOMBIA. Chocó:** Carretera Cartago-San José del Palmar, Km 65, 15 Nov 1978, G. Lozano C. & J. Diaz 3079 (COL); Municipio San José del Palmar, carretera Alto Galapagos a San José del Palmar, 22 May 2013, J.F. Smith et al. 10875 (COL). **Nariño:** El Páramo between Río Nambí and Río Naspi, 1 Feb 1945, J.A. Ewan 16814 (MO). **Valle:** Municipio El Cairo, Serranía de Los Paraguas, 2 Apr 1988, P. Silverstone-Sopkin et al. 3967 (US); Reserva Natural Cerro del Inglés, 19 May 2013 J.F. Smith et al. 10768 (COL). **ECUADOR. Carchi:** above Río Verde, 3 Dec 1987, W.S. Hoover 2292 (MO, US), 4 Dec 1987, W.S. Hoover 2321 (MO-2). **Imbabura:** Ibarra-San Lorenzo, Cachaco-Santa Rosa de Huanchaco, 16 Mar 1991, A. Hirtz et al. 5253 (SEL).

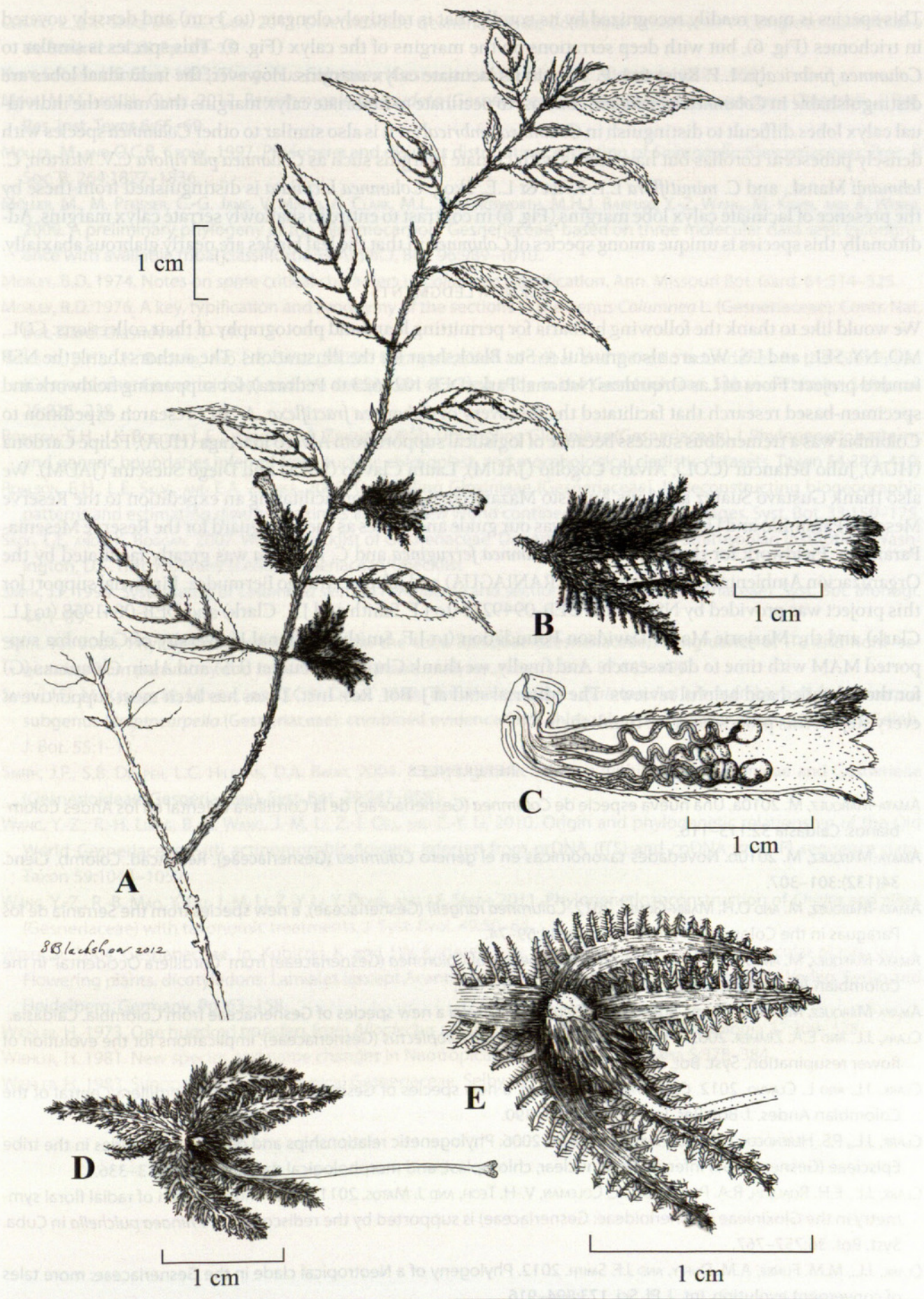


FIG. 6. *Columnnea laciniata*. A. Habit. B. Flower. C. Corolla opened to show androecium. D. Calyx and gynoecium with corolla removed. E. Enlarged view of D showing the ovary and double dorsal nectary gland. All illustrations from J.A. Ewan 16814 (MO). Illustration by Sue Blackshear.

This species is most readily recognized by its corolla that is relatively elongate (to 3 cm) and densely covered in trichomes (Fig. 6), but with deep serrations on the margins of the calyx (Fig. 6). This species is similar to *Columnnea fimbriicalyx* L.P. Kvist & L.E. Skog in its laciniate calyx margins. However, the individual lobes are distinguishable in *Columnnea laciniata* in contrast to pectinate to fimbriate calyx margins that make the individual calyx lobes difficult to distinguish in *Columnnea fimbriicalyx*. It is also similar to other *Columnnea* species with densely pubescent corollas but have leaves with crenate margins such as *Columnnea parviflora* C.V. Morton, *C. lehmanii* Mansf., and *C. minutiflora* L.P. Kvist & L.E. Skog. *Columnnea laciniata* is distinguished from these by the presence of laciniate calyx lobe margins (Fig. 6) in contrast to entire to shallowly serrate calyx margins. Additionally this species is unique among species of *Columnnea* in that the leaf blades are nearly glabrous abaxially.

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