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NOVAE GESNERIACEAE NEOTROPICARUM XIX: A third, new species of the elusive *Anetanthus* found in Guyana

LAURENCE E. SKOG[1] & JOHN L. CLARK[2]
[1]*Department of Botany, MRC 166, Smithsonian Institution, Washington, DC 20013-7012 USA, e-mail: skogl@si.edu*
[2]*Department of Biological Sciences, The University of Alabama, Box 870345, Tuscaloosa, Alabama 35487 USA, e-mail: jlc@ua.edu*

Abstract

A new species of *Anetanthus* (Gesneriaceae) is described from Guyana as ***A. disjuncta***. A discussion of the known species is provided as well as a key to the known taxa.

Key Words: Biodiversity; Classification; Guyana; Taxonomy

Introduction

The genus *Anetanthus* Hiern ex Bentham (1876: 1025) is rarely found, or more likely, overlooked because of its uncharacteristic small flowers and diminutive habit. The genus is known in Brazil and the Andes of South America from Bolivia to Colombia, and now Guyana. There are fewer than 50 collections of the now three species and one subspecies. The terrestrial, herbaceous habit, and small tubular flowers resemble more *Stemodia* L. (1759: 1091) in the Plantaginaceae than other members of Gesneriaceae. An unusual and distinctive feature of *Anetanthus* is septicidally dehiscing capsules, instead of the more common loculicidal dehiscence. *Anetanthus* is classified in the subtribe Anetanthinae that contains *Anetanthus, Tylopsacas* Leeuwenberg (1960: 220), and *Shuaria* D.A. Neill & J.L. Clark (2010: 670) (Weber *et al.* 2013). This tribe is recognized by seed surfaces that are papillate or pustulate due to the bulging cell walls. Molecular sequence data has not yet been published, but *Anetanthus* is weakly supported as the sister taxon to a clade that includes *Tylopsacas* and *Shuaria* (Jason Martin, personal communication, 2015).

Taxonomy

Anetanthus disjuncta L.E. Skog & J.L. Clark, *sp. nov*. (Figs. 1–2)

Differs from congeners by larger leaves (> 4 cm long) that are elliptic, narrowly ovate, to subfalcate. Capsules oblong to 8 mm long (*vs.* < 8 mm long).

Type:—GUYANA. Potaro-Siparuni Region. Mt. Ayanganna, east face, slopes of first of four escarpments, 5°19’58’’N, 59°56’ 4’’W, 810 m, 9 June 2001, *H.D. Clarke, R. Williams, C. Perry, E. Tripp & J. Kelly 8979* (holotype US!; isotypes: BRG!, E!, MO!, NY!).

Terrestrial herbs growing in cracks of sandstone vertical rock faces; stems to 30 cm long, slender, 2–3 mm in diameter at base, green to reddish-brown, appressed tomentose; unbranched or branching only at the base. **Leaves** opposite, subequal to unequal; blades elliptic, narrowly ovate, to subfalcate, 4–11.5 cm long, 1.5–5.2 cm wide, membranous to chartaceous, apex acute to acuminate, base acute to suboblique, margin serrate to serrulate, adaxial surface green, mostly glabrous (sparsely pilose), abaxial surface lighter green to green suffused with red, appressed pilose along the veins and otherwise sparsely pilose; petioles 0.5–2.5 cm long, appressed pilose. Inflorescences erect, in upper axils, usually forked, 2 flowers at base of fork, each branch with 10+ flowers, peduncles slender 2–5.5 cm long, tomentose, pedicels short, 2–3 mm long. **Flowers** fragrant with odor of wintergreen, calyx lobes nearly separate at base when mature, and appressed to corolla when young, narrowly lanceolate, to 2 mm long, ca. 0.5 mm wide, green to red to green suffused with red, glandular-pilose outside, apex narrowly acuminate; corolla tubular, 6–8 mm long, gibbous on upper side near base and narrowing towards throat, uniformly white, outer surface sparsely pilose, inside of throat

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glandular pubescent on lower side, lobes 5, unequal and spreading, upper lobes suborbicular, 2 mm wide, lower lobes subtriangular to elongate, 1.5 mm wide at base and 2.5 mm long, margins irregularly erose, glandular trichomes at base; stamens included, anthers ca. 0.5 mm long, coherent in 2 pairs on upper surface at anthesis then separating later dropping into the lower corolla surface after anthesis; staminode present at base of corolla tube; ovary pilose, elongate, nectary glands at base of ovary with two larger and two smaller glands; style persistent, stigma stomatomorphic. **Capsule** elongate oblong, 5–8 mm long, 2-valved and dehiscing septicidally; seeds suborbicular, light brown.

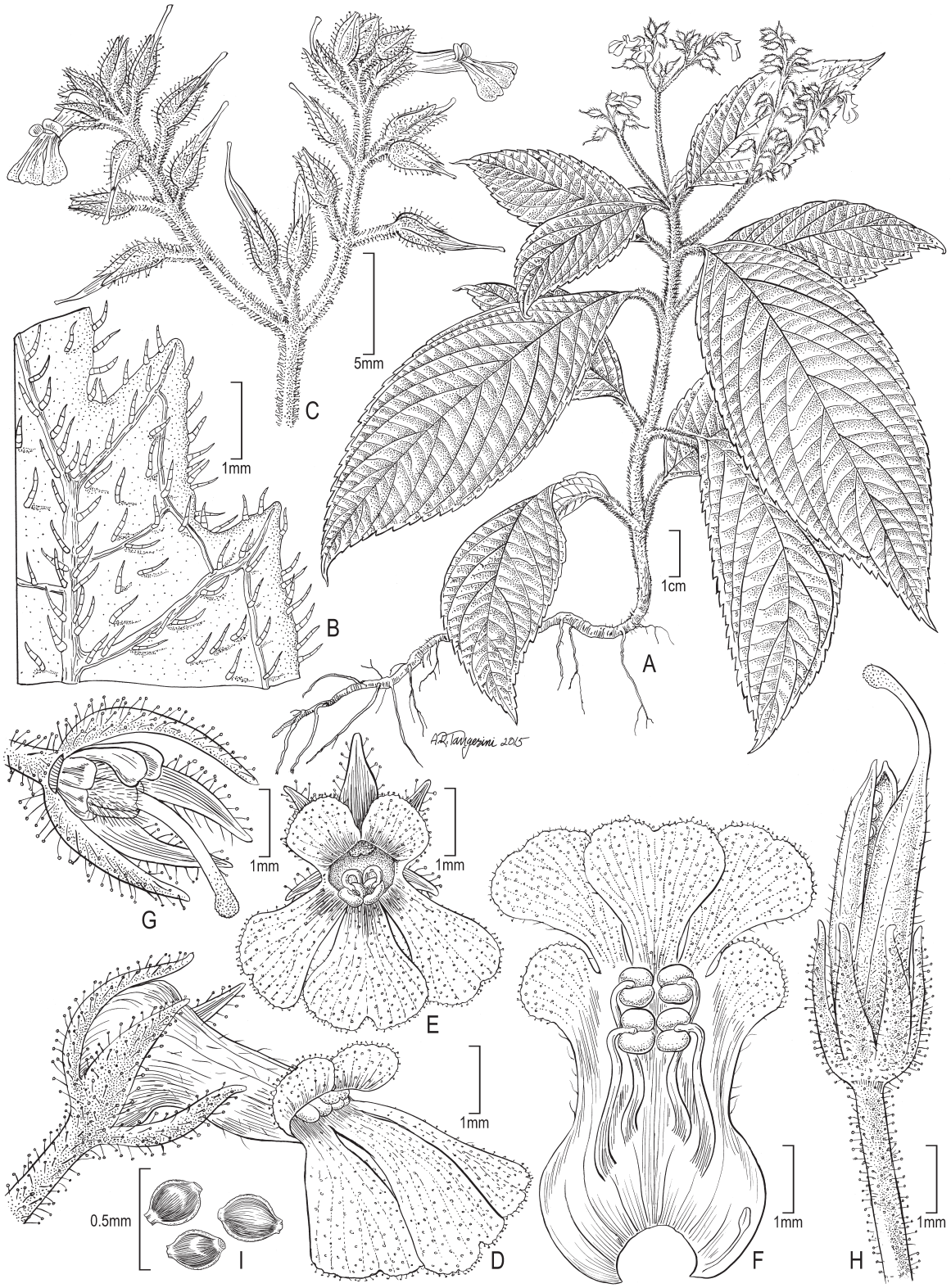

FIGURE 1. *Anetanthus disjuncta* L.E. Skog & J.L. Clark. A. Habit. B. Underside of leaf. C. Inflorescence branch. D. Side view of flower. E. Face view of flower. F. Corolla opened to show 4 stamens. G. Flower with corolla removed to show pistil and nectary. H. Capsule. I. Seeds. (Drawn from *H.D. Clarke et al. 8979*).

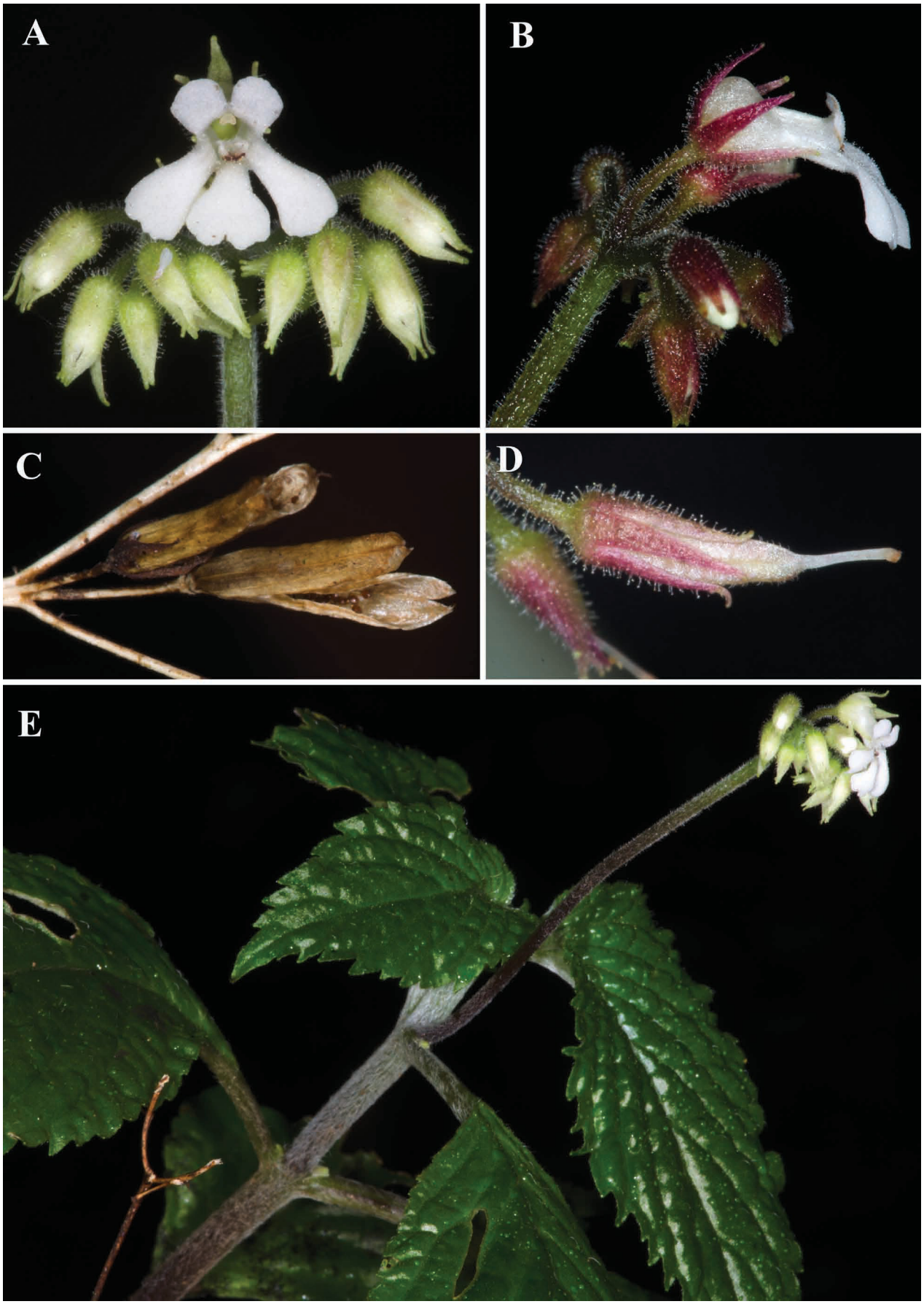

FIGURE 2. *Anetanthus disjuncta* L.E. Skog & J.L. Clark. A. Front view of flower with inflorescence. B. Side view of flower with inflorescence. C. Mature fruit showing septicidal dehiscence. D. Immature fruit with persistent calyx. E. Habit. (Photos by John L. Clark from 2014 field expedition to Mt. Ayanganna).

Phenology and distribution:—Specimens have been collected in June and November, and been seen in flower in February (Fig. 2), at 800 to 1100 m on Mt. Ayanganna in the Pakaraima mountains of Guyana.

Conservation and IUCN Red List category:—*Anetanthus disjuncta* is known only from Mount Ayanganna in Guyana. According to the IUCN Red List criteria (IUCN 2012) for limited geographic range (B2a, less than 10 km^2 and known to exist at only a single location), *Anetanthus disjuncta* should be listed in the category CR (Critically Endangered).

Etymology:—The species name refers to the locality of *Anetanthus disjuncta* in Guyana that is far removed from where other species of the genus have been found.

FIGURE 3. *Anetanthus gracilis* Hiern. A. Habit. B. Upper leaf surface. C. Side view of flower. D. Flower cut open to show ovary and stamens. E. Young capsule. F. Opened capsule. G. Seeds. (Drawn from *J. Schunke V. 5311*).

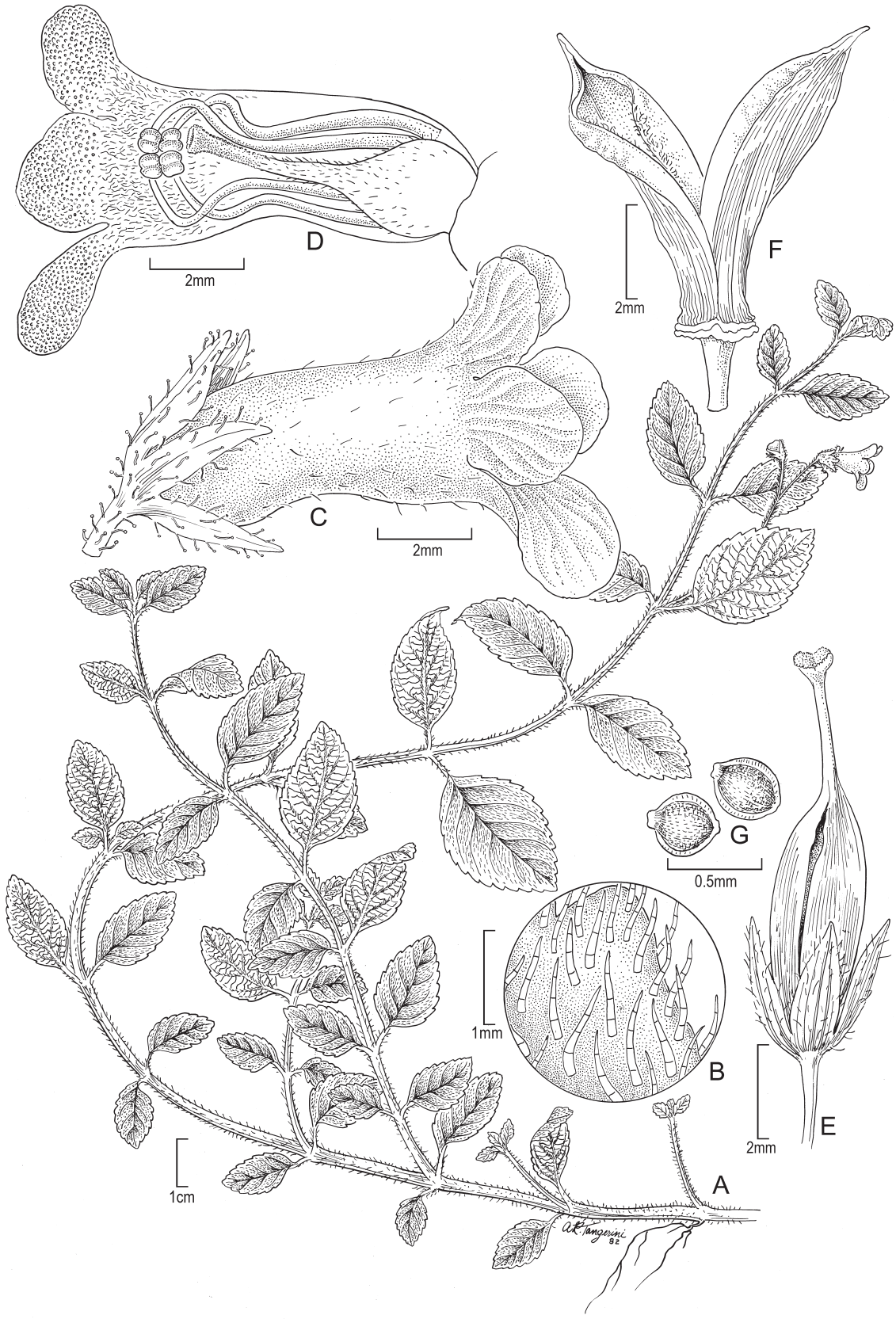

FIGURE 4. *Anetanthus rubra* L.E. Skog. A. Habit. B. Upper leaf surface. C. Side view of flower. D. Flower (longitudinal section), showing ovary and stamens. E. Young fruit. F. Opened capsule. G. Seeds. (Drawn from *J. Wurdack 1469*). Reprinted with permission from *Selbyana*.

Discussion:—*Anetanthus disjuncta* joins the other two species in the genus. The first, *A. gracilis* Hiern (1877: 93) (Fig. 3), the lectotype species, has been collected in Bolivia, Colombia, Ecuador, and Peru, usually at higher elevations (500–2250 m), but also has been collected in Brazil in the states of Minas Gerais and Rio de Janeiro, and in the Distrito Federal. The species was described by Hiern (1877: 93) from Minas Gerais based on a *Warming* specimen at C annotated by R. A. Howard (1974: 365) as the lectotype. The genus name was first attributed to Hiern but described by Bentham (1876, pp. 996, 1025), who reported that four or five species existed in Brazil, Peru, and Mexico. Bentham, however, lists no species or combinations in *Anetanthus* but mentions three species that he believed should be in the genus. The first, "*Dicyrta* (*Trevirania*, Hook. et Arn.) *parviflora* Seem.," is now a synonym of *Stemodia peduncularis* Bentham (1846: 382) (Plantaginaceae). The second, "*Russelia alata* Cham. et Schl." had earlier been listed by Bentham (1846: 332) as a species dubia in the Scrophulariaceae, but Chamisso and Schlechtendal (1828) and Schmidt (1862, p. 269, t. 44) had included the species in the family. A later monographer of *Russelia*, Carlson (1957: 285) had discarded the species from the Scrophulariaceae following Bentham (1876), and referred the species to the Gesneriaceae. Barringer transferred the species to his new genus *Cubitanthus* (Barringer 1984: 145) as *C. alatus* (Cham. & Schlecht.) Barringer in Gesneriaceae. More recently molecular phylogenetic analyses by Perret *et al.* (2012) strongly support the placement of *Cubitanthus* as sister to *Stemodiopsis* Engler (1897: 25) in the Linderniaceae. The third species included in *Anetanthus* by Bentham was *Tapina villosa* Gardner (1842: 469), now known as *Goyazia villosa* (Gardn.) R.A. Howard (1975: 367) in the Gesneriaceae. Thus, at the time of publication of *Anetanthus* as a genus, there were no species now accepted as *Anetanthus* included in the genus. Fortunately in the following year, Hiern (1877) published a more extensive description of the genus and included a new species, *A. gracilis*, which became the lectotype of the genus (Morton and Denham, 1972).

The one subspecies in *Anetanthus* was described in 1995 by Fernández Alonso as *Anetanthus gracilis* subsp. *munchiquensis* Fernández Alonso (1995: 383). The new subspecies was distinguished from the typical *A. gracilis* (Fig. 3.) by having shorter peduncles.

The second accepted species of the genus is *Anetanthus rubra* L.E. Skog (1982: 94), described from Amazonas, Peru (Skog, 1982). It is considered a local endemic that is only known from the type locality, distinguished by several characters from the other species but noticeably by the red corollas (Fig. 4).

Additional specimens examined: Guyana. Cuyuni-Mazaruni. Pakaraima Mountains, toe slopes on NW side of Mt. Ayanganna, 5°24'0''N, 59°57' 0''W, 1100 m, 7 November 1992*, T.W. Henkel & B. Hoffman 164* (BRG!, US!). Potaro-Siparuni. Mt. Ayanganna, east face, plateau above edge of first of four escarpments, 5°20'2''N, 59°56' 4''W, 1008 m, 10 June 2001*, H.D. Clarke, R. Williams, C. Perry, E. Tripp & J. Kelly 9041* (BRG!, US!).

Key to the taxa of *Anetanthus*:

1) Leaves 1–4 cm long (rarely reaching 5 cm). Shoots erect to decumbent.
    2) Flowers red. Endemic to Peru ..... *Anetanthus rubra*
    2) Flowers white.
        3) Inflorescence subtended by an elongate peduncle, 2–9 cm long (longer than length of the subtending leaf). Amazonian Colombia, Bolivia, Brazil, Ecuador, and Peru ..... *Anetanthus gracilis* subsp. *gracilis*
        3) Inflorescence subtended by an elongate peduncle, 1–2 cm long (equal to or less than the length of the subtending leaf). Endemic to western Andes (Cordillera Occidental) of Colombia ..... *Anetanthus gracilis* subsp. *munchiquensis*
1) Leaves 5.5–10 cm long. Shoots always erect. Endemic to Guyana ..... *Anetanthus disjuncta*

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