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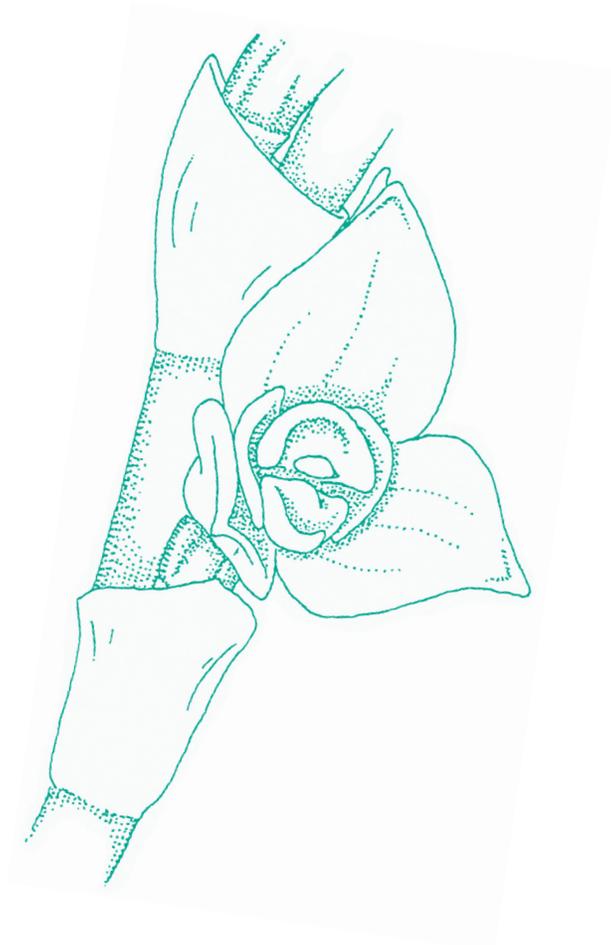
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Cover: *Stelis perpusilliflora* Cogn.
(See page 18, Fig. 18.) Drawing by Carl A. Luer, inked by Stig Dalström.

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FRANGULA PARUENSIS, A NEW NAME FOR RHAMNUS LONGIPES STEYERMARK (RHAMNACEAE)

GERARDO A. AYMARD C.^{1,2}

Abstract. The new name *Frangula paruensis* (Rhamnaceae) is proposed to replace the illegitimate homonym *Rhamnus longipes* Steyermark (1988). Chorological, taxonomic, biogeographical, and habitat notes about this taxon also are provided.

Resumen. Se propone *Frangula paruensis* (Rhamnaceae) como un nuevo nombre para reemplazar el homónimo ilegítimo *Rhamnus longipes* Steyermark (1988). Se incluye información corológica, taxonómica, biogeográfica, y de hábitats acerca de la especie.

Keywords: *Frangula*, *Rhamnus*, Rhamnaceae, Parú Massif, Tepuis flora, Venezuela

Rhamnus L. and *Frangula* Miller (Rhamnaceae) have ca. 150 and ca. 50 species, respectively (Pool, 2013, 2015). These taxa are widely distributed around the world but are absent in Madagascar, Australia, and Polynesia (Medan and Schirarend, 2004). According to Grubov (1949), Kartesz and Gandhi (1994), Bolmgren and Oxelman (2004), and Pool (2013) the recognition of *Frangula* is well supported. On the basis of historical and recent molecular work the genus is characterized by several remarkable features. Pool (2013: 448, table 1) summarized 11 features to separate the two genera.

E. D. Merrill and Y. W. Chun (1935) validly published *Rhamnus longipes* for a taxon native to dense mountain forests (500–1700 m), Fan Yah (Ledong Xian in Tropicos) region, Hainan province, China (Fig. 1). Later, Young and Chew (1958) amended the original description of this taxon.

Julian A. Steyermark published a new species from the “Serranía Parú,” Caño Asisa, a Tepui region located in the Amazon state, Venezuela, with the same epithet (Steyermark, 1988). According to the International Code of Nomenclature (Art. 54.1a; Turland et al., 2018) *Rhamnus longipes* Steyerm. from Venezuela (Steyermark, 1988) is an illegitimate homonym. The replacement name *Frangula paruensis* Aymard is, therefore, proposed here.

Frangula paruensis Aymard, *nom. nov.*

Replaced synonym: *Rhamnus longipes* Steyerm., Ann. Missouri Bot. Gard. 75: 1066. 1988, *non Rhamnus longipes*, Merrill & Chun. Sunyatsenia 2(3–4): 272–273, f. 31. 1935. TYPE: VENEZUELA. Amazonas: departamento Atabapo, Serranía Parú, cumbre, SSE to edge of descent, to tributary of Caño Asisa, 2000 m, 4°25'N, 65°50'W, 10 February 1951 (fr), R. S. Cowan & J. J. Wurdack 31388 (Holotype: NY, not located).

Etymology: the specific epithet is named after the Serranía Parú, an almost unexplored tepui region (Fig. 2) in southern Venezuela, the only locality where this species is hitherto found.

Frangula paruensis is a shrub, ca. 2 m tall, with leaves ovate, or oblong-ovate, margin subrevolute, repand-crenulate, a slightly elevated tertiary venation on the lower surface, and mature fruiting peduncle and pedicels 1–1.5 cm long, and fruiting calyx lobes triangular-lanceolate (two main features to separate *Frangula* from *Rhamnus*).

This species is endemic to the open, rocky savannas on tepui slopes and summits at ca. 2000 m (Steyermark and Berry, 2004). This Venezuelan taxon was described as *Rhamnus longipes* by Steyermark (1988), without realizing that the same epithet had been proposed already for a Chinese species (Merrill and Chun, 1935). Other publications indicating a lack of awareness of this homonym issue are the treatment of the Rhamnaceae in the *Flora of the Venezuelan Guayana* (Steyermark and Berry, 2004), the family accounts in the Floras of the Guianas (Berry and Steyermark, 2007), Venezuela (Tortosa, 2008), and the recently published database of American plants (Ulloa-Ulloa et al., 2017).

Both the Chinese and the Venezuelan species are shrubs, with elongate inflorescences. However, *Frangula paruensis* is an endemic element from the “Serranía de Parú” or “Cerro Parú” (A’roko) and Asisa, located ca. 50 km west of the left bank of the Ventuari River (“Ventuario” in old literature and maps), in the headwaters of the Asisa River located in the central portion of Amazonas state. The strongly dissected internal plateaus are more or less flat and formed by sandstone of the Roraima Formation, as are the outer cliffs. The southwestern portion is called Cerro Asisa, but it forms part of the entire massif of Parú (Huber, 1995a). This tepui region reaches its highest altitude of approximately 2000 m at its southwestern point. According to a cluster analysis based on the floristic composition of 40 tepuis using relative Euclidean distance and Ward’s group linkage method, the “Cerro Parú” belongs to subgroups of western tepuis (Riina et al., in press). The Parú tepui complex so far had been visited by six scientific expeditions: W. H. Phelps, Jr., K.

I thank Kanchi N. Gandhi (GH) and Gustavo A. Romero (AMES) for their helpful comments and assistance with the literature.

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FIGURE 1. *Rhamnus longipes* Merrill & Chun (China). Based on *N. K. Chun & C. L. Tso 44241*. Isotype at A.



FIGURE 2. View of the Serranía de Parú. Photograph by A. Michelangeli A. Image courtesy of the Michelangeli family, originally published in Michelangeli A. (2005: 262).

D. Phelps, and C. B. Hitchcock (in 1949), J. J. Wurdack and R. S. Cowan (in 1951), J. Hoyos and G. Morillo (in 1973), O. Huber and J. Cerda (in 1979), P. Berry, O. Huber, and J. Rosales (1991), and A. Chaviel (in 1992). Results of these expeditions were published by Mayr and Phelps (1967), Hoyos (1973), Huber and Wurdack (1984), Huber (1995b), Aymard and Cuello (1995), and Aymard and Berry (1996).

Distribution and habitat: At the type locality, *Frangula paruensis* occurs in thickets along streams in sand shrublands (“arbustales”), in the drainage of Caño Asisa, the south-southeastern portion of Serranía de Parú (Amazonas state). The area is rich in numerous endemic species found in the sandstone of the Roraima formation (Berry et al., 1995; Huber, 1995c; Berry and Riina, 2005; Riina et al., in press), including those of the remarkable endemic genus *Phelpsiella* Maguire (*Phelpsiella ptericaulis* Maguire, Rapateaceae; Berry, 2004). Other plants found in the same area include *Pachira cowanii* (A. Robyns) W. S. Alverson (Malvaceae), *Myrcia induta* McVaugh (Myrtaceae), *Ilex paruensis* Steyerem. (Aquifoliaceae), *Rourea foreroi* Aymard & Berry (Connaraceae), *Orthaea paruensis* Maguire, Steyerem. & Luteyn, *Paepalanthus parvicephalus* (Mold.) Hensold var. *wurdackii* Hensold (Eriocaulaceae), *Phyllanthus ventuarii* Jabl. (Phyllanthaceae), *Plukenetia multiglandulosa* Jabl.

(Euphorbiaceae), *Irlbachia phelpsiana* Maguire (Gentianaceae), *Ocotea cowaniana* C. K. Allen, (Lauraceae), *Diacidia ferruginea* (Maguire & K. D. Phelps) W. R. Anderson, *D. stipularis* (Maguire & K. D. Phelps) W. R. Anderson (Malpighiaceae), *Ouratea asisae* Maguire & Steyerem. (Ochnaceae), *Roupala paruensis* Steyerem. (Proteaceae), *Saxofridericia grandis* Maguire (Rapateaceae), *Stegolepis hitchcockii* Maguire (Rapateaceae), *Sterigmatopetalum chrysophyllum* Aymard & Cuello (Rhizophoraceae), *Coccochondra laevis* (Steyerem.) Rauschert (Rubiaceae), *Pagamea diceras* Steyerem. (Rubiaceae), *Raveniopsis paruana* (R. S. Cowan) R. S. Cowan (Rutaceae), *Turnera paruana* Arbo (Passifloraceae), and lately *Caraipa pilosa* Grande & Cabral (Calophyllaceae; see Grande and Cabral, 2016.)

IUCN Red List category: Using IUCN Red List criteria (IUCN, 2017), *Frangula paruensis* is so far known only from by the type, collected in a remote and inaccessible region in the Venezuelan Guayana, and therefore it should not be considered “threatened” at this time. It was found in an area where there is no human pressure on its habitat; much of the area has not been explored botanically. The species could conceivably fall into the Near Threatened category, but I assign the species the status of Data Deficient (DD).

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ICONES STELIDARUM (ORCHIDACEAE) ANTILLANORUM

CARLYLE A. LUER¹ AND A. L. V. TOSCANO DE BRITO^{2,3}

Abstract. The 18 species accepted as valid for the genus *Stelis* from the islands of the Antilles, excluding Trinidad and Tobago, are described and illustrated. One new species, *S. minima*, is proposed, a neotype is selected for *Stelis crassifolia*, and a lectotype is selected for *S. tippenhaueri*.

Keywords: Orchidaceae, Pleurothallidinae, *Stelis*, Greater Antilles, Lesser Antilles, Cuba, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Hispaniola, Jamaica, Martinique, Nevis, Puerto Rico, St. Lucia, St. Vincent

The species of the genus *Stelis* Sw. found in the Antilles have been treated in different ways for many years but most have not been published with complete illustrations. In the senior author's recent treatment of *Stelis* of the Greater Antilles (Luer, 2014), only two illustrations were published. Five species described by Donald D. Dod (1912–2008) were published in Moscosoa (1986) with illustrations by one of us (C.A.L.). For convenience, these illustrations are included herein. With the exception of Jamaica, with only two endemic species, and Cuba with three species, all other species in the Antilles east of Cuba are listed alphabetically

and treated together. Whenever possible, we attempted to examine all available historical materials, either personally or through analysis of images available on the Jstor Global Plants database, by online access to several herbaria databases, or through personal communication with herbarium curators. In some instances, however, we were unable to locate collections. One of them is the set of type specimens of species described by Donald D. Dod, who extensively collected in Hispaniola. According to Ackerman (2014), the majority of his types have never been distributed and are misplaced and possibly lost.

JAMAICA

Only two common, vegetatively similar species are known to inhabit the island, *Stelis micrantha* (Sw.) Sw. and *S. trigoniflora* Garay. They have been repeatedly misidentified in herbaria and literature as *S. ophioglossoides* (Jacq.) Sw. from the Lesser Antilles. Until recently, we have considered them conspecific, and almost 100 herbarium specimens from various institutions have been named *S. micrantha*. Dried collections of the two species are difficult to identify without rehydration of flowers. Vegetatively they are too variable. Re-examination of all these materials would be necessary to determine the two taxa correctly within these collections. Therefore, in this work, we do not cite them in the list of specimens examined. The present treatment is the first to demonstrate the differences between these two taxa. A detailed discussion of both species follows the description of *S. trigoniflora*.

Stelis micrantha (Sw.) Sw., J. Bot. (Schrader) 2: 240. 1800. Basionym: *Epidendrum micranthum* Sw., Prodr. 125. 1788. TYPE: JAMAICA. Without locality: "Habitat super arbores, adque latera rupium in altis montibus Jamaicae," O. Swartz s.n. (Lectotype designated by Fawcett and Rendle [1910], here clarified: BM [barcode BM000084089, excluding specimen in

packet by Marquis of Blandford and dated 1802]; Isolectotypes: B [barcode B-W16900-010], G [barcode G00169055], LD [barcode LD1731046]; LINN [LINN-HS1405-2], S [S07-7994], SBT [barcode SBT11283], W [W-Rchb.Orch. 0016947]) non Barb. Rodr. 1882. Fig. 1–2.

Synonym: *Stelis polystachya* Cogn., Repert. Spec. Nov. Regni Veg. 6: 306, 1909, *nom. illeg. non* Willd. 1805. TYPE: JAMAICA. Near Cinchona, 5000 ft, 3 November 1899, W. Harris 7764a (Lectotype: BR, selected by Luer [2014]; Isolectotype: K). Etymology: from the Latin *polystachyus*, "many spikes," referring to the inflorescences.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls erect, slender to stout, 5–8 cm long, with a tubular sheath from below the middle, and 2–3 sheaths below and at the base. *Leaf* erect, coriaceous, elliptical, subacute to obtuse, 8–14 cm long, 1–2 cm wide, narrowly cuneate below into a petiole ca. 1.5 cm long. *Inflorescence* 1–3 erect, distichous to subsecund, subdensely many-flowered racemes, 6–17 cm long including the peduncle 3–5 cm long, with a few bracts, subtended by a spathe 5–8 mm long, from below the apex of the ramicaul; floral bracts oblique, acute, 2.5 mm long; pedicels 1.5 mm long;

The authors are grateful to the staff members of AMES, MO, and SEL for making their specimens available for study; to the Center for History of Science, the Royal Swedish Academy of Sciences, for permission to use Orlof Swartz's unpublished illustrations reproduced in Fig. 2 and 4 in the present work; to herbaria cited herein that facilitated loans and provided miscellaneous critical resources; to Kanchi Gandhi (GH) for his assistance with nomenclature; to Wade Collier and Nancy Karam, volunteers at SEL, for help in assembling the illustrations and proofreading an earlier version of the manuscript, respectively; to Stig Dalström for inking the figures presented herein, all based on pencil drawings by the senior author; and to the generosity of the Pleurothallid Alliance for making the inking possible.

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ovary 1 mm long; *sepals* yellow-green, often suffused with rose, subequal, glabrous, connate 1 mm, transversely ovate, obtuse, 2.2 mm long, 2.8 mm wide, 3-veined; *petals* purple, transversely ovate, shallowly concave, 0.8 mm long, 1 mm wide, 3-veined, the apex broadly rounded with the margin thickened; *lip* purple, subquadrate, 0.5 mm long, 1 mm wide, 0.8 mm deep, the apex obtuse with thickened margins, concave below a bar with a glenion, the dorsum shallowly concave with a small ovoid callus, the base truncate, hinged to the base of the column; *column* stout, 0.85 mm long, 0.85 mm broad, the anther and the bilobed stigma apical.

Etymology: from the Greek *micranthos*, “small flower,” referring to the size of the flower.

Additional specimen examined: JAMAICA. Portland: above Johnson Mountain, 650 m, 14 November 1985, C. Luer, J. Luer, P. Jesup and A. Jesup 11497 (MO).

Stelis trigoniflora Garay, Bot. Mus. Leaf. 26: 25. 1978. TYPE: JAMAICA. Without locality, O. Swartz s.n. (Lectotype designated by Luer [2014], here clarified: BM [barcode BM000923770]; Isolectotypes: C [barcode C10016311], LINN [LINN-HS 1405.1], SBT [barcode SBT11282], W [W-Rchb.Orch.0016951]). Fig. 3–4.

Synonym: *Epidendrum trigoniflorum* Sw. Observ. Bot. (Swartz) 332. 1791, replaced synonym, non Sw. 1788 nec Turton 1806.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls erect, slender to stout, 9–12 cm long, with a tubular sheath from below the middle, and 2–3 sheaths below and at the base. *Leaf* erect, coriaceous, elliptical, subacute to obtuse, 9–14 cm long, 1.5–2.3 cm wide, narrowly cuneate below into a petiole ca. 1.5 cm long. *Inflorescence* 1–3 (rarely to 7) erect, distichous to subsecund, subdensely many-flowered racemes, 10–18 cm long including the peduncle 3–4 cm long, with a few bracts, subtended by a spathe 10–12 mm long, from below the apex of the ramicaul; floral bracts tubular, acute, 2.5 mm long; pedicels 2 mm long; ovary 1.5 mm long; *sepals* light yellow, subequal, glabrous, connate 1 mm, triangular-ovate, acute, 3.3 mm long, 2.6 mm wide, 3-veined; *petals* red-purple, transversely ovate, shallowly concave, 0.8 mm long, 1 mm wide, 3-veined, the apex broadly obtuse with the margin thickened; *lip* red-purple, subquadrate, 0.6 mm long, 0.9 mm wide, 0.66 mm deep, the apex broadly obtuse with thickened margins, concave below a bar with a glenion, the dorsum shallowly concave with a small ovoid callus, the base truncate, hinged to the base of the column; *column* stout, 0.85 mm long, 0.85 mm broad, the anther and the bilobed stigma apical.

Etymology: from the Latin *trigoniflorus*, “triangular flowered,” referring to the shape of the flowers.

Additional specimen examined: JAMAICA. Surrey: Fairy Glade above Hardwar Gap, 1350 m, 13 November 1985, C. Luer, J. Luer, A. & P. Jesup 11494 (MO).

Orlof Swartz (1788) described both *Stelis micrantha* and *S. trigoniflora* from Jamaica in *Epidendrum* without making any reference to preserved specimens. Luer (2014) designated a lectotype for *E. trigoniflorum* and followed Fawcett and

Rendle (1910), who provided a lectotype designation for *E. micranthum*. Although the citation “Type in Herb. Mus. Brit.” in Fawcett and Rendle (1910: 51) does not explicitly indicate which specimen is being selected as the type of *E. micranthum*, Swartz’s name is cited in the list of collections studied. Despite how vague it may be, Fawcett and Rendle’s designation fulfills all the requirements of Article 7.11 of the International Code of Nomenclature (ICN; Turland et al., 2018) for names published before 2001. The lectotype of *E. micranthum* is preserved at BM (barcoded BM000084089), and it is mounted together with a collection by Marquis of Blandford, dated 1802, which is kept within a packet on the same herbarium sheet. Blandford’s collection served as the basis of an illustration by James Sowerby (1757–1822), which was published in Smith (1805).

When Swartz described *Epidendrum trigoniflorum*, he compared it with Jacquin’s *E. ophioglossoides* (= *Stelis ophioglossoides*) from Martinique, which was listed in the synonymy. The citation of a legitimate name, *E. ophioglossoides*, in the synonymy rendered *E. trigoniflorum* illegitimate and superfluous according to Article 52.1 of the ICN (Turland et al., 2018). In 1791, however, Swartz discussed the differences between *E. ophioglossoides* and *E. trigoniflorum*, recognized them as two distinct species, and unintentionally published *E. trigoniflorum* as a name of a new species based on his Jamaican plant. Unfortunately, his 1791 name is also illegitimate because it was a later homonym of his *E. trigoniflorum* published in 1788. In 1978, Garay proposed the new combination “*Stelis trigoniflora* (Sw.) Garay, comb. nov.” based on the 1788 illegitimate name of Swartz, *E. trigoniflorum*, excluding the synonyms. He explicitly cited Swartz (1791) in the discussion and referred to the fact that Swartz already distinguished the two species in that work. It is the consensus of the Nomenclature Committee of the ICN (K. Gandhi, pers. comm.; see also IPNI, 2019) that Garay inadvertently published *S. trigoniflora* as a new name for *E. trigoniflorum* (1791), and for this reason *S. trigoniflora* Garay is the name we follow in the present work. Swartz cited the name *E. trigoniflorum* in the synonymy of *E. ophioglossoides* in his subsequent publications (1799, 1800), including in his erection of the genus *Stelis* in 1800, where the name *E. trigoniflorum* was not transferred to *Stelis*. In their volume on Orchidaceae for the *Flora of Jamaica*, Fawcett and Rendle (1910) followed Swartz and perpetuated the misconception of *E. trigoniflorum* as synonymous with *S. ophioglossoides*, listing it in the synonymy of the latter.

Distinguishing *Stelis micrantha* from *S. trigoniflora* has been a problem. Fawcett and Rendle (1910) used variable features in identifying them. There are no constant differences in size, relative length of leaves and ramicauls, or number and length of racemes. Swartz distinguished *Epidendrum micranthum* with broadly lanceolate leaves and subrotund, hexagonal flowers, and *E. trigoniflorum* with oblong-lanceolate leaves and triangular flowers. Swartz made identifiable illustrations of both species, which, unfortunately, had remained unpublished until today.

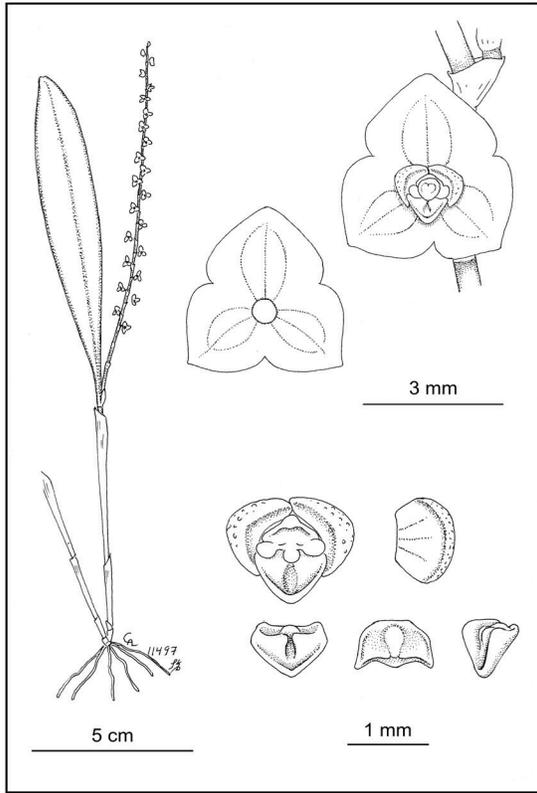


FIGURE 1. *Stelis micrantha* (Sw.) Sw.

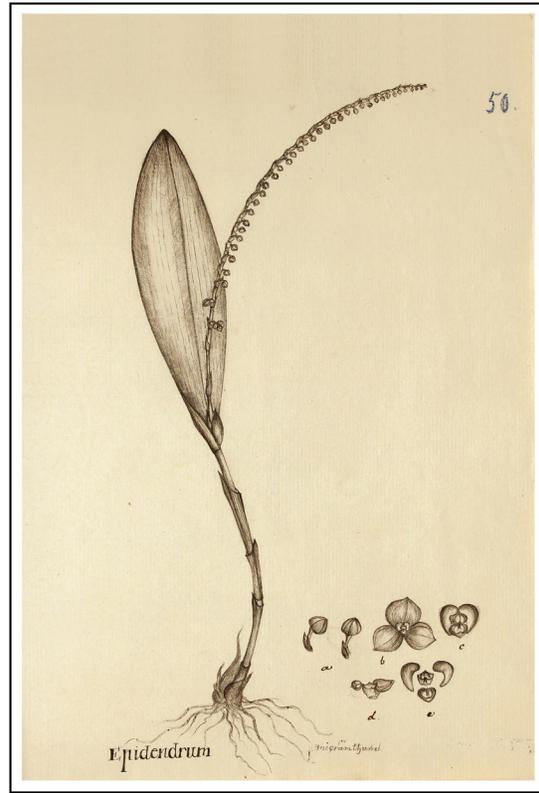


FIGURE 2. *Stelis micrantha* (Sw.) Sw. Swartz's original plate 50 in *Descriptiones et Icones Plantarum Incognitarum*.

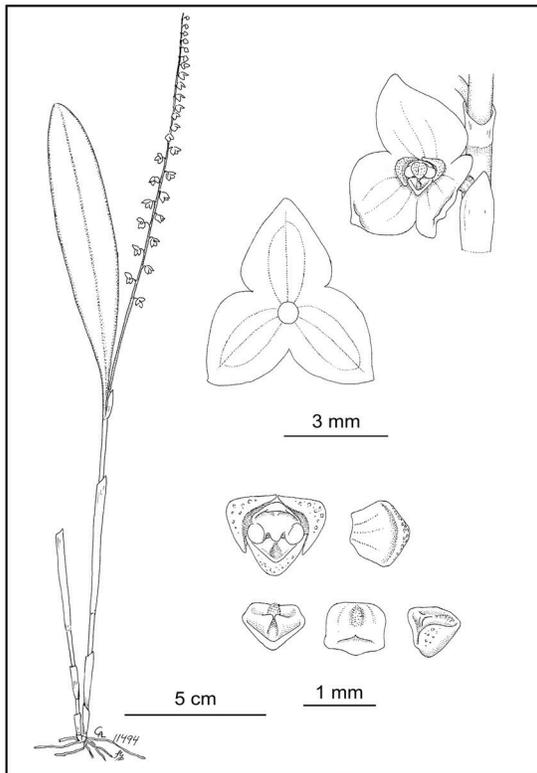


FIGURE 3. *Stelis trigoniflora* Garay

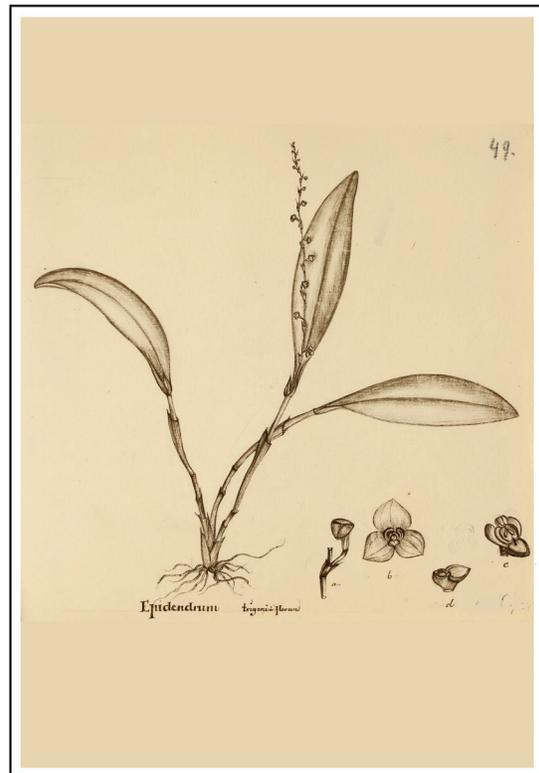


FIGURE 4. *Stelis trigoniflora* Garay. Swartz's original plate 49 in *Descriptiones et Icones Plantarum Incognitarum*.

They are part of an unpublished manuscript, "Descriptiones et Icones Plantarum Incognitarum quas in India occidentali detexit atque delineavit," deposited in the library of the Royal Swedish Academy of Sciences, and are reproduced herein for the first time. The sepals in Swartz's illustration

of *E. micranthum* (Fig. 2 herein) are more rounded and obtuse, and those of *E. trigoniflorum* (Fig. 4 herein) are more or less triangular and acute. He was also aware of the size of the flowers because he chose the name *micranthum* to distinguish the species with the smaller flowers.

CUBA

Three species are known from Cuba. One is the common, variable, and widely distributed *Stelis ophioglossoides*, while the other two are uncommon but with related species on Hispaniola and the Lesser Antilles.

Stelis cubensis Schltr., Symb. Antill. 9: 60. 1923. TYPE: CUBA. Santiago de Cuba: Sierra Maestra, Loma de Regino near Pico Turquino, 1700 m, 16 April 1915, *E. L. Ekman* 5407 (Holotype: S; Isotypes: G, NY, US). Fig. 5.

Plant small to medium in size, lithophytic to epiphytic, densely caespitose; roots proportionately fleshy. Ramicauls erect, stout, 3–9 cm long, enclosed above the middle by a tubular sheath and 2–3 other sheaths below. *Leaf* erect, thickly coriaceous, narrowly elliptical-linear, obtuse to subacute, subpetiolate, 3.5–8 cm long including a petiole 0.5–1 cm long, the blade 0.5–0.7 cm wide, 2.5 mm thick, narrowly cuneate below into the petiole ca. 1 cm long. *Inflorescence* 1–3 erect, distichous to secund, simultaneous and subsensely many-flowered racemes, 3–8 cm long, including the peduncle ca. 1 cm long, subtended by a spathe 6–7 mm long, from below the apex of the ramicaul; floral bracts oblique, tubular, 1.5 mm long; pedicels 0.75 mm long; ovary 0.75 mm long; *sepals* expanded and recurved, subequal, pale yellow, glabrous, free nearly to the base, ovate, subacute to obtuse, 1.2–1.4 mm long, 1–1.1 mm wide, 3-veined; *petals* light green, obcuneate, truncate, shallowly concave, 0.4–0.5 mm long, 0.6 mm wide, faintly 3-veined, the apex broadly truncate with minimal marginal thickening, microscopically cellular; *lip* light green, thick, oblong, 0.6 mm long, 0.4 mm wide, 0.3 mm deep, the apex triangular, obtuse to subacute, shallowly concave below an intact bar, the dorsum convex, cellular, becoming densely pubescent below the middle, the base truncate, hinged to the base of the column; *column* stout, 0.6 mm long, 0.8 mm broad, the anther cucullate with the stigmatic lobes expanded.

Etymology: named for Cuba, where the species was collected.

Additional specimens examined: CUBA. Santiago de Cuba: Sierra Maestra, near Pico Turquino, 1950 m, 17 April 1915, *E. L. Ekman* 5492 (published as 5592); Pico de Turquino, 7 June 1999, *J. Llamacho* 0015 (MO); Pico Suecia, lithophytic, 21 February 2003, *Y. Aubry* no. 1 (MO), *C. Luer* illustr. 20798; lithophytic, 21 February 2003, *Y. Aubry* no. 8 (MO).

This species is endemic to the mountains of southeasternmost Cuba. The inflorescence is similar to that of *Stelis dominguensis* Cogn., which is widely distributed on Hispaniola. *Stelis cubensis* varies from the latter in having thick and narrower, sublinear leaves. Most distinctive is the entire bar of the lip, which is cleft in the others.

Stelis minima Luer & Toscano, *sp. nov.* TYPE: CUBA. Holguín: Moa, Camino a La Melba, Arroyo Las Comadras, 350 m, 29 November 1997, *C. Luer* 18656 (Holotype: MO). Fig. 6.

Plant small, caespitose, leaves narrowly elliptical, surpassed by a loose, several-flowered raceme of minute, white flowers with three-veined sepals and petals, and a lip with a central callus.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 8–15 mm long, with 1–2 tubular sheaths below. *Leaf* erect, coriaceous, narrowly elliptical, acute to subacute, 18–30 mm long including a petiole ca. 3 mm long, the blade 0.3–0.6 cm wide, narrowly cuneate below into the petiole. *Inflorescence* an erect, distichous, lax, subflexuous, several-flowered raceme, 3–5 cm long, including the peduncle ca. 1 cm long, subtended by a spathe 2 mm long, from below the apex of the ramicaul; floral bracts oblique, acute, 0.5 mm long; pedicels 0.5 mm long; ovary 0.5 mm long; *sepals* subequal, white, glabrous, similar, ovate, obtuse, 3-veined, 1 mm long, 1 mm wide, connate below the middle; *petals* transversely ovate, concave, 0.3 mm long, 0.4 mm wide, 3-veined, the apex broadly obtuse, thickened along the margin; *lip* subtruncate, 0.4 mm long, 0.4 mm wide, 0.2 mm deep, concave below a central, rounded bar, the apex rounded with a slightly thickened margin, the dorsum slightly convex, the base truncate, hinged to the base of the column; *column* stout, 0.4 mm long, 0.4 mm broad, the anther and stigmatic lobes apical.

Etymology: from the Latin *minimus*, "the least," referring to the minute habit.

This little species was collected on a field trip with J. Ackerman, R. and K. Dressler, C. and J. Luer, M. Díaz, and J. Llamacho, who attended the "IV Taller Internacional de Orquideas" at the Soroa Botanical Garden in 1997. These collections lay long-overlooked until preparation for this issue of *Harvard Papers in Botany*. The largest leaf with ramicaul stands no more than 4 cm tall; a loosely flowered raceme of minute, white flowers reaches 5 cm. The three-veined sepals and petals are not unusual in the genus, but the lip with a prominent bar without a glenion is unusual in the Antilles, most closely resembling that of *Stelis pygmaea* Cogn.

Stelis ophioglossoides (Jacq.) Sw., J. Bot. (Schrader) 2(2): 239. 1800.

Basionym: *Epidendrum ophioglossoides* Jacq., Enum. Syst. Pl. 29. 1760; Sel. Stirp. Amer. Hist. (ed. 1): 225, t. 176, fig. 2. 1763 et Sel. Stirp. Amer. Hist. (ed. 2): 109, t. 211. 1780. TYPE: MARTINIQUE. Without locality, *N. J. von Jacquin s.n.* (Lectotype selected by Fawcett and Rendle [1910], here clarified: BM [barcode BM000082011]). Fig. 7–8.

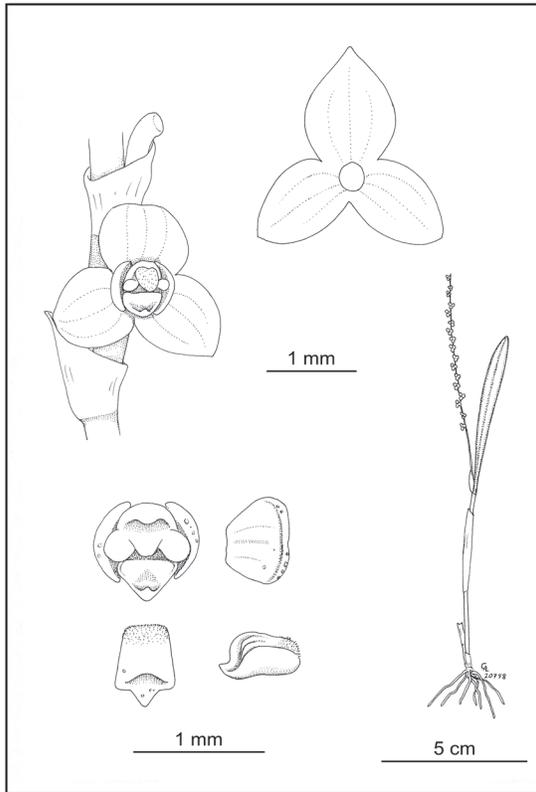


FIGURE 5. *Stelis cubensis* Schltr.

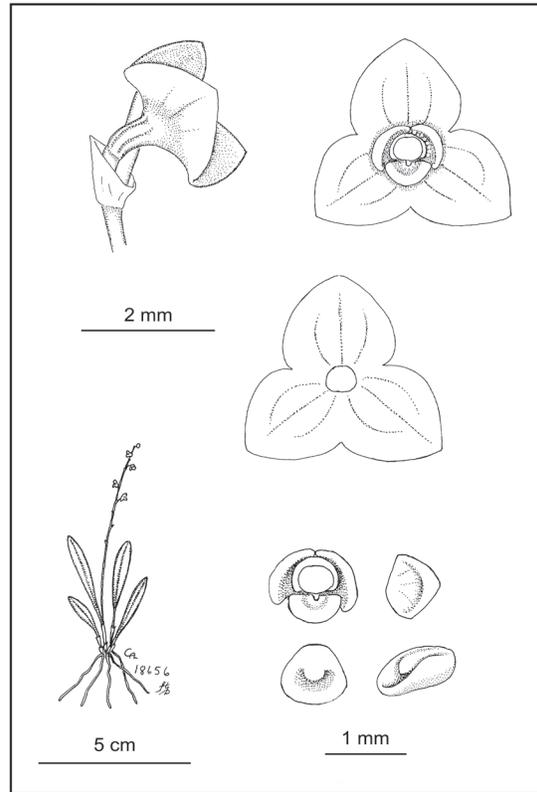


FIGURE 6. *Stelis minima* Luer & Toscano

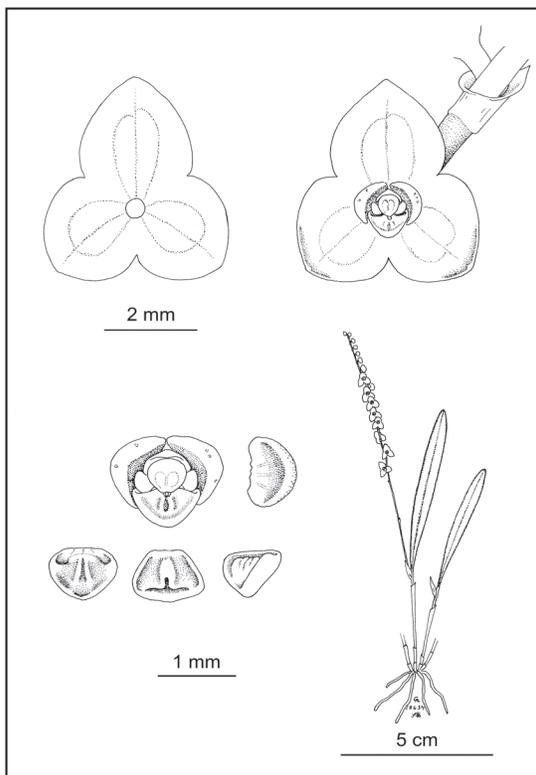


FIGURE 7. *Stelis ophioglossoides* (Jacq.) Sw.

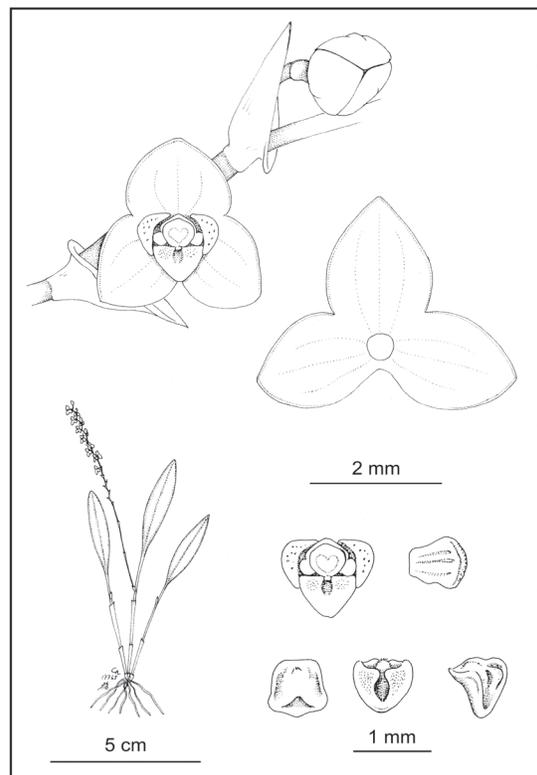


FIGURE 8. *Stelis ophioglossoides* (Jacq.) Sw.

Synonyms: *Epidendrum trigoniflorum* Sw., Prodr.: 125. 1788, *nom. superfl. & illegit. non* Swartz 1791 *nec* Turton 1806.

Dendrobium ophioglossoides (Jacq.) Sw., Nova Acta Regiae Soc. Upsal. 6: 83.1799, *non* Sieber ex Lindl. 1830.

Stelis scabrida Lindl., Ann. Nat. Hist. 5: 115. 1840. TYPE: DOMINICA. Without locality, *J. S. Henslow s.n.* (Holotype: K). Etymology: from the Latin *scabridus*, "scabrous," referring to the margins of the petals when dried.

Stelis toepfferiana Rchb.f., Flora 69: 556. 1886. TYPE: DOMINICA. Forest at Laudat, 700 m, January 1882, *H. F. A. von Eggers* 996 (Holotype: W; Isotype: AMES). Etymology: named in honor of Adolph Toepffer, who distributed von Eggers's specimens.

Stelis ekmanii Schltr., Symb. Antill. 9: 60, 1923. TYPE: CUBA. Holguín, Sierra de Nipe, Loma Mensura, 1000 m, 19 October 1914, *E. L. Ekman* 3187 (Holotype: S). Etymology: named for the collector E. L. Eckman.

Stelis cristalensis H. Dietr. Feddes Repert. 96(7–10): 564. 1985. TYPE: CUBA. Holguín, Frank Pais, Sierra del Cristal, 500–600 m, 1 May 1981, *J. Bisse, H. Dietrich, M. Duharte, L. Lepper, G. González Géigel, B. Mory, #HFC 45254* (Holotype: HAJB; Isotypes: B, JE). Etymology: named for Sierra del Cristal, where the species was collected.

Pleurothallis ophioglossoides (Jacq.) Garay & H.R. Sweet, J. Arnold Arbor. 53: 391. 1972.

Plant small to medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 2–4 cm long, enclosed by 2–3 tubular sheaths. *Leaf* erect, coriaceous, narrowly elliptical, acute, subpetiolate, 3–7 cm long, 0.5–0.9 cm wide, narrowly cuneate below into the petiole. *Inflorescence* an erect, distichous to secund, densely many-flowered raceme, 5–10 cm long including the peduncle 1–3 cm long, with a few bracts, subtended by a spathe 7–9 mm long, from below the apex of the ramicaul; floral bracts oblique, infundibular, acute, 1.5–2 mm long; pedicels 1 mm long; ovary 1 mm long; *sepals* subequal, yellow, rose, red to purple, glabrous, connate basally less than 1 mm, broadly ovate, obtuse, 2–2.5 mm long, 2–2.5 mm wide, 3-veined; *petals* purple, transversely ovate, shallowly concave, 0.5–0.6 mm long, 0.75–0.9 mm wide, 3-veined, the apex broadly rounded with the margin thickened, microscopically cellular-glandular; *lip* purple, thick, ovoid, 0.6–0.8 mm long, 0.8–1 mm wide, 0.6 mm deep, the apex broadly rounded, concave below a bar with a concave glenion, shallowly concave on the dorsum with an ovoid, microscopically pubescent callus, the base truncate, hinged to the base of the column; *column* stout, 0.5 mm long, 1 mm broad, the anther and bilobed stigma apical.

Etymology: compared by Jacquin to *Helleborine ophioglossa similis* of Plumier, not based on the latter (see Taxon 32: 282. 1983); from the Greek *ophioglossa*, "snake-tongue," referring to the labellum.

Additional specimens examined: CUBA. Holguín: Crest of Sierra de Nipe, 600–700 m, 16–17 October 1941, *C. V. Morton & J. Acuña* 3234 (AMES, US); Sierra de Nipe, Monte La Plancha, 19 April 1940, *J. P. Carabia* 3675 (NY); Sierra de Nipe, 950 m, 26 November 1997, *C. Luer, J. Luer, M. Díaz, J. Llamacho, J. Ackerman, R. & K. Dressler* 18634 (HAJB, MO); Cayo Las Mujeres, 750 m, 25 November 1997, *C. Luer, J. Luer, M. Díaz, J. Llamacho, J. Ackerman, R. & K. Dressler* 18630 (HAJB, MO); Moa, road to Melba, Arroyo Las Comadres, 350 m, 29 November 1997, *C. Luer, J. Luer, M. Díaz, J. Llamacho, J. Ackerman, R. & K. Dressler* 18656 (HAJB, MO). Oriente: Monte Verde, 18 March 1860, *C. Wright* 658, (AMES, BR, BREM, C, G, O, K, W); Pinal de Santa Ana, 800 m, 1 April 1889, *H. F. A. von Eggers* 5052 (BR, C, K, US); above Bella Vista, trail to Monte Libano, 29 July 1907, *W. R. Maxon* 4273 (US); Sierra Maestra, Pico Turquino, Falda Sur Pico Turquino, 2 August 1935, *J. Acuña* 13890 (AMES). Sierra Maestra, Pico Turquino, 1800 m, 17 April 1915, *E. L. Ekman* 5437 (S, US). Sierra Maestra, Alto de Iberia, 900 m, 12 November 1916, *E. L. Ekman* 8302 (S, US). Sierra Maestra, Pico Turquino, 1800 m, July 1922, *Bro. León* 11066 (AMES). Sierra Maestra, Loma del Gato, January 1928, *Bro. Clement* 1021 (AMES). Sierra Maestra, Pico de Turquino, 3750 ft, 31 July 1935, *J. T. Roig & J. Acuña* 6634 (HAC-Roig); Sierra Maestra, Pico de Turquino, 3750 ft, 31 July 1935, *J. T. Roig & J. Acuña* 6635 (HAC-Roig); Sierra Maestra, Pico de Turquino, 1–2 August 1935, *J. Acuña* 6836 (HAC-Roig); crest of Sierra Maestra between Pico Turquino and La Bayamesa, 1350 m, 27–28 October 1941, *C. V. Morton & J. Acuña* 3762, 3793 (US); Sierra de Cristal, Mayarí, 2–7 April 1956, *Hn. Alain, J. Acuña & M. López F.* 5525 (AMES); Sierra de Cristal, Parte Alba Río Lebina, 1900–2200 m, 26 August 1959, *M. López* 159 (US); Sierra Maestra, Bayamesa Mt., 5–8 April 1955, *M. López F.* 2117 (AMES, HAC); Sierra Maestra, Manguito, loma Barrio Nuevo, 1400–1500 m, 22 March 1970, *H. Lippold* 16288A (JE); Sierra Maestra, cerca del batey del aserrio Manguito, monie nublado, May 1968, *J. Bisse* 9303 (JE); Sierra Maestra, Pico Turquino, between Paso de las Angiostas and la cima, 1800–2000 m, 11 May 1972, *H. Lippold & Gonzales* 19110 (JE); Sierra Cristal, las cabezades del Río Lebisa, 700–800 m, April 1970, *J. Bisse* 15842 (JE); Sierra Maestra, El Uvero, alto de La Francia, 1100–1400 m, 2 April 1969, *J. Bisse & H. Lippold* 13944 (JE); Moa, La Melba, sur de la Sierra de Moa, 28 December 1968, *J. Bisse & H. Lippold* 11565 (JE); Sierra Maestra, El Uvero, Loma Siberia, 900–11000 m, 29 March 1969, *J. Bisse & H. Lippold* 13731 (JE); Sierra Maestra, Pico Bayamesa, 1800, 20 March 1970, *H. Lippold* 16138 (JE); Oriente: Sierra Maestra, firme de la Sierra entre Alcarraza y Punta de Lanza, 800–1000 m, 28 April 1969, *J. Bisse & H. Lippold* 14208 (JE).

MARTINIQUE. Without locality, February 1867–70, *L. Hahn* 1452a (K); St. Pierre, February 1868, *L. Hahn* 92 (K, US); without locality, 1879, *P. Duss* 388 (BR, US); without locality, 1901, *P. Duss* 4666 (AMES); Deur Chouse, 28 September 1940, *H. & M. Stehlé* 6461 (US); Gros Morna aux Deux Chorex, 560 m, 4 September 1937, *H. Stehlé* 2159 (AMES).

DOMINICA. Without locality, 1858, *Dr. Imray 305* (K); without locality, 1891, *H. A. Nichols 141* (K); without locality, 1932, *S. Haweis 31* (US); without locality, January 1882, *H. F. A. von Eggers 96* (US). Lisdara, 457 m, 27 August 1937, *W. H. Hodge 390* (AMES); forest along Pegoua River, Deux Branches, Concorde Valley, 6 May 1940, *W. H. & B. T. Hodge 3483* (AMES); Bains Chauds du Matouba, 1000 ft, 10 December 1959, *G. R. Proctor 20357* (AMES); Slopes of Micotrin beyond Fresh Water Lake, 14 July, 1964, *R. L. Wilbur 7460* (AMES, US); Trois Pitons, Rosalie to Pont Cassé, 1600 ft, 22 July 1964, *R. L. Wilbur 7814* (US); St. George: Bellevue between Rose Hill and Loubiere, 550 m, 23 October 1997, *M. A. Nir 46, 47* (AMES, NY).

GUADELOUPE. Bagatelle du Camp Jacob, 500–1000 m, 1893, *P. Duss 3340* (AMES, US); Camp les Anglais, 500 m, 9 December 1944, Stehlé 5487 (US); Basse Terre, road to Soufriere above Sainte Claude, 8–11 July 1964, *H. A. Hespenheide & D. R. Wiseman 502* (Duke, US); Aire de Petit David, Route de Traverse, 8 July 1972, *J. Fournet 91* (GUAD); Morne a Louis, 700 m, 4 February 1976, *J. Fournet 2504* (GUAD); Petit Bourg, La Glaciere, Jardin J. Fournet, 11 December 1991, *J. Fournet 4952* (AMES, GUAD); Mamelles, Debut de la trace des Cretes, 14 December 1991, *J. Fournet 4958* (AMES, GUAD); 900 m, 1 November 1995, *C. Luer 17765* (MO).

ST. LUCIA. Trail from Quillesse to Piton St. Esprit, 10 May 1950, *R. A. Howard 11632* (AMES); Savanne Edmund District, SE of Piton Troumassée, 1800–2000 ft, 20 November 1960, *G. R. Proctor 21586* (AMES).

ST. VINCENT. 10 January 1890, *H. F. A. von Eggers 6931* (BR): 500–2000 ft, 1890, *H. H. Smith & G. W. Smith 90* (K); Marriagua Valley, 1500 ft, *H. H. Smith & G. W. Smith 1661* (K); south fork of Cumberland River, 300–750 m, 13 May 1947, *C. V. Morton 5817* (AMES, US); Grand Bonhomme, 800–930 m, 24 May 1947, *C. V. Morton 6160* (US); Spring Valley, 1500–2000 m, 3 March 1971, *R. A. Howard 17684* (AMES).

NEVIS. Nevis Peak, south slope, 300–600 m, 11 April 1956, *A. C. Smith 10512* (AMES, US).

This species was first described as *Epidendrum ophioglossoides* by Jacquin in his “Enumeratio systematica plantarum” in 1760, which, without illustrations, comprises a list of the genera and species of plants that he collected in the Caribbean, as well as very brief descriptions of those species that he considered to be new. Jacquin did not indicate a type, and his diagnosis of *E. ophioglossoides* contained only five words. He cited in the synonymy a plate by C. Plumier (1758, t. 176, fig. 3), but this is now known to represent a species of the genus *Acianthera* Scheidw., most probably *A. floribunda* (Lindl.) F. Barros, which is also common in Martinique.

Jacquin intended the “Enumeratio” as a prodromus of a much more detailed and complete work, namely the “Selectarum Stirpium Americanarum Historia,” which would contain illustrations and more ample descriptions. As pointed out by some authors (e.g., D’Arcy, 1970; Stafleau, 1971; Stafleau and Cowan, 1979), the “Enumeratio” and the

“Selectarum” should be consulted together for the correct understanding and interpretation of Jacquin’s names. The “Selectarum” was published in 1763 and included not only more information and much longer descriptions, but also engravings of Jacquin’s original drawings, including, in ink, a crude drawing of *Epidendrum ophioglossoides*. A more lavish work, which contained Jacquin’s colored illustrations, appeared in 1780—the second edition of the “Selectarum,” a rare publication with only 30 extant copies in libraries worldwide (Madriñán, 2013). In this work, Jacquin’s illustration of *E. ophioglossoides* is depicted in color for the first time.

An extensive account of Jacquin’s botanical expedition to the Caribbean and the publication of the “Selectarum,” including reproduction of the colored plates that appeared in its second edition, was recently published by Madriñán (2013). According to Madriñán (2013: 25), Jacquin abandoned the practice of preparing herbarium specimens after termites destroyed all his dried collections in Martinique. For this reason, together with Van der Schot, Jacquin began to illustrate in detail the plants he collected. This fact might explain the scarcity of Jacquin’s collections from the West Indies mentioned by Stafleau and Cowan (1979). However, some Martiniquais specimens seem to have survived; one of them, original material of *E. ophioglossoides*, is now preserved at BM. It is mounted on the same sheet with the lectotype of the Jamaican *Epidendrum trigoniflorum* and is annotated “*Herb. Dr. Jacquin.*” It has most certainly been among the materials acquired by Joseph Banks (Stafleau and Cowan, 1979). Garay and Sweet (1974) and Garay (1978) seem to have examined this same collection at BM but failed to explicitly cite a specimen accession number or other information that would help identify it. Both publications referred to Jacquin’s specimen as *Stelis scabriflora* Lindl., a name here considered a synonym of *S. ophioglossoides*. As in the case of *E. micranthum*, previously discussed in this article, Fawcett and Rendle (1910: 51) designated a lectotype for *E. ophioglossoides* in their account of the Orchidaceae in the *Flora of Jamaica*. They did not explicitly indicate which specimen was being selected as the type of *E. ophioglossoides*. We therefore clarify this by providing the barcode number of the specimen at BM.

Stelis ophioglossoides, superficially similar to numerous species of Central and South America and the Greater Antilles, is characterized by a small to medium-sized caespitose habit with acute, elliptical to narrowly elliptical-oblong, petiolate leaves. The largest variations of the leaf are found in Cuba. A crowded raceme of little greenish to purplish flowers surpasses the leaf. The floral bracts are acute, longer than the pedicels, and more or less conspicuous. The sepals are broadly ovate and obtuse, about 2 mm long, and connate below the middle. The petals are oblong, thin, shallowly concave and three-veined. The lip is ovoid, obtuse, and concave below the bar with a glenion and a small, rounded callus on the dorsum. Citations of *S. ophioglossoides* (Jacq.) Sw. from Jamaica are misidentifications of *S. micrantha* (Sw.) Sw. and *S. trigoniflora* Garay.

HISPANIOLA

Stelis chabreana Mansf., Ark. Bot. 20A(15): 15. 1926. TYPE: HAITI. Massif du Nord, Gros-Morne, Morne Chabre, 1130 m, 10 May 1925, E. L. Ekman H-5009 (Holotype: S; Isotypes: AMES, G, GH, K, NY, S, US). Fig. 9.

Plant small, epiphytic, caespitose-ascending, the rhizome abbreviated, covered by more or less horizontal bases of ramicauls and roots, up to 5 cm long. Ramicauls ascending-fasciculate, slender, 1–3 cm long, enclosed by a tubular sheath and 2–3 other sheaths below. *Leaf* erect, coriaceous, narrowly obovate, petiolate, obtuse to rounded at the tip, 2–4 cm long including the petiole 0.5–1.5 cm long, 0.3–0.6 cm wide, gradually narrowed below into the petiole. *Inflorescence* 1–3 erect, lax, distichous racemes, 4–6 cm long including the peduncle 1–2 cm long, from the apex of the ramicaul; floral bracts oblique, acute, 1–1.5 mm long; pedicels 1 mm long; ovary 1 mm long; *sepals* similar, color unknown, glabrous, ovate, obtuse, 1.5 mm long, 1.5 mm wide, 3-veined, connate basally; *petals* thin, obcuneate, broadly rounded at the apex, 0.5 long, 0.5 mm wide, 3-veined, shallowly concave; *lip* subquadrate, 0.4 mm long, 0.4 mm wide, 0.3 mm deep, concave below a shallowly notched bar, the apex broadly obtuse, the dorsum microscopically pubescent toward the base, hinged to the base of the column; *column* stout, ca. 0.5 mm long and wide, the anther and minute stigmatic lobes apical.

Etymology: named for Morne Chabre, where the species was collected.

Additional specimens examined: DOMINICAN REPUBLIC. El Murazo, November 1976, fl. in cult. November 1978, *D. Dod 656* (JBSD, MO), C. Luer illustr. 22001. Sierra de Yaroa, 850 m, 28–29 January 1969, A. H. Liogier 13581 (AMES, NY); Puerto Plata: Loma del Puerto, 750 m, 18 September, 1969, A. H. Liogier 15943 (AMES, NY), C. Luer illustr. 20118; same collection data, A. H. Liogier 15947 (AMES, NY).

Stelis chabreana is endemic to the island of Hispaniola. The habit is distinctive, but the flowers are similar to those of *S. pusilla* Kunth, which is ubiquitous in the Andes, and with which *S. chabreana* was confused in Luer (2014). It differs mostly in possessing 3-veined petals instead of single veined.

Vegetatively, this small species is distinguished by a creeping, ascending rhizome, mostly composed of the overlapping bases of ramicauls and roots. The leaves are narrowly obovate, petiolate, more or less rounded at the tip, and exceeded by a loose, several-flowered raceme. The sepals are ovate, obtuse, three-veined and glabrous; the petals are three-veined; and the tiny lip is concave below a shallowly notched bar.

Stelis choriantha Dod, Moscosoa 4: 160. 1986. TYPE: HAITI. Massif de la Hotte: Les Cayes, Formond, 950 m, 15 December 1981, *D. Dod 966* (Holotype: JBSD [not located]; AMES [not located], Isotype: MO), C. Luer illustr. 12339. Fig. 10.

Plant small to medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 2.5–3.5 cm long, enclosed by 3 tubular sheaths. *Leaf* erect, coriaceous,

narrowly elliptical-obovate, obtuse, petiolate, 3–4 cm long including a petiole ca. 1 cm long, the blade 0.8–1.1 cm wide, narrowly cuneate below into the petiole. *Inflorescence* an erect, distichous, lax, many-flowered raceme with most flowers open simultaneously, to 7 cm long, including the peduncle ca. 1 cm long, subtended by a spathe 4 mm long, from below the apex of the ramicaul; floral bracts oblique, tubular, 1.5–2 mm long; pedicels 1 mm long; ovary 0.75 mm long; *sepals* subequal, light yellow-green, glabrous, free nearly to the base, ovate, subacute to obtuse, 1.2 mm long, 1 mm wide, 3-veined; *petals* obcuneate, truncate, shallowly concave, 0.4 mm long, 0.6 mm wide, 3-veined, the apex broadly truncate without thickening; *lip* thick, oblong-subquadrate, 0.5 mm long, 0.4 mm wide, 0.2 mm deep, the apex contracted into an obtuse triangle, shallowly concave below a rounded bar, the dorsum, slightly convex, minutely pubescent above the base, the base truncate, hinged to the base of the column; *column* stout, 0.5 mm long, 0.5 mm broad, the anther cucullate with the stigmatic lobes apical.

Etymology: from the Greek *choriantha*, “membranous-flowered,” referring to the inflorescence.

Additional specimens examined: HAITI. Formond, near Les Cayes, 1000 m, February 1982, *D. Dod 1-F* (SEL).

This species is very similar to the frequent and variable *Stelis domingensis* Cogn. but is distinguished from the latter by a single, laxly flowered raceme conspicuously longer than the leaf.

Stelis domingensis Cogn., Symb. Antill. 6: 692. 1910. TYPE: DOMINICAN REPUBLIC. La Vega: near Constanza, 1400 m, June 1910, *H. von Türckheim 3330* (Holotype: BR; Isotypes: AMES, BM, G, K, L, M, W). Fig. 11.

Synonyms: *Stelis tippenhaueri* Urb., Repert. Spec. Nov. Regni Veg. 15: 103, 1917. TYPE: DOMINICAN REPUBLIC. Barahona, between tributaries of the Cañada, *M. Fuertes 1489c* (Holotype B [destroyed]). Lectotype here designated: AMES [barcode 00084455, inflorescence in glycerin]. Etymology: named in honor of Louis Gentil Tippenhauer.

Stelis desportesii Urb., Repert. Spec. Nov. Regni Veg. 15: 156. 1918. TYPE: DOMINICAN REPUBLIC. Barahona, near Constanza, 1200 m, *H. von Türckheim 3372c* (Holotype B [destroyed]). Etymology: named in honor of Jean-Baptiste René Pouppé-Desportes.

Plant small to medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 2–8 cm long, enclosed above the middle by a tubular sheath and 2–3 other sheaths at the base. *Leaf* erect, coriaceous, elliptical, obtuse to subacute, petiolate, 2–6 cm long including a petiole 0.5–1 cm long, the blade 0.7–1.6 cm wide, narrowly cuneate below into the petiole. *Inflorescence* 1–3 erect, distichous to secund, loosely to densely many-flowered racemes with most flowers open simultaneously, 2–8 cm long, including the peduncle ca. 1 cm long, subtended by a spathe 3–5 mm long, from below the apex of the ramicaul; floral bracts oblique, tubular, 1.5–2 mm long; pedicels 0.5–1 mm long; ovary 0.5–0.75 mm long; *sepals* subequal, pale green to yellow or yellow-green, glabrous, connate basally,

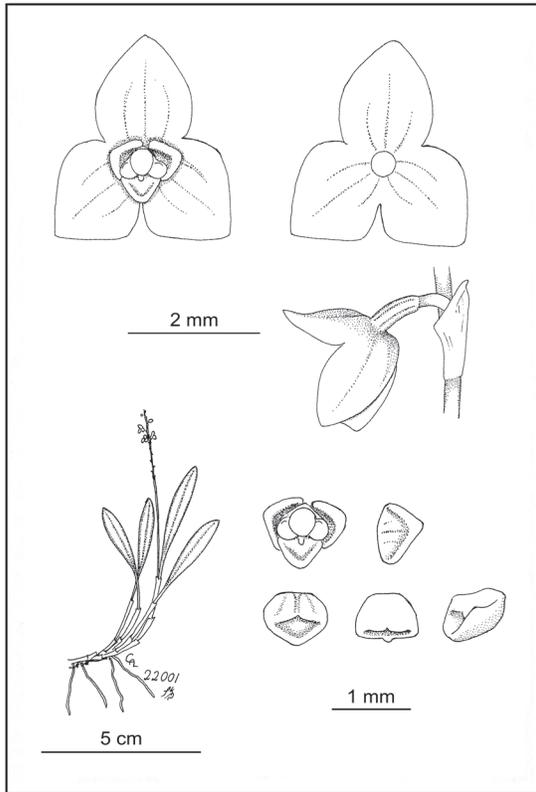


FIGURE 9. *Stelis chabreana* Masnf.

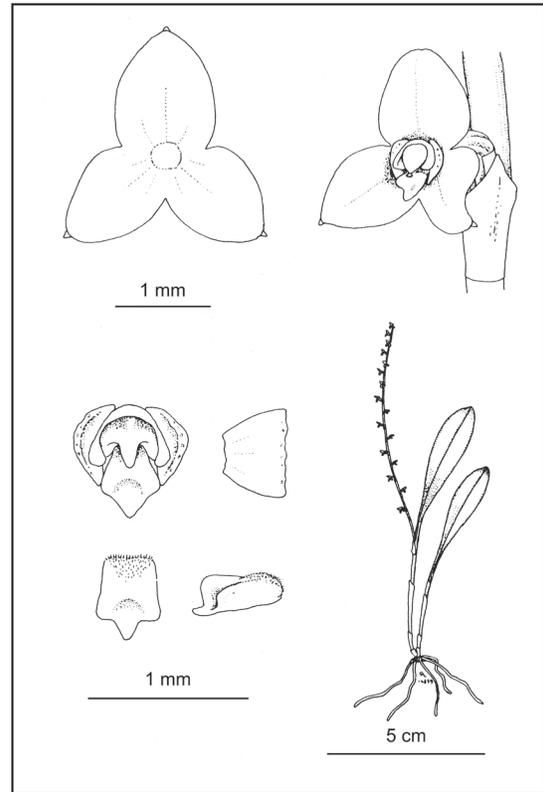


FIGURE 10. *Stelis choriantha* Dod

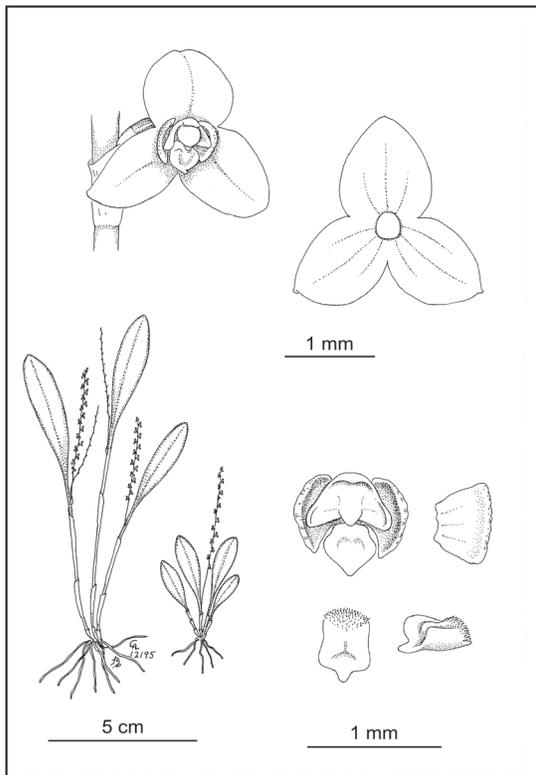


FIGURE 11. *Stelis domigensis* Cogn.

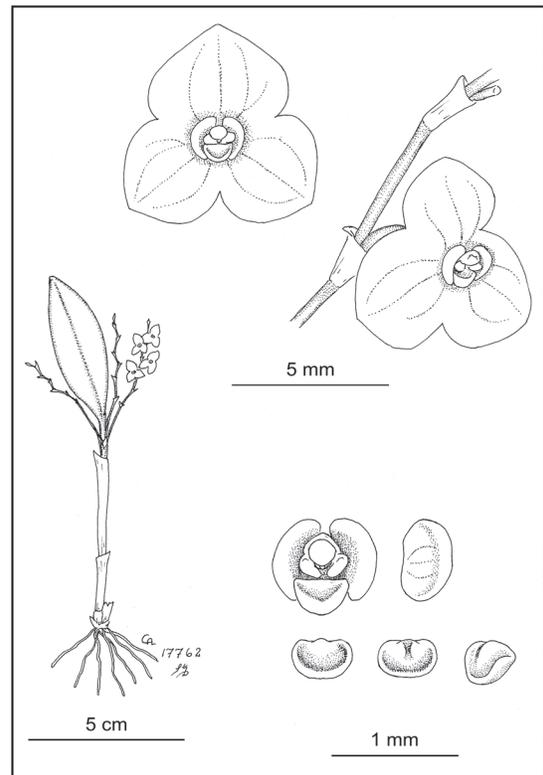


FIGURE 12. *Stelis dussii* Cogn.

ovate, subacute to obtuse, often minutely apiculate, 1.2–1.5 mm long, 1–1.4 mm wide, 3-veined; *petals* light green, obcuneate, truncate, shallowly concave, 0.4–0.5 mm long, 0.6–0.9 mm wide, 3-veined, the apex broadly truncate with minimal thickening, microscopically irregular and cellular; *lip* light green, thick, oblong, 0.5–0.7 mm long, 0.3–0.4 mm wide, 0.2–0.3 mm deep, the epichile, obtuse, triangular at the tip, shallowly concave below the bar below a slightly notched bar, the hypochile subquadrate, slightly convex, densely pubescent toward the truncate base, hinged to the base of the column; *column* stout, 0.5 mm long, 0.5–0.8 mm broad, the anther cucullate with the stigmatic lobes apical.

Etymology: named for Santo Domingo, the country where the species was collected.

Additional specimens examined: DOMINICAN REPUBLIC. Loma de La Vieja, 1900 m, 6 November 1929, *E. L. Ekman 14029* (AMES, S); Constanza, 1200 m, May 1910, *H. von Türckheim 3760* (AMES); north of Constanza, La Cienaga, 1700 m, 16 May 1959, *J. Jiménez 3999* (US); NE of La Culata, Cuatro Alas, Constanza, 1600 m, 25 September 1969, *A. H. Liogier 16108* (AMES, NY); south of Constanza, 6200 ft, 24 February 1982, *T. Zanoni et al. 19376* (AMES, NY, UPRRP); Parqué Nac. J. A. Bermúdez, Ciénaga de Manabao, 1400–1620 m, *T. Zanoni et al. 38198* (NY, US). Sierra del Bahoruco, Pueblo Viejo above Puerto Escondido, 1850 m, 19 February 1969, *A. H. Liogier 14074* (AMES, NY); Sierra de Bahoruco, toward Pueblo Viejo, 1700 m, 6 May 1986, *C. Luer, J. Luer & D. Dod 12193, 12195, 12164, 12195, 12272, 12339, 12340* (MO); Sierra del Bahoruco, camino a la Entrada de Cortico y El Gajo, 4200–4400 ft, *T. Zanoni et al. 20350* (AMES, NY, UPRRP); Río Grande, new road to Valle Nuevo, 1400 m, 16 July 1955, *J. Jiménez 2992* (US). Santiago: Diego de Ocampo, 14 May 1958, *J. Jiménez 3670* (US). Zapoten Abajo, above Aquacate, 1300 m, 5 May 1986, *C. Luer, J. Luer & D. Dod 12188, 12190* (MO).

HAITI. Massif de la Selle, Morne La Visite, 2200 m, 12 August 1924, *E. L. Ekman H-1449* (AMES, G, K, S). Massif de la Pelle, Petionville, Morne La Visite, 2200 m, 12 August 1924, *E. L. Ekman H-1449* (AMES, K, S, US); Valle Nuevo, 1900 m, 30 May 1887, *H. F. A. von Eggers 2176, partim* (K); Jarabacoa: Loma de la Sal, 1100–1250 m, 24 May 1968, *A. H. Liogier 11424* (AMES, NY, US); Cord. Central, Bañaderos del Valle, base of la Pelona, 1700 m, 1–7 October 1968, *A. H. Liogier 12816* (AMES, NY, US); San José de las Matas, Loma del Oro, south of Mata Grande, 4 June 1968, *A. H. Liogier 11553* (NY, US).

Stelis domingensis is endemic, common, and variable on the island of Hispaniola. It is characterized by elliptical leaves, one to three usually shorter inflorescences, and ramicauls more or less equally long. The leaf is elliptical, obtuse, and shortly petiolate. The racemes are usually shorter. The small sepals are ovate, expanded, and free nearly to the base. The tips are subacute to obtuse with or without a minute or obscure apiculum. The petals are cuneate with a broadly truncate, minimally callous margin. The lip is oblong with the epichile triangular and shallowly concave. The hypochile is thick and densely pubescent toward the

base. The only collection of *S. minipetala* is distinguished from *S. domingensis* only by racemes shorter than the leaf, and a longer, triangular epichile of the lip.

The holotypes of *Stelis desportesii* and *S. tippenhaueri* were destroyed in Berlin. No isotype is known for the former, and only a fragment of the latter, an inflorescence preserved in glycerin, is found at AMES. We herein select this fragment as lectotype. Most probably, these two species are merely vegetative variations of *S. domingensis*.

Stelis dussii Cogn. in I. Urban, Symb. Antill. 6: 389. 1909. TYPE: GUADELOUPE. Rivière Noire, 760 m, 16 February 1898, *P. Duss 3986* (Holotype: BR). Fig. 12.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 4–8 cm long, enclosed above the middle by a tubular sheath and 2–3 other sheaths below and at the base. *Leaf* erect, coriaceous, elliptical, acute, petiolate, 3–7 cm long including a petiole 1 cm long, the blade 1.5 cm wide, cuneate below into the petiole. *Inflorescence* 1–3 erect, loose, subflexuous racemes 3–5 cm long, including the peduncle ca. 1 cm long, subtended by a spathe ca. 5 mm long, from below the apex of the ramicaul; floral bracts oblique, 2 mm long; pedicels 2 mm long; ovary 2 mm long; *sepals* expanded, yellow, glabrous, connate below the middle, broadly ovate, obtuse, dorsal sepal 3.5 mm long, 4 mm wide, 3- to 5-veined, lateral sepals 3 mm long, 3.5 mm wide; *petals* orange, transversely oblong, thick, shallowly concave, 0.75 mm long, 1.2 mm wide, 3-veined, the apex broadly rounded; *lip* orange, subquadrate, 0.6 mm long, 1 mm wide, 0.3 mm deep, shallowly concave below a thick bar, the apex rounded, the hypochile slightly convex, cellular, the base truncate, hinged to the base of the column; *column* stout, ca. 0.75 mm long and wide, the anther and stigmatic lobes apical.

Etymology: named in honor of the Rev. Père Antoine Duss, collector of this species.

Additional specimens examined: GUADELOUPE. Without locality, 600 m, 26 January 1970, *J. Renz 10467* (RENZ); Mamelle de Petit Bourg, 750 m, 19 January 1992, *P. Feldmann 17* (GUAD); Mamelle de Pigeon, 7 July 1973, *J. Fournet 917* (GUAD); Mamelle de Pigeon, 28 October 1875, *C. Luer, J. Luer & P. Feldman 17762* (SEL).

This species is endemic to the island of Guadeloupe, where it is uncommonly found. It is distinguished by a medium-sized plant with acute, elliptical leaves, and loosely flowered inflorescences shorter than the leaves. The flowers are the largest of all the species of *Stelis* known from the Antilles, excluding Trinidad and Tobago. The sepals are transversely ovate with three primary veins and incomplete lateral, accessory veins that may be present to bring a total of five veins, or they may be totally absent. The petals are thick and three-veined. The lip is thick and shallowly concave below a thick bar. Floral dissections are based on *C. Luer et al. 17762* and habit on the holotype specimen.

Stelis glacensis Dod, Moscosoa 4: 166, 1986. TYPE: HAITI. Massif de la Hotte, Camp Perrin, Rivière Glace, 800 m, 23 April 1982, *D. Dod 968* (Holotype: JBSD [not

located]; Isotypes: AMES [not located], MO, SEL [not located], NY [not located], US [not located]); C. Luer illustr. 12271. Fig. 13.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 1.5–2.5 cm long, enclosed by 2–3 tubular sheaths. *Leaf* erect, coriaceous, elliptical-obovate, obtuse to subacute, petiolate, 2.5–4 cm long including a petiole less than 1 cm long, the blade 0.7–1.2 cm wide, narrowly cuneate below into the petiole. *Inflorescence* a succession of erect, distichous, subaxillary several-flowered racemes with most flowers open simultaneously, 2–3 cm long, including the peduncle ca. 1 cm long, subtended by a spathe less than 5 mm long, from below the apex of the ramicaul; floral bracts oblique, tubular, 1.8 mm long; pedicels 0.5 mm long; ovary 0.5 mm long; *sepals* expanded, subequal, yellow, glabrous, free nearly to the base, ovate, subacute to obtuse, 1–1.2 mm long, 0.8 mm wide, 3-veined; *petals* yellow, obcuneate, shallowly concave, 0.5 mm long, 0.5 mm wide, 1-veined, the apex broadly subtruncate with minimal thickening; *lip* yellow, thick, oblong, 1 mm long, 0.3 mm wide, 0.25 mm deep, the epichile subacute, shallowly concave below a narrowly, rounded bar, the hypochile densely pubescent at the base, the base truncate, hinged to the base of the column; *column* stout, 0.5 mm long, 0.5 mm broad, the anther cucullate with the stigmatic lobes apical.

Etymology: named for the Rivière Glace, where the species was collected.

This small species, endemic to the western part of Hispaniola, is another entity closely related to *Stelis domingensis*. Dod's provisional name for the species was "*semperflorens*," because the plant continues to produce flowering racemes, one after another. It is distinguished by a small habit and one to three, several-flowered racemes shorter than the leaf. The sepals are free, ovate, and about 1 mm long. The petals are membranous, cuneate-subtruncate, and faintly single-veined. The lip is oblong with a triangular epichile, and concave around the central margin of the bar. The hypochile is thick and densely pubescent at the base.

Stelis jenssenii Urb., Ark. Bot. 17(7): 20. 1921. TYPE: HAITI. Ma Blanche, W slope, 1400 m, *J. Jenssen* 542 (Holotype: S). Fig. 14.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3–5 cm long, enclosed above the middle by a tubular sheath and 2–3 other sheaths at the base. *Leaf* erect, coriaceous, elliptical, obtuse, petiolate, 3–5 cm long including a petiole ca. 1.5 cm long, the blade 0.1–1.5 cm wide, narrowly cuneate below into the petiole. *Inflorescence* an erect, distichous to subsecund, many-flowered raceme, loosely several-flowered below, densely flowered above, with most flowers open simultaneously, 10–15 cm long, including the peduncle ca. 5 cm long, subtended by a spathe 6–7 mm long, from below the apex of the ramicaul; floral bracts oblique, tubular, 2 mm long; pedicels 1.25 mm long; ovary 0.75 mm long; *sepals* widely expanded, subequal, yellow-green, glabrous, free nearly to the base, ovate, obtuse, 2–2.25 mm long, 1.75 mm

wide, 3-veined; *petals* light green, obcuneate-suborbicular, concave, 1 mm long, 1 mm wide, 3-veined, the apex broadly rounded and thickened, cellular-glandular; *lip* light green, thick, subrotund, 0.9 mm long, 0.8 mm wide, 0.4 mm deep, the epichile obtuse, concave with the margin thick, the hypochile thick, convex, cellular, becoming densely pubescent above the base, the base truncate, hinged to the base of the column; *column* stout, 0.75 mm long, 0.75 mm broad, the anther and stigmatic lobes apical.

Etymology: named for the collector, J. Jenssen.

Additional specimens examined: HAITI. Without locality, collected and cultivated by *D. Dod* s.n., flowered in cultivation 4 May 1986, *C. Luer* 12218 (MO).

This species, apparently endemic in the fragments of mountainous forests of Haiti, is similar to the frequent and variable *Stelis domingensis*. From the latter, *S. jenssenii* is distinguished by a longer-petiolate, elliptical leaf far surpassed by a slightly larger-flowered raceme that is loosely flowered below and congested above. The widely expanded sepals are ovate, non-apiculate, and free to near the base. The petals are suborbicular and concave with a broadly rounded, callous margin. The lip is thick, about as long as wide, with an obtuse, concave apex with a thick margin, and a densely pubescent base.

Stelis magnicava Dod, Moscosoa 5: 233.1989. TYPE: HAITI. Massif de la Hotte, *D. Dod* 1018 (Holotype: JBSD [not located]; Isotypes: AMES [not located], MO, SEL [not located], NY [not located], US [not located]); C. Luer illustr. 13730. Fig. 15.

Plant medium in size to large, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 9–11 cm long, the middle third enclosed by a tubular sheath and 2–3 other sheaths at the base. *Leaf* erect, coriaceous, narrowly elliptical-obovate, obtuse to subacute, petiolate, 8–9 cm long including a petiole ca. 2 cm long, the blade 1.5–1.8 cm wide, narrowly cuneate below into the petiole. *Inflorescence* 1–3 erect, distichous, subaxillary many-flowered racemes with most flowers open simultaneously, 9–10 cm long, including the peduncle ca. 1 cm long, subtended by a spathe 7 mm long, from below the apex of the ramicaul; floral bracts oblique, tubular, obtuse, 1.5–2 mm long; pedicels 1 mm long; ovary 0.5 mm long; *sepals* expanded, subequal, yellow, glabrous, free nearly to the base, ovate, subacute to obtuse, 1.75 mm long, 1.5 mm wide, 3-veined; *petals* yellow, obcuneate, shallowly concave, 0.5 mm long, 0.75 mm wide, 3-veined, the apex broadly truncate with minimal thickening; *lip* yellow, thick, subquadrate, 0.5 mm long, 0.5 mm wide, 0.2–0.3 mm deep, the apex broadly obtuse with the tip shortly acuminate, shallowly concave below the apex, the hypochile thick, convex, densely pubescent toward the base, the base truncate, hinged to the base of the column; *column* stout, 0.75 mm long, 1 mm broad, the anther and the expanded, stigmatic lobes apical.

Etymology: from the Latin *magnicavum*, "large cavity," possibly referring to the lip, but not obvious on the type plant.

This close relative of *Stelis domingensis*, which is frequent and variable on the island of Hispaniola, is known

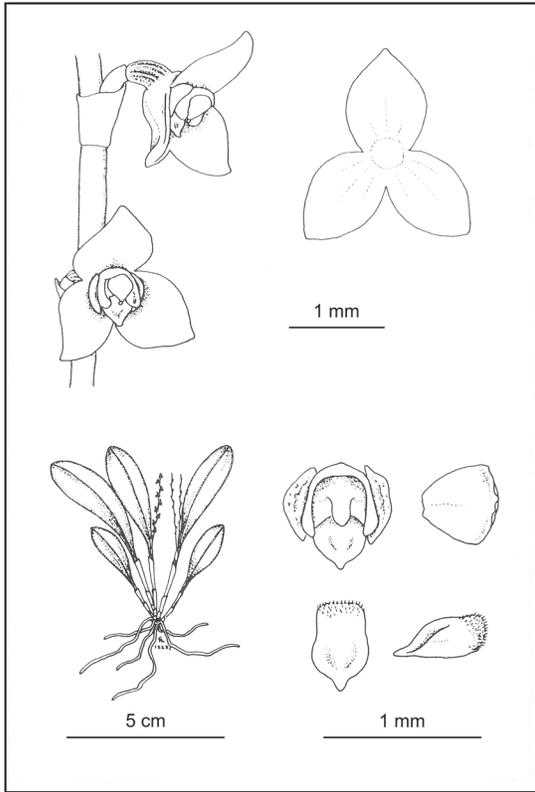


FIGURE 13. *Stelis glaucensis* Dod

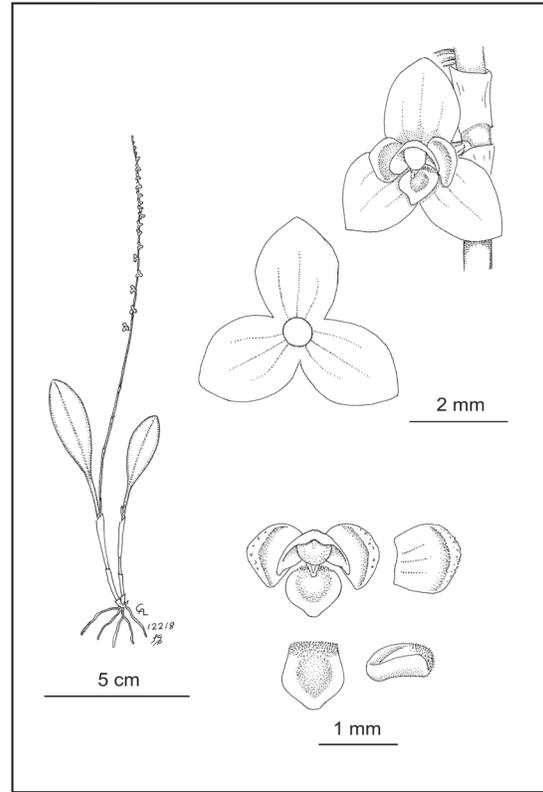


FIGURE 14. *Stelis jenssenii* Urb.

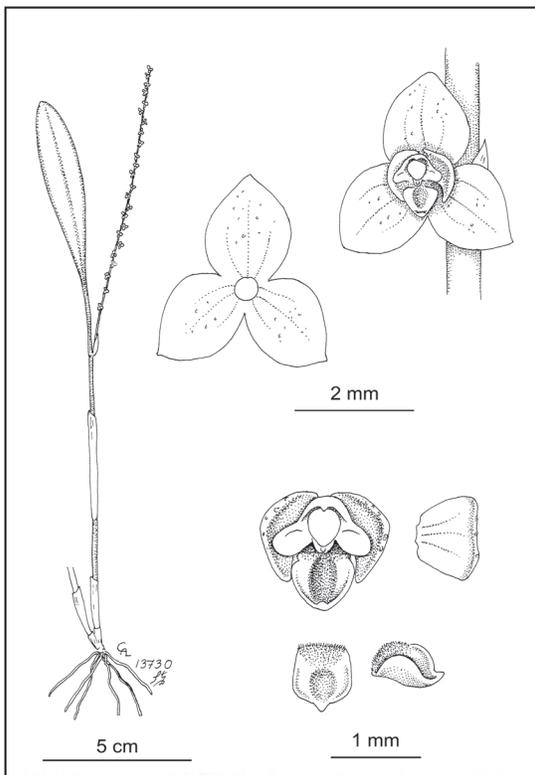


FIGURE 15. *Stelis magnicava* Dod

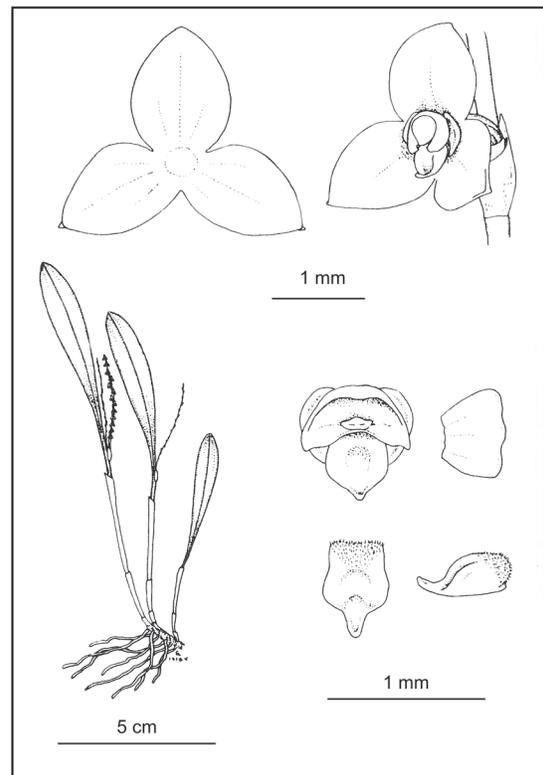


FIGURE 16. *Stelis minipetala* Dod

only from the Massif de la Hotte in Haiti. It is distinguished from the variations of *S. domingensis* by a larger habit, a long, petiolate leaf, and a subdensely many-flowered raceme that barely surpasses the leaf. The ovate sepals and subtruncate petals of the tiny flowers are basically the same in size and shape. The lip is also similar, but the cavity occupies most of the epichile behind a shortly acuminate tip. Below the middle, the lip is thick and densely short-pubescent.

Stelis minipetala Dod, Moscosoa 4: 162. 1986. TYPE: HAITI. Massif de la Hotte, Sierra de Formond, Camp #1C, 1550 m, 6 January 1983, *D. Dod* 967 (Holotype: JBSD [not located]; Isotypes: AMES [not located], MO, NY [not located], SEL [not located]). Fig. 16.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3–5 cm long, enclosed above the middle by a tubular sheath and 2–3 other sheaths at the base. *Leaf* erect, coriaceous, elliptical, obtuse, petiolate, 3–5 cm long including a petiole ca. 1.5 cm long, the blade 0.1–1.5 cm wide, narrowly cuneate below into the petiole. *Inflorescence* an erect, distichous to subsecund, many-flowered raceme, loosely several-flowered below, densely flowered above, with most flowers open simultaneously, 10–15 cm long, including the peduncle ca. 5 cm long, subtended by a spathe 6–7 mm long, from below the apex of the ramicaul; floral bracts oblique, tubular, 2 mm long; pedicels 1.25 mm long; ovary 0.75 mm long; *sepals* widely expanded, subequal, yellow-green, glabrous, free nearly to the base, ovate, obtuse, 2–2.25 mm long, 1.75 mm wide, 3-veined; *petals* light green, obcuneate-suborbicular, concave, 1 mm long, 1 mm wide, 3-veined, the apex broadly rounded and thickened, cellular-glandular; *lip* light green, thick, subquadrate, 0.9 mm long, 0.8 mm wide, 0.4 mm deep, concave below a thick bar, the apex with a subacute triangle that is obtuse at the tip, the hypochile thick, cellular, becoming densely pubescent toward the base, the base truncate, hinged to the base of the column; *column* stout, 0.75 mm long, the apical anther with the stigmatic lobes 1 mm wide.

Etymology: from the Latin *minipetala*, “with minute petals,” referring to the petals.

This species, another close relative of *Stelis domingensis*, is known only from the Massif de la Hotte in Haiti. It is distinguished from the variations of *S. domingensis* by a larger habit, a long-petiolate leaf, and a subdensely many-flowered raceme less than half as long as the leaf. The ovate sepals are free nearly to the base. The petals, about a millimeter long, appear small behind a large, expanded clinandrium 1 mm wide with stigmatic lobes, and they are not significantly smaller than the lip.

Stelis mucrouncata Dod, Moscosoa 4: 164. 1986. TYPE: DOMINICAN REPUBLIC. Cordillera Central, Piedra Blanca, Rancho Arriba, La Vigia, 1000 m, 30 November 1981, *D. Dod* 1039 (Holotype: JBSD [not located]; Isotypes AMES [not located], MO, NY [not located], SEL [not located], US [not located]), C. Luer illustr. 12273. Fig. 17.

Plant small, epiphytic, loosely caespitose to shortly repent with the rhizome 1–5 mm long between ramicauls; roots slender. Ramicauls ascending, slender, 1–2.5 cm long, enclosed by 2–3 tubular sheaths. *Leaf* erect, coriaceous, narrowly elliptical, subacute, shortly petiolate, 3–4.5 cm long including a petiole ca. 0.5 cm long, the blade 0.7–0.9 cm wide, narrowly cuneate below into the petiole. *Inflorescence* an erect, distichous, loosely several-flowered raceme with most flowers open simultaneously, 3–4 cm long, including the peduncle ca. 1.5 cm long, subtended by a spathe 3 mm long, from below the apex of the ramicaul; floral bracts oblique, tubular, 1 mm long; pedicels 1 mm long; ovary 0.5 mm long; flowers: *sepals* expanded, equal, green to straw-colored, glabrous, free nearly to the base, elliptical-ovate, subacute to acute, the laterals minutely apiculate, 1.4 mm long, 1 mm wide, 3-veined; *petals* light green, obcuneate, truncate, shallowly concave, 0.5 mm long, 0.5 mm wide, 1-veined, the apex broadly truncate with slight thickening on the margin; *lip* light green, thick, oblong-subtrilobed, 0.5 mm long, 0.3 mm wide, 0.2 mm deep, concave below the bar, the apex with a subacute triangular lobe, with obtuse corners of the hypochile below the lobe, the hypochile oblong, densely pubescent toward the base, the base truncate, hinged to the base of the column; *column* stout, 0.5 mm long, 0.5 mm broad, the anther and stigmatic lobes apical.

Etymology: from the Latin *mucrouncatus*, “a hooked point,” referring to the tips of the sepals.

This little species, endemic to Hispaniola, is related to the long-repent *Stelis repens* Cogn. The rhizome of *S. mucrouncata* is slender, shortly repent, and ascending with leaves twice as long as those of *S. repens*. The racemes are similar but shorter than the leaf because the leaf is longer. The sepals are nearly free, ovate with the lateral sepals minutely apiculate. The petals are truncate and single-veined. The lip is similarly three-lobed with the triangular midlobe more deeply concave. The hypochile is densely pubescent at the base.

Stelis perpusilliflora Cogn. in I. Urban, Symb. Antill. 6: 386.1909. TYPES: GUADELOUPE. Near Matouba, *P. Duss* 3756 (Holotype: B [destroyed]; Lectotype selected by Garay and Sweet [1974]: AMES; Isolectotypes: BR, NY, PH, US). Fig. 18.

Plant medium in size to large, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 4–9 cm long, enclosed above the middle by a tubular sheath and 2–3 other sheaths below and at the base. *Leaf* erect, coriaceous, elliptical, obtuse to subacute, petiolate, 5–9 cm long including a petiole 1–1.5 cm long, the blade 1–2 cm wide, narrowly cuneate below into the petiole. *Inflorescence* 1–3 erect, subdistichous to secund, densely several-flowered racemes with most flowers open simultaneously, 2–4 cm long, including the peduncle ca. 5 mm long, subtended by a spathe 3–6 mm long, from below the apex of the ramicaul; floral bracts oblique, tubular, 1.5 mm long; pedicels 1 mm long; ovary 1 mm long; *sepals* not widely expanded, similar, pale green to yellow-green, glabrous, free nearly

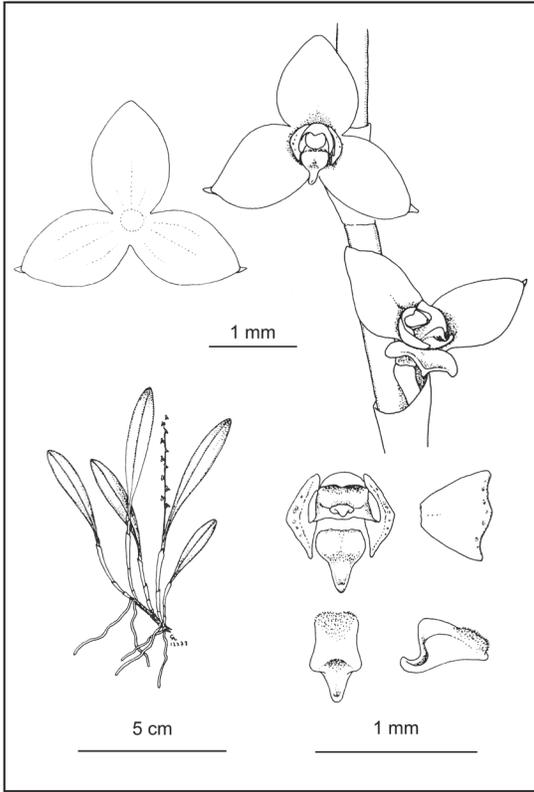


FIGURE 17. *Stelis mucrouncata* Dod

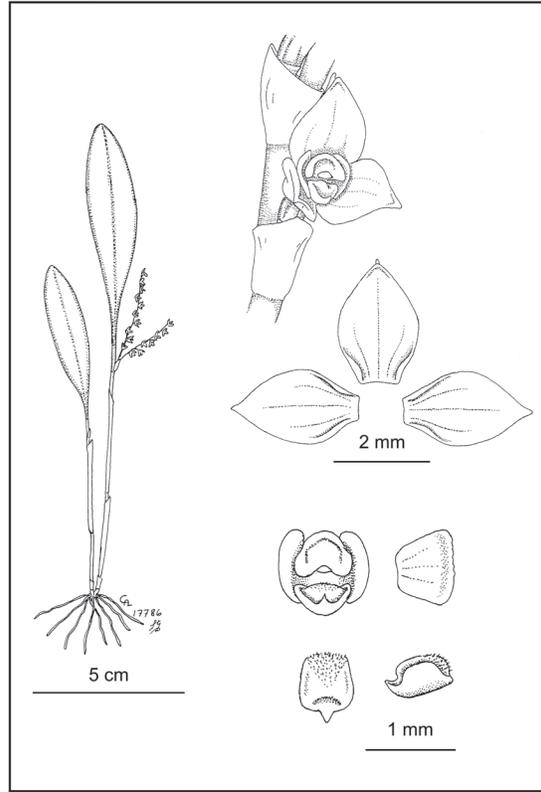


FIGURE 18. *Stelis perpusilliflora* Cogn.

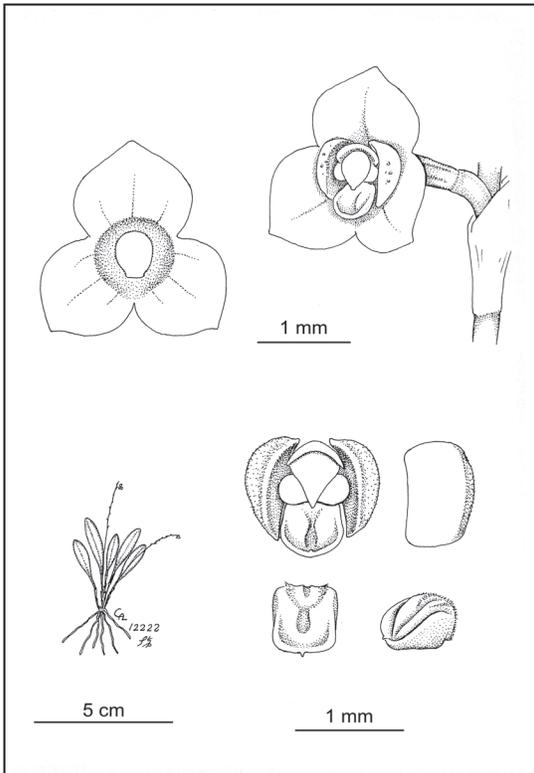


FIGURE 19. *Stelis pygmaea* Cogn.

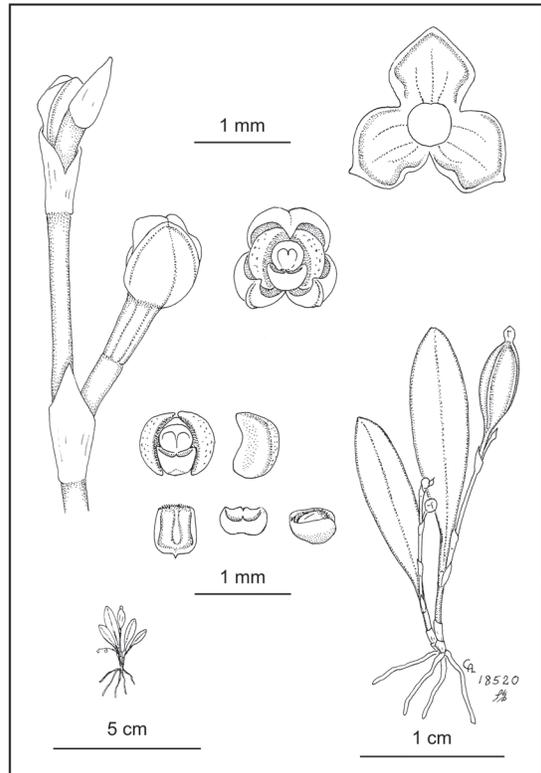


FIGURE 20. *Stelis pygmaea* Cogn.

to the base, ovate, subacute, shortly acuminate into a small apiculum, 1.8 mm long, 1.2 mm wide, 3-veined; *petals* light green, obcuneate, shallowly concave, 0.6 mm long, 0.7 mm wide, the apex broadly truncate without thickening, microscopically irregular and cellular; *lip* light green, subquadrate, 0.6 mm long, 0.5 mm wide, 0.4 mm deep, shortly concave below a thick bar, the apex triangular, subacute, the hypochile slightly convex, cellular, becoming densely pubescent toward the base, the base truncate, hinged to the base of the column; *column* stout, 0.5 mm long, 0.5 mm broad, the anther and stigmatic lobes apical.

Etymology: from the Latin *perpusilliflorus*, “very small-flowered,” referring to the inflorescence.

Additional specimens examined: GUADELOUPE. Bains Jaunes, 600 m, 6 Sept. 1938, *A. Questel 2094* (US); Grande Decouverte along Trace Victor Huues, 900 ft, 8 December 1959, *G. R. Proctor 200331* (AMES); Soufriere, above Sainte Claude, 8–11 July 1964, *H. A. Hespeheide & D. R. Wiseman 478* (AMES, DUKE); Pointe-Noire, 650 m, 18 September 1974, *J. Jérémie 169* (AMES, P); Saint Claude, Foret de Bains Jaunes, 8 March 1992, *J. Fournet & P. Feldmann 5152* (GUAD); Basse-Terre, Massif de la Soufriere, 1000 m, 5 May 1974, *C. & F. Sastre 2888* (GUAD, P); Basse-Terre, Massif de la Soufriere, Bains Jaunes, 900 m, 29 October 1995, *C. Luer. J. Luer & P. Feldmann 17764* (MO).

DOMINICA. Ridge of Morne Plat Pays, 800 m, 5 March 1940, *W. H. & B. T. Hodge 1700, 1723* (AMES); east of Laudat, 665 m, 11 March 1940, *W. H. & B. T. Hodge 1967* (AMES); Morne Plat Pays above Bellevue, 23 July 1964, *R. L. Wilbur et al. 7897* (US); Trois Pitons, Rosalie to Pont Cassé, 1600 ft, 22 July 1964, *R. L. Wilbur et al. 7812* (US).

PUERTO RICO. Sierra de Luquillo, 2000 ft, May 1883, *H. F. A. von Eggers s.n.* (BR); Jayuya, Toro Negro State Forest, 17 February 1961, *R. O. Woodbury 4789* (SJ, UPR); Ponce: Toro Negro Forest Reserve, Río Inabón, 1150–1250 m, 23 March 1992, *F. Axelrod & P. Chavez 4308* (UPRRP); same area, beyond the TV tower, 1170 m, 5 November 1995, *C. Luer, J. Luer, J. Ackerman & F. Axelrod 17786* (MO); Río Grande: Luquillo Mts., Mt. Britton, 860 m, 13 May 1991, *J. D. Ackerman & R. Calvo 2691* (UPRRP); Cayey-San Lorenzo, Carite Forest Reserve, 800 m, 4 April 1984, *J. D. Ackerman 1979* (UPRRP); El Verde, 21 April 1963, *R. O. Woodbury s.n.* (UPR).

HAITI. Formond, near Les Cayes, 1000 m, Apr. 1982, *D. Dod 1-41* (SEL).

This relatively frequent species is confined to Puerto Rico, Guadeloupe, Martinique, and neighboring Dominica. A report from Hispaniola is probably a misidentification of the common and variable *Stelis domingensis* Cogn. *Stelis perpusilliflora* is easily identified by the well-developed ramicaul and an elliptical, obtuse, petiolate leaf; usually a few racemes much shorter than the leaf; and very small flowers that do not expand well. The sepals are free nearly to the base, the subacute tips shortly apiculate. The petals are cuneate and broadly truncate; the lip is oblong with the apex triangular and subacute. The hypochile is thick and densely pubescent below the middle.

Stelis pygmaea Cogn., in I. Urban, *Symb. Antill.* 6: 390. 1909. TYPE: GUADELOUPE. Without locality, October 1893, *P. Duss 4182* (Holotype BR). Fig. 19–20.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3–11 mm long, enclosed by 2–3 tubular sheaths. *Leaf* erect, coriaceous, elliptical, obtuse to subacute, shortly petiolate, 10–22 mm long including a petiole 2–3 mm long, the blade 3–5.5 mm wide, narrowly cuneate below into the petiole. *Inflorescence* an erect, distichous to secund, loosely few- to several-flowered raceme with most flowers open simultaneously, 10–35 mm long, including the peduncle 5–10 mm long, subtended by a spathe 1–3 mm long, from below the apex of the ramicaul; floral bracts oblique, tubular, 1–1.25 mm long; pedicels 1–1.5 mm long; ovary 0.75–1 mm long; *sepals* expanded, not expanded, or cleistogamous, subequal, pale green, glabrous, free nearly to a short, sepaline cup, ovate, obtuse, 0.75–1.7 mm long, 0.75–1.7 mm wide, 3-veined; *petals* light green, transversely oblong, shallowly concave, 0.3–0.5 mm long, 0.6–0.8 mm wide, the apex broadly truncate with a flattened, callous, microscopically cellular, margin; *lip* light green, thick, subquadrate, 0.4–0.5 mm long, 0.3–0.4 mm wide, 0.2–0.3 mm deep, the apex broadly rounded-subtruncate, shallowly concave between with the thickened, minutely apiculate margin, the hypochile thick, convex, densely pubescent toward the base, the base broadly truncate, hinged to the base of the column; *column* stout, 0.5 mm long, 0.3–0.5 mm broad, the anther and stigmatic lobes apical.

Etymology: from the Latin *pygmaeus*, “pygmy, little,” referring to the habit.

Additional specimens examined: GUADELOUPE. Basse-Terre, Massif de le Soufriere, Bains Jaunes, 600 m, 26 June 1937, *H. Stehlé 2573* (AMES); without locality, fl. in cult. 29 October 1995, P. Jesup, 1 June 1997, *C. Luer 18520* (MO).

DOMINICA. Sylvania Estate, 549 m, 9–24 August 1938, *W. H. Hodge 391* (AMES); Coffee grove near Laudat, July 1964, *R. L. Wilbur et al. 7510* (US).

ST. VINCENT. Dalaway District, 1000 ft, 2 March 1971, *R. A. Howard, G. R. Cooley & R. E. Weaver 17642* (AMES).

PUERTO RICO. Río Grande, Luquillo, Caribbean National Forest, 19 Apr. 1963, *R. O. Woodbury 4195* (SJ); El Yunque, June 1961, *R. O. Woodbury s.n.* (UPR); Luquillo Forest, 600 m, 3 August 1982, *A. H. & P. Liogier & L. F. Martorell 33320* (NY, UPR); Río Grande, Luquillo Mts., Río Grande, S of El Verde, 27 October 1987, *J. D. Ackerman & A. Montalvo 2417* (UPRRP); same area, 550–600 m, 19 August 1989, *J. D. Ackerman 2625* (UPRRP).

DOMINICAN REPUBLIC. Puerto Plata: Cordillera de Yaroa, near trail to Arroyo del Toro, 800 m, 28 June 1968, *A. H. Liogier 11877* (AMES, NY, US); La Vega: Alto de Casabito, 1400 m, 11 December 1955, *J. Jiménez & L. Ariza J. 3165* (US); Loma “La Cuesta de La Vaca” 1200 m, 20 August 1982, *T. Zanoni et al. 22811* (NY, UPRRP).

HAITI. Dept. du Nord; vicinity of Marmelade, 800 m, 20 December 1925, *E. C. Leonard 8368* (AMES); Citadel, 23 October 1983, fl. in cult. 4 May 1986, *D. Dod s.n.* (MO), C. Luer illustr. 12222.

This tiny, caespitose species occurs in the Lesser Antilles, Puerto Rico, and Hispaniola. Tiny ramicauls less than 1 cm long bear elliptical leaves less than 2.5 cm long and 0.5 cm wide. Ovate sepals form a short cup at the base. Sometimes the flowers are cleistogamous. The petals are broad with a thick, flattened margin. The lip is thick and shallowly concave around a broadly rounded, convex bar within a minutely apiculate margin.

Stelis repens Cogn., in Urb., Symb. Antill. 6: 692. 1910. TYPE: DOMINICAN REPUBLIC. La Vega: near Constanza, 1450 m, June 1910, *H. von Tüerckheim* 3329 (Holotype: BR; Isotypes: AMES, K, US). Fig. 21.

Plant small, epiphytic, long-repent with the rhizome 0.5–1 cm long between ramicauls; roots slender from a node on the rhizome. Ramicauls ascending, slender, 10–13 mm long, enclosed by 2 tubular sheaths. *Leaf* erect, coriaceous, narrowly elliptical, subacute, shortly petiolate, 18–25 mm long including a petiole 3–4 mm long, the blade 5–8 mm wide, narrowly cuneate below into the petiole. *Inflorescence* an erect, subsecund, loosely several-flowered raceme with most flowers open simultaneously, 3–4 cm long, including the peduncle 0.5–1 cm long, subtended by a spathe 2 mm long, from below the apex of the ramicaul; floral bracts oblique, tubular, 1.75 mm long; pedicels 1.25 mm long; ovary 0.6 mm long; *sepals* yellow, incompletely expanded, unequal, glabrous, free nearly to the base, ovate, subacute to obtuse, the dorsal sepal 1.5 mm long, 1 mm wide, 3-veined,

the laterals more or less forward, minutely apiculate, 1.75 mm long, 0.75 mm wide, 3-veined; *petals* yellow, obtuse-subquadrate, truncate, shallowly concave, 0.4 mm long, 0.4 mm wide, 1-veined, the apex broadly truncate with minimal thickening on the margin; *lip* light yellow, thick, trilobed, 0.6 mm long, 0.3 mm wide, 0.2 mm deep, the apex narrowly triangular, obtuse, concave below the junction of obtuse lateral lobes near the middle, the dorsum densely pubescent above the base, the base truncate, hinged to the base of the column; *column* stout, 0.4 mm long, 0.4 mm broad, the anther and stigmatic lobes apical.

Etymology: from the Latin *repens*, “repent,” referring to the habit.

Additional specimens examined: DOMINICAN REPUBLIC. Near Farabacoa, 1250 m, June 1912, *M. Fuertes* 1673 (AMES); Monte Cristi: Monción, Lagunas de Cenobi, 1200 m, 4 June 1929, *E. L. Ekman* 12738 (AMES, S, US). Puerto Plata: Loma del Puerto, 750 m, 18 September 1969, *A. H. Liogier* 15945 (NY, US). Santiago: Pico de Igua, 1490 m, 15 August 1947, *J. Jiménez* 1252 (US). Jarabacoa: Loma de la Sal, 1100–1250 m, *A. H. Liogier* 11423 (AMES, NY, US). Without specific locality, fl. in cult. at J & L Orchids, Easton, CT, May 2001, collected by *C. Head & D. Dod*, *s.n.* (MO), *C. Luer* illustr. 19907.

HAITI. Massif du Nord, Morne Colombeau, 900 m, 20 June 1925, *E. L. Ekman* H-4351 (AMES, K, S, US); Morne la Visite, near Seguin, 2000 m, fl. in cult. in Santo Domingo, 24 March 1982, *D. Dod* *s.n.* (SEL).

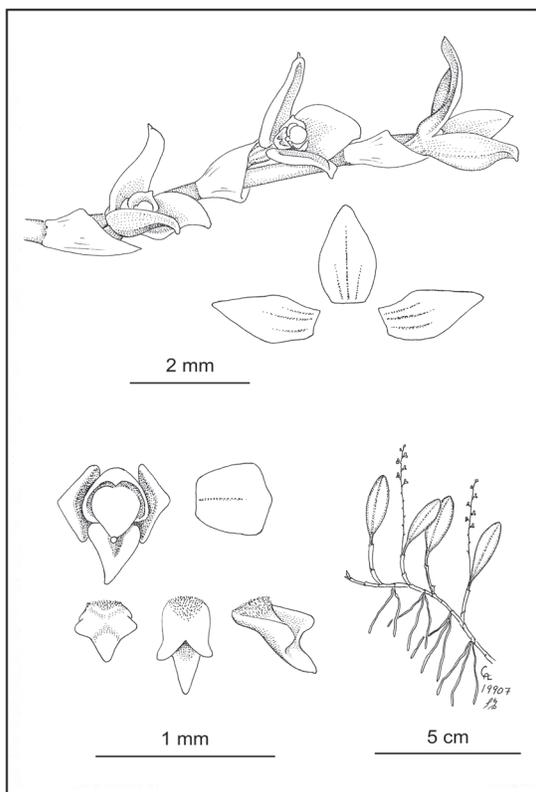


FIGURE 21. *Stelis repens* Cogn.

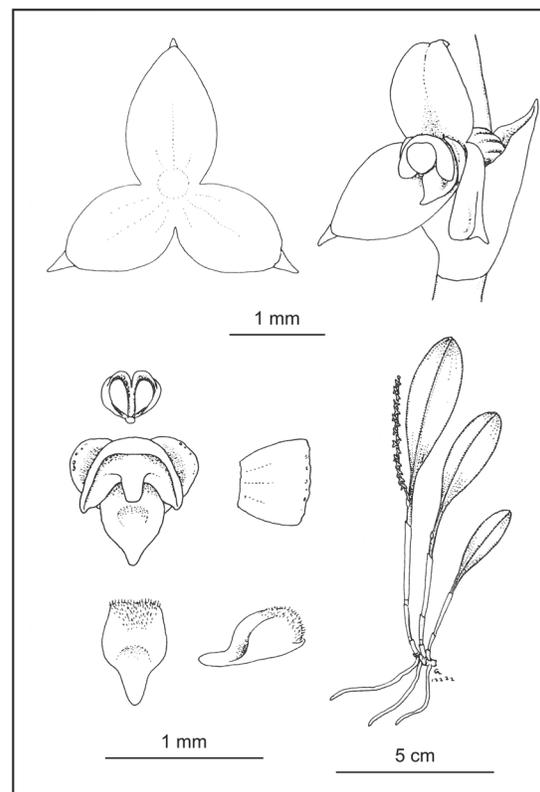


FIGURE 22. *Stelis triapiculata* Dod

This little species is the only distinctly long-repent species of the genus known in the Antilles. A disjunct population is known from southeastern Ecuador. The creeping rhizome is slender and up to one centimeter long between ramicauls. The leaves are narrowly elliptical and shortly petiolate, exceeded by a loosely minutely-flowered raceme of tiny, yellow flowers. The lateral sepals are free and apiculate, but connate basally to the dorsal sepal. The petals are truncate and single-veined. The lip is minute and distinctly trilobed above the middle and densely pubescent above the base.

Stelis triapiculata Dod, Moscosoa 4: 160, 1986. TYPE: HAITI. Massif de la Hotte, Les Cayes, Formond, 2000 m, 8 January 1983, D. Dod 969 (Holotype: JBSD [not located]; Isotypes: AMES [not located], MO, NY [not located], SEL [not located], US [not located]), C. Luer illustr. 12272. Fig. 22.

Plant small to medium in size, epiphytic, shortly ascending to densely caespitose; roots slender. Ramicauls erect, slender, 2.5–8 cm long, enclosed by 3 tubular sheaths. *Leaf* erect, coriaceous, elliptical-obovate, obtuse, petiolate, 3–4.5 cm long including a petiole 5–8 mm long, the blade 0.9–1.6 cm wide, acuminate below into the

petiole. *Inflorescence* an erect, distichous, congested, many-flowered raceme with most flowers open simultaneously, 2.5–4 cm long, including the peduncle less than 1 cm long, subtended by a spathe 3–4 mm long, from below the apex of the ramicaul; floral bracts tubular, oblique, acute, 2 mm long; pedicels 1 mm long; ovary 0.75 mm long; sepals subequal, yellow, glabrous, free nearly to the base, ovate, subacute to acute, apiculate, 1.5 mm long, 1 mm wide, 3-veined; petals obcuneate, truncate, shallowly concave, 0.45 mm long, 0.55 mm wide, 3-veined, the apex broadly truncate without thickening; *lip* thick, oblong-subquadrate, 0.6 mm long, 0.4 mm wide, 0.3 mm deep, shallowly concave below a curved bar, the apex contracted into a narrowly obtuse triangle, the hypochile thick, convex, densely pubescent above the base, the base truncate, hinged to the base of the column; *column* stout, 0.5 mm long, 0.7 mm broad, the anther and stigmatic lobes apical.

Etymology: Latin *triapiculatus*, “triapiculate,” referring to the tips of the sepals.

This species, known only from the Massif de la Hotte in Haiti, is very similar to the frequent *Stelis domingensis*. It is distinguished from it by larger, broader leaves, distinctly apiculate sepals, and a triangular tip of the lip.

EXCLUDED SPECIES

Stelis aprica Lindl., Comp. Bot. Mag. 2: 353. 1836.

This species, of which *S. crassifolia* Lindl. is a synonym, is widely distributed and known to occur in Brazil, Colombia, Ecuador, Peru, Venezuela and possibly in Bolivia (Luer 2009, 2018a), but so far has not been found in the Antilles. Collections from the Andes and the Antilles have been misidentified as *S. aprica* in herbaria and literature.

Lindley (1842) described *Stelis crassifolia* based on a cultivated material by Sir Charles Lemon, an amateur gardener, at Carclew House, Cornwall, England. Unfortunately, no type specimen is preserved in Lindley’s herbarium at Kew, and no other original material has been located. As Luer (2018b) pointed out, the West Indian provenance of Lemon’s collection is incorrect. In *Folia Orchidaceae*, Lindley (1859) provided a description of *S. crassifolia*, citing his 1842 publication and a Colombian

collection by I. F. Holton, and made no reference to Lemon’s collection from the West Indies. It is possible that both specimens had the same source. We hereby select Lemon’s specimen as neotype as follows:

Stelis crassifolia Lindl., Edwards’s Bot. Reg. 28: misc. 9. 1842. TYPE: “Imported from the West Indies in Aug 1841 by Sir C. Lemon” (Holotype: Lost). Neotype here designated: COLOMBIA. Cauca, La Paila, 30 April 1853, I. F. Holton 160 (K; Isoneotype: AMES [72181]).

Stelis pusilla Kunth in F.W.H.von Humboldt, A.J.A. Bonpland & C.S.Kunth, Nov. Gen. Sp. 1: 361. 1816.

The collection identified as being this species in Luer (2014) refers to *S. chabreana*. Therefore, the name *Stelis pusilla* is excluded from the Antillean orchidflora.

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A NEW COMBINATION IN *EUPLOCA* (HELIOTROPIACEAE) ENDEMIC TO THE GALAPAGOS ARCHIPELAGO, ECUADOR

JOSÉ IRANILDO MIRANDA DE MELO¹

Abstract. A new combination in *Euploca* (Heliotropiaceae), *E. asperrima*, endemic to the Galapagos Archipelago, Ecuador, is proposed herein.

Resumen. En este trabajo se propone una nueva combinación en *Euploca* (Heliotropiaceae), *E. asperrima*, una especie endémica del Archipiélago de Galápagos, Ecuador.

Keywords: Boraginales, diversity, flora, nomenclature

The genus *Euploca* (Heliotropiaceae) was proposed by Nuttall (1836) and in its current circumscription, following Diane et al. (2003), also encompasses all the species in *Heliotropium* section *Orthostachys*, as well as the species belonging to the genera *Hilgeria* Förther and *Schleidenia* Endl.

On the basis of Diane et al. (2016), *Euploca* includes about 100 cosmopolitan species. They grow especially in dry zones with centers of taxonomic diversification in Mexico and South America, the later in which it is represented by 33 species. The majority of these (28 spp.) are endemics, corresponding to approximately 85% of all the species, various of them occurring in the Southern Cone (Southern Brazil, Uruguay, Argentina, Chile, and Bolivia). Only one species occurs in Chile (*E. procumbens* (Mill.) Diane & Hilger), and two species are reported from Ecuador, one of them endemic to the Galapagos Archipelago.

Euploca species, vegetatively, are herbs, subshrubs, and rarely shrubs. The leaves are alternate to pseudo-opposite, rarely pseudoterminal, linear to broadly ovate or obovate. Inflorescences are 1-pluribranching, rarely ebracteose (encompassing a small group of species predominantly found in South America, e.g., *E. barbata* (DC.) J. I. M. Melo & Semir, a species restricted to the Caatinga vegetation, in Northeastern Brazil), many-flowered or presenting single flowers as in *E. lagoensis* (Warm.) Diane & Hilger, a species largely distributed in the Neotropics, and *E. parciflora* (Mart.) J. I. M. Melo & Semir, an endemic species from Brazil (Caatinga and Cerrado). Fruit are dry, separating into four 1-seeded mericarps (Diane et al., 2016) adapted to hydrochory (water-dispersed as probably in *E. paradoxa*

(Mart.) J. I. M. Melo & Semir, endemic to Brazil) and myrmecochory (ant-dispersed).

According to The Plant List (2018), *Euploca* currently encompasses only 43 names. This compilation needs updating if the binomials recently transferred to *Euploca* by Feuillet (2016), Luebert and Frohlich (2016), Feuillet and Hasle (2016, 2017), Melo (2017a,b), and Melo and Gonçalves (2018) are to be considered.

Considering the current morphological characterization of *Euploca*, here one species of a *Heliotropium* endemic from South America (Galapagos Archipelago, Ecuador) is transferred to the genus *Euploca* (Heliotropiaceae sensu BWG, 2016; Diane et al., 2016).

Euploca asperrima (Andersson) J.I.M. Melo, *comb. nov.*

Basionym: *Sarcanthus asperrimus* Andersson, Kongl. Svenska Vetensk. Acad. Handl. 1853: 209. 1855. TYPE: ECUADOR. Galápagos, Indefatigable, Santa Cruz, 1852, *N.J. Andersson s.n.* (Holotype: S [06-4203; photograph seen]; Isotypes: BR [0000006966881, photograph seen]; F [0052468; photograph seen]; K [000583561; photograph seen]; GH [00097157; photograph seen], GOET [000383; photograph seen]; L [0003986; photograph seen]; MEL [2438377; photograph seen], P [00610142, photograph seen]).

Homotypic synonyms: *Heliotropium asperrimum* (Andersson) Andersson, Freg. EngeniesRosa Bot.: 86. 1861, *Nom. Illeg., non* R. Br. (1810).

Heliotropium anderssonii B.L. Rob., Proc. Amer. Acad. Sci. 38: 192. 1911, replaced synonym, *non* R. Brown (1810).

Distribution: Ecuador (Galapagos Archipelago).

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NOMENCLATURAL UPDATES IN *VARRONIA* (CORDIACEAE, BORAGINALES) FROM SOUTH AMERICA

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Abstract. Two new combinations in *Varronia* (Cordiaceae, Boraginales) are proposed, both species endemic to Colombia: *V. fuertesii* and *V. ramirezii*.

Resumo. Duas novas combinações em *Varronia* (Cordiaceae, Boraginales) são propostas, ambas as espécies endêmicas da Colômbia: *V. fuertesii* e *V. ramirezii*.

Keywords: Boraginales, Colombia, *Cordia*, nomenclature

The genus *Varronia* P. Browne (Cordiaceae) currently comprises ca. 125 Neotropical species, occurring from the United States (Arizona) to Argentina, mainly in the northern Andean region, Mexico, and Brazil (Miller, 2013). Since it was originally described by Browne (1756), *Varronia* has been treated in various ways: as a subgenus or section of *Cordia* and as a distinct genus. Borhidi et al. (1988) treated *Varronia* and published a list of new combinations. However, until the first decade of the 21st century, floristic works continued treating the species of *Varronia* under *Cordia* sensu lato, for example, Taroda and Gibbs (1986), Vitta (1992), Estrada Sánchez (1995), Melo and França (2003), and Melo and Sales (2005). Recently, morphological and molecular data confirmed *Varronia* as a genus distinct from *Cordia* (Miller and Gottschling, 2007) and belonging to the Cordiaceae family (BWG, 2016).

To update the names in *Varronia*, new combinations were proposed recently by Miller (2007, 2013), Stapf (2010), and Feuillet (2016). However, because of the representativeness of the genus and of Cordiaceae in the Neotropics, the correct names of several taxa of *Varronia* still need to be reevaluated or re-assigned in the genus.

During a taxonomic study of *Varronia* species from South America, we found the need to propose new combinations for two Colombian species that Estrada Sánchez (1995) originally described under *Cordia*, and they

are proposed herein. Tropicos (<http://www.tropicos.org>), JSTOR Global Plants (<https://plants.jstor.org>), and Plants of the World Online (<http://www.plantsoftheworldonline.org/>) were consulted for the protologues and type specimens. The acronyms of herbaria are based on Thiers's Index Herbariorum (Thiers, 2019).

Varronia fuertesii (Estrada) T.S. Silva & J.I.M. Melo, *comb. nov.*

Basionym: *Cordia fuertesii* Estrada, Flora de Colombia 14: 125–127. 1995. TYPE: COLOMBIA. Santander: Mpio de Virolín, 1800 m, 6–12 May 1986, J.L. Fernández, R. Bernal & Estudiantes de Biología 6094 (Holotype: COL [000004050]).

Distribution: Colombia.

Varronia ramirezii (Estrada) T.S. Silva & J.I.M. Melo, *comb. nov.*

Basionym: *Cordia ramirezii* Estrada, Flora de Colombia 14: 147–148. 1995. TYPE: COLOMBIA. Nariño: Road to Buesaco, ca. 10 km NE of Pasto, 2600–2850 m, 11 January 1981, A. Gentry, M. Mulampy, S. Libenson, M. Olson & A. Cogollo 30429 (Holotype: COL [000004059]; Isotype: JAUM [0000142]).

Distribution: Colombia.

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NEW NAMES IN INDONESIAN ORCHIDS

PAUL ORMEROD^{1,2} AND LINA JUSWARA³

Abstract. New names, synonymy, and two new species are proposed for the orchid flora of Indonesia. Thus *Habenaria undatifolia* and *Odontochilus buruensis* are proposed as replacement names; *Dendrobium babiense* is reduced to *D. nycteridoglossum*; *Kalimantanorchis* is found to be a synonym of *Tropidia*, requiring the combination *T. nagamasui*; *Aerides zollingeri* is transferred to *Tuberolabium* with *Saccolabium odoratissimum* as a new synonym; and two new species are proposed, namely, *Dendrobium asahanense* and *Styloglossum morotaiense*.

Keywords: Indonesia, new names, *Dendrobium*, *Habenaria*, *Odontochilus*, *Styloglossum*, *Tropidia*, *Tuberolabium*

This paper is an attempt to address a few taxonomic and nomenclatural problems the authors found during their research on the orchid flora of Indonesia. The flora of Indonesia shows great diversity because of the mixture of climatic conditions, geographic form (large and small islands), and the influence of different floristic zones (Indo-Malaysian and Australasian). An updated enumeration of the Indonesian orchid flora is sorely needed, even though most of the nation has been covered by a patchwork of local treatments, for example, Sumatra (Comber, 2001), Java (Comber, 1990), Maluku and Sulawesi (Thomas and Schuiteman, 2002), and Timor (Silveira et al., 2008). The Lesser Sunda Islands (Lombok, Sumbawa, Flores, and Sumba) are the last major area of Indonesia not covered by any modern floristic treatment. And even those places with some form of floristic census, such as Papua Province, Sulawesi, and Kalimantan, are tropical biodiverse areas from which hundreds of new taxa and records could be expected.

Dendrobium Swartz, Nova Acta Regiae Soc. Sci. Upsal. ser. 2, 6: 82. 1799 *nom. cons.*

Type species: *Dendrobium moniliforme* (L.) Swartz *typ. cons.*

A large genus with about 1600–1800 species distributed from Sri Lanka to Tahiti. Many members of the genus have some horticultural merit, and therefore they are often cultivated. The number of species in Indonesia is uncertain but is probably around 800 taxa. Plants of the genus have quite a variety of vegetative forms, varying from pea-shaped pseudobulbs and pendulous “chandeliers” of terete leaves to leafy canes up to 5 m long. Some species are exclusively terrestrial, but mostly they are epiphytes. The flowers have a column foot that forms a mentum with the lateral sepals, and the labellum is simple to multilobed, often adorned with calli and various keels. The column bears four pollinia.

Dendrobium asahanense Ormerod & Juswara, *sp. nov.*

TYPE: INDONESIA. Sumatra, Asahan, vicinity of Hoeta Bagasan, 7 September 1934 to 4 February 1935, R. Si Boeea 7797 (Holotype: MICH). Fig. 1.

Affinis *D. spathipetalum* J.J. Sm. *sed foliis angustioribus* (5.5 vs. 14.5 mm), *petalis floribus ligulato-oblancoelatis* (vs. *spathulatis*), *lobis lateralibus labello subevolutis* (vs. *evolutis*), *et mentum longioribus* (5.9 vs. 3 mm) *differt*.

Epiphytic (?) *herb.* Roots terete, to 1.5 mm thick. Stems caespitose (?), terete, weakly flexuous, laxly 7–9 leaved, 33.5 cm long, 0.2 cm thick. Leaves linear-lanceolate, apex strongly unequally subacutely bilobulate (lobules 0.5–4.5 mm long), thinly coriaceous, 62–90 × 4.5–5.5 mm. Inflorescence axillary, slender, flexuous; peduncle 3 mm long; rachis 3–4 flowered, 7 mm long; floral bracts ovate, acute, to 2 mm long. Flower color unknown. Pedicel with ovary clavate, 10 mm long. Dorsal sepal ovate-lanceolate, acute, 5 veined, 10.0 × 3.5 mm. Lateral sepals obliquely oblong-lanceolate, acute, 5 veined, ca. 10.9 × 7.0 mm; forming with the column foot a retrorse, narrowly conical, subacute, mentum to 5.9 mm long. Petals ligulate-oblancoelate, acute, 3 veined, upper half with minutely irregularly papillose margins, 9 × 2 mm. Labellum trilobed, ca. 14.75 × 4.20 mm; hypochile oblong-oblancoelate, each side ending in a short, triangular sidelobe, 10.5 × 4.2 mm; main carinae 2, rounded, farinose (except at clavate apices), extending from base of hypochile to base of epichile, a third carina interposed between the apices of the outer 2; epichile elliptic-oblong, obtuse, rigid, rugulose, sides upcurved (between which a single thick carina), 4.25 × 2.50 mm. Column semiterete, each side with an obliquely ovate, acute to subacute stolid, ca. 3.8 mm long; anther cap subglobose, bilobulate, front finely papillose.

Distribution: Indonesia (Sumatra).

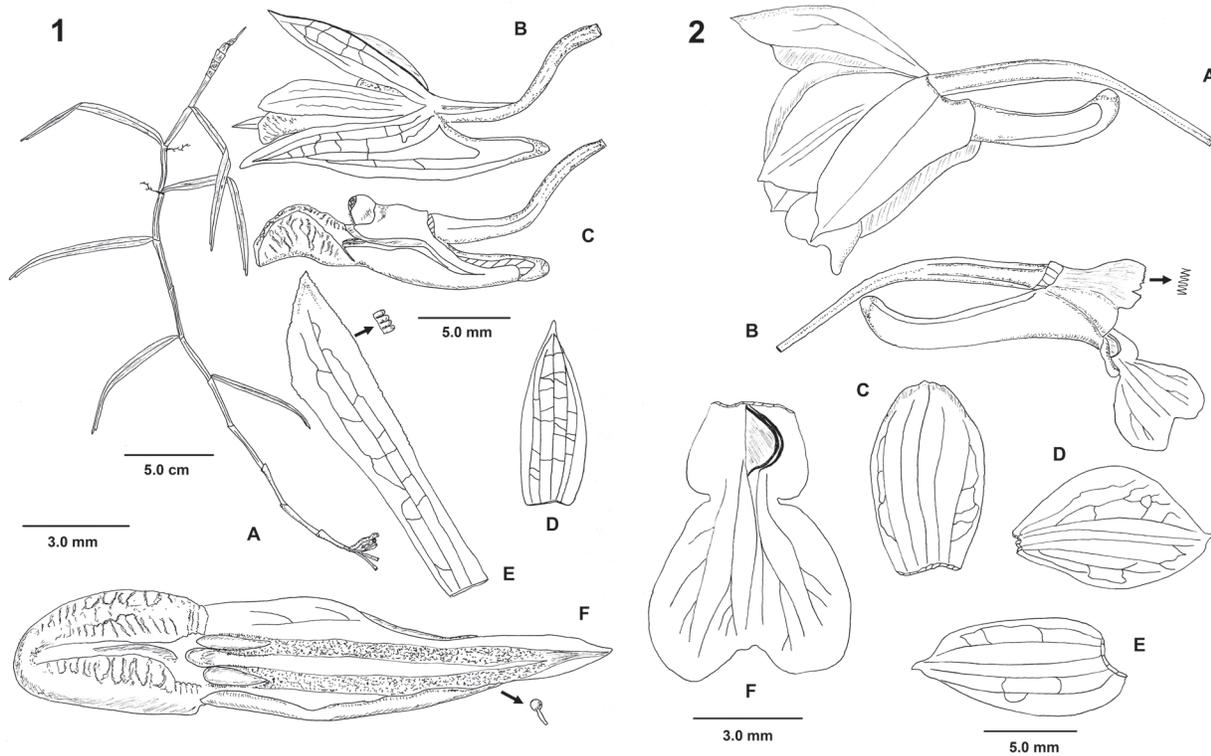
Etymology: named after the former Sultanate of Asahan, the type locality.

We wish to thank the curators of AMES and BO for giving us access to the collections under their care. MICH kindly loaned material for study. Norbert Holstein located and imaged the isosyntype of *Platanthera undulata* at BM and graciously made an image available. Curators at Vienna (W) also kindly checked their institution for type material of *Aerides zollingeri*.

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FIGURES 1–2. 1, *Dendrobium asahenense* Ormerod & Juswara. **A**, plant; **B**, flower; **C**, flowers minus tepals; **D**, dorsal sepal; **E**, petal (with an arrow indicating the irregularly papillose margin); **D**, dorsal sepal; **E**, petal; **F**, labellum (with an arrow indicating a glandular trichome from the keel). Drawn from the holotype. 2, *Styloglossum morotaiense* Ormerod & Juswara. **A**, flower; **B**, flower minus tepals (with an arrow indicating the minutely denticulate margin); **C**, dorsal sepal; **D**, petal; **E**, lateral sepal; **F**, labellum. Drawn from the holotype.

This species is a member of section *Distichophyllae* J.D. Hook., a group that is distributed from Myanmar to New Caledonia but best represented in Indonesia. It is related to *D. spathipetalum* J.J. Sm. from Indonesian Borneo but differs in having much narrower leaves, flowers with ligulate-oblongate (vs. spatulate) petals, a longer mentum, and much smaller sidelobes on the hypochile, which has three (not two) keels.

Dendrobium nycteridoglossum Rchb.f., Gard. Chron. n.s. 26: 616. 1886.

TYPE: "PAPUAN." *Cult. Messrs. Linden s.n.* (Holotype: W-R 40406, image seen).

Homotypic synonym: *Aporum nycteridoglossum* (Rchb.f.) Rauschert, Rep. Sp. Nov. Regni Veg. 94: 441. 1983.

Heterotypic synonyms: *Dendrobium babiense* J.J. Sm., Bot. Jahrb. Syst. 48: 98. 1912 *syn. nov.*

TYPE: INDONESIA. Kalimantan: Schwaner Range, Batu Babi, July 1908, *H. Winkler 2804* (Holotype: B, destroyed).

Aporum babiense (J.J. Sm.) Rauschert, Rep. Sp. Nov. Regni Veg. 94: 438. 1983.

Distribution: Malaysia (Terengganu, Sarawak, Sabah); Indonesia (Kalimantan).

This species is a member of section *Aporum* Blume, which in the narrow sense can be recognized by its slender,

wiry stems that have fleshy, laterally compressed, and ensiform to triangular leaves. The flowers are small and usually produced on the upper parts of the stems from nodes covered with small chaffy bracts. *Dendrobium nycteridoglossum* belongs to a group within section *Aporum* that produces a terminal leafless section (sometimes called a "pseudoraceme") from which the flowers appear from various nodes. It is further distinguished from its relatives by its distinctive "bat-shaped" lip, hence the rather appropriate name. The later *D. babiense* is identical to *D. nycteridoglossum* and therefore must be reduced to its synonymy. A full account of the species under the former named can be found in Wood (2014).

Habenaria Willd., Sp. Pl. ed.4, 4: 5, 44. 1805.

Type species: *Habenaria macroceratitis* Willd. (= *Orchis habenaria* L.).

In its current circumscription a genus of about 900 species distributed throughout the world except in the Arctic regions. The plants occupy a variety of terrestrial habitats from grasslands to montane forests. The plants often arise annually from tubers, with the leaves forming a rosette at various heights above the ground, or with leaves scattered along the stem. The inflorescence is terminal, few to many flowered, the flowers in shades of white to green, sometimes yellows and oranges. The flower structure is somewhat

complicated in that the pollinia are contained in thecae on each side of the column. The lip is entire to intricately fimbriate, and nearly always spurred.

Habenaria undatifolia Ormerod & Juswara, *nom. nov.*

Basionym: *Platanthera undulata* J.J. Sm., *Orch. Java*: 27. 1905.

TYPE: INDONESIA. Java: Mt. Salak, *C.L. Blume 2303* (Syntype: L, image seen); Slamet, near Djedjek, *H. Zollinger 695* (Syntype: L; Isosyntype: BM, images seen).

Homotypic synonyms: *Habenaria undulata* (J.J. Sm.) J.J. Sm., *Bull. Jard. Bot. Buitenz. s.2*, 14: 10. 1914 *nom. illeg.* (non Frapp. ex Cordem. 1895).

Peteilis undulata (J.J. Sm.) Schltr., *Rep. Sp. Nov. Regni Veg.* 21: 120. 1925.

Distribution: Indonesia (Java).

Etymology: from the Latin *unda*, wave, and *folium*, leaf, in reference to the wavy margins of the leaves.

Because the name *Habenaria undulata* had already been used for a species from Reunion, we have coined a new epithet for the Javanese plant. The syntype collection *Blume 2303* (L) has the name "*Perystylis arcuata*" in Blume's handwriting on it. As far as we can ascertain, it is a name he never published.

Odontochilus Blume, *Coll. Orch. Arch. Ind.*: 79. 1858; *Fl. Javae Ins. Adj. n.s.* 1: 66. 1858.

Type species: *Anoectochilus flavescens* Blume.

A genus of Goodyerinae with about 55–60 species distributed from India to Samoa, and one isolated taxon on Hawai'i. About 20 species have so far been found in Indonesia. *Odontochilus* now includes several former genera such as *Cystopus* Blume, *Ervardia* Gagnep., *Ervardianthe* Rauschert, *Myrmechis* (Lindl.) Blume, *Pristiglottis* Cretz. & J.J. Sm., *Tubilabium* J.J. Sm., and *Vexillabium* F. Maekawa.

One new name is required for a rare Moluccan taxon because of prior homonymy.

Odontochilus buruensis Ormerod & Juswara, *nom. nov.*

Basionym: *Tubilabium aureum* J.J. Sm., *Bull. Jard. Bot. Buitenz. s.3*, 9: 446. 1928.

TYPE: INDONESIA. Maluku Prov., Buru, Fakal Tat Kotim, 1475 m, 11 March 1922, *L.J. Toxopeus s.n.* (Holotype: L, image seen).

Homotypic synonyms: *Myrmechis aurea* (J.J. Sm.) Schuiteman, *Blumea* 41, 2: 401. 1996.

Odontochilus aureus (J.J. Sm.) Yukawa, *Bull. Natl. Mus. Nat. Sci. (Tokyo)*, ser. B, 42, 3: 106. 2016 *nom. illeg.* (non Averyanov 2015).

Distribution: Indonesia (Maluku).

Etymology: named after the island of Buru, the type locality.

As noted above it is necessary to propose a new name for this plant if it is to be treated as a member of the genus *Odontochilus*. The prior entity, the Vietnamese *O. aureus* Averyanov, is probably better placed in *Rhomboda* Lindl.

Styloglossum Breda, *Gen. Sp. Orch. Asclep.*, fasc. 2: t.7. 1829. Type species: *Styloglossum nervosum* Breda.

A genus of about 50 primarily terrestrial plants formerly included in *Calanthe* R. Br., which are distributed from India to Samoa. Their preferred habitat seems to be on the floors of montane forests. They may be distinguished from *Calanthe* by having glabrous inflorescences and usually (rarely not) caducous floral bracts. The flowers are most often in shades of white and yellow. The labellum is spurred basally, usually adorned with lamellae above, and joined to the sides of the column.

Styloglossum morotaiense Ormerod & Juswara, *sp. nov.*

TYPE: INDONESIA. North Maluku Prov., Morotai, Gunung Pare 2, 1000 m, 27 May 1949, *A. Kostermans 1201* (Holotype: AMES). Fig. 2.

Affinis S. rutenii (J.J. Sm.) Yukawa & Cribb *sed lobis lateralibus labello obliquis oblongis (vs. late ovatis) et lamellae callus semicircularis (vs. triangularis) differt.*

Common, scattered, terrestrial (?) *herb.* *Rhizome* terete, ca. 5–6 mm thick. *Roots* terete, pubescent, numerous, to 2.5 mm thick. *Stems* very short, 4 leaved, 2–4 cm apart. *Leaves* ligulate-oblongate, acute, plicate, with 5 main veins and up to 8 lesser veins, petiolate, blade 24.5–51.0 × 2.6–4.5 cm; petiole 15.0–17.5 cm long. *Inflorescence* basal, 42.3 cm long; peduncle 23.6 cm long, ca. 0.5 cm thick; rachis densely many-flowered, 18.7 cm long; floral bracts not seen. *Flowers* white, underside yellow. *Pedicel with ovary* clavate, 15 mm long. *Dorsal sepal* elliptic, subacute, 5 veined, 9.5 × 6.0 mm. *Lateral sepals* obliquely ovate-elliptic, subacuminate, 5 veined, 11.0 × 5.0–5.5 mm. *Petals* widely ovate-elliptic, acute, 5–7 veined, 10.0 × 6.5 mm. *Labellum* trilobed, spurred, joined to column for 4.5 mm, free part of blade 5.5–6.1 mm long; spur narrowly infundibuliform-terete, obtuse, weakly recurved, 9 mm long; hypochile (free part) broadly obovate, each side with obliquely oblong, obtuse sidelobes, 1.9 × 2.8–2.9 mm, each sidelobe ca. 0.8–0.9 mm wide; callus of 2 semicircular, closely parallel lamellae placed between the sidelobes; epichile obovate-cuneate, apex emarginate, 3.75–4.30 × 5.10 mm, base ca. 1.8 mm wide. *Column* somewhat infundibuliform, in lateral view the apex appearing trilobed, 4.75 mm long, 2.75 mm wide laterally; clinandrium with minutely denticulate margins.

Distribution: Indonesia (North Maluku).

Etymology: named after the type locality, the island of Morotai.

This new species is related to *Styloglossum rutenii* from the island of Seram in Maluku Province. It differs in having in flowers in which the labellum sidelobes are longer than broad (vs. ovate, subacute, patent, as long as broad), semicircular (vs. triangular) labellum lamellae, and trilobed (vs. bilobed) sides of the column apex.

Our figure presents only a floral analysis because, unfortunately, the vegetative parts of the type were too intricately folded to present a useful illustration. The habit is in any case identical to *Styloglossum rutenii*, which was magnificently illustrated by Matsuko Nakajima in Clayton and Cribb (2013).

Tropidia Lindl., Edwards's Bot. Reg. 19: sub t.1618. 1833.
Type species: *Tropidia curculigoides* Lindl.

Heterotypic synonym: *Kalimantanorchis* Tsukaya, M. Nakajima & H. Okada, Syst. Bot. 36, 1: 52. 2011 *syn. nov.*

Type species: *Kalimantanorchis nagamasui* Tsukaya, M. Nakajima & H. Okada.

Tropidia is a genus of about 30 species distributed from Sri Lanka and India to Samoa, with one or two species in the New World (Ormerod, 2018). Some species resemble small palm seedlings (e.g., taxa related to *T. curculigoides* Lindl.), others form a pseudostem whereby each stem (topped by a pair of leaves) is superposed one on top of the other (e.g., taxa related to *T. hegderaoi* S. Misra), and still another group are mycoheterotrophic herbs without leaves. The latter group is restricted to Borneo, where one member was described as a new genus and species, *Muluorchis ramosa* J.J. Wood (= *T. saprophytica* J.J. Sm.).

Kalimantanorchis is a small-flowered mycoheterotrophic plant that was compared with *Tropidia* but said to differ in having thick, short roots and bearing tubers. *Tropidia* species conversely have elongate roots and do not bear tubers. However, the latter differences were completely negated by the discoveries of Kikuchi and Tsukaya (2017), who found that the mycoheterotroph *T. connata* J.J. Wood & Lamb produces short roots and subterranean tubers.

Thus we reduce *Kalimantanorchis* to *Tropidia*, since it is no longer vegetatively different; it also agrees with the latter in having dark, scurfy pubescence on the flowers, a labellum with a bisaccate base (a feature of the unspurred species), and an intramarginal labellum ridge (lamellate in some taxa) on each side. The sole remaining difference is that *Kalimantanorchis* is said to have four pollinia, whereas *Tropidia* has two. However, the two pollinia of *Tropidia* are bipartite and could be interpreted as four; we believe this to be the case with *Kalimantanorchis*.

Tropidia nagamasui (Tsukaya, M. Nakajima & H. Okada) Ormerod & Juswara, *comb. nov.*

Basionym: *Kalimantanorchis nagamasui* Tsukaya, M. Nakajima & H. Okada, Syst. Bot. 36, 1: 52. 2011.

TYPE: INDONESIA. West Kalimantan, Betung Kerihun National Park, near Sungai Parii, ca. 380 m, 4 January 2010, H. Okada, H. Nagamsu & H. Tsukaya 31 (Holotype: BO, spirit).

Distribution: Indonesia (West Kalimantan).

Tropidia nagamasui has the smallest flowers in the genus

(sepals 2.0–2.7 mm long); however, *T. namasiae* C.K. Liao, T.P. Lin & M.S. Tang from Taiwan, Thailand, and India has sepals 3.5–5.0 mm long. Other taxa such as *T. curculigoides* can have sepals to 14 mm long, though the average in the genus seems to be 7–11 mm long.

Tuberolabium Yamamoto, Bot. Mag. (Tokyo) 38: 209. 1924.

Type species: *Tuberolabium kotoense* Yamamoto.

Tuberolabium is a showy genus of nine, relatively small-flowered, monopodial epiphytes (Kocyan and Schuiteman, 2014). The plants produce pendent, many-flowered inflorescences of relatively long-lasting flowers (up to several weeks). They are occasionally cultivated in specialist orchid collections.

Tuberolabium zollingeri (Rchb.f.) Ormerod & Juswara, *comb. nov.*

Basionym: *Aerides zollingeri* Rchb.f., Bonplandia 5: 40. 1857.

TYPE: INDONESIA. Java, Bandung Province, H. Zollinger 897 (Holotype: lost).

Heterotypic synonyms: *Saccolabium odoratissimum* J.J. Sm., Orch. Java: 645. 1905 *syn. nov.*

TYPE: INDONESIA. Java, Tjikorai, Goentoe, M. Raciborski *s.n.* (Syntype: BO, not found); Djolotigo, Pekalongan, J.J. Smith *s.n.* (Syntype: BO, not found). *Tuberolabium odoratissimum* (J.J. Sm.) Garay, Bot. Mus. Leaflet Harv. Uni. 23, 4: 210. 1972.

Parapteroceras odoratissimum (J.J. Sm.) J.J. Wood, Nord. J. Bot. 10, 5: 485. 1990.

Distribution: Indonesia (Java, Flores, Sumbawa).

Aerides zollingeri has been neglected by workers on the Javanese flora because of the brief description and the inability to locate type material. However, Reichenbach's brief diagnosis encapsulates several critical characters that allow the plant described to be identified. Thus the narrow leaves (ca. 12.5 × 0.8 cm), multiflowered inflorescence, lip with falcate lateral lobes, bidentate callus on the midlobe, and extincitoriform spur allow for the identification of this plant with *Tuberolabium odoratissimum*.

As noted by Comber (1990) under the name *Tuberolabium odoratissimum*, this species can often be detected before it is seen because of the very fragrant flowers. Unfortunately we have not been able to locate type material of *Saccolabium odoratissimum* in either the dried or spirit collections of BO or L.

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NEW TAXA OF *MECONOPSIS* (PAPAVERACEAE) FROM WANBA, SOUTHWESTERN SICHUAN, CHINA

TOSHIO YOSHIDA¹

Abstract. Two taxa of *Meconopsis*, growing on metalliferous mountains adjacent to Wanba (湾坝) valley, Jiulong Xian (九龙县), southwestern Sichuan, China, are described as new and accompanied by photographs. The first taxon, *M. wanbaensis*, is distinguished from related species by such unique features as the prominently undulate petals and obconical style. The second taxon, *M. pulchella* var. *melananthera*, is distinguished from var. *pulchella* by features of the anthers and bristles.

Keywords: *Meconopsis integrifolia* subsp. *souliei*, *Meconopsis lijiangensis*, *Meconopsis pulchella*, Wanba, Jiulong

The author visited the mountains around Wanba valley, southwestern Sichuan, in June 2017, on the basis of information and photographs from Yuhong Liu (刘渝宏) of two taxa of *Meconopsis* in flower and in fruit. After comparing the plants and related taxa, it was determined that they represent two new taxa, *M. wanbaensis* and *M. pulchella* var. *melananthera*, which are described below.

Meconopsis wanbaensis T. Yoshida, *sp. nov.* TYPE: CHINA. SW Sichuan: Jiulong Xian, east of Wanba Xiang (湾坝乡), 29°03'30"N, 102°04'48"E, 3600 m, 16 June 2017, T. Yoshida K111 (Holotype: KUN; Isotype: TI). Fig. 1–6.

Meconopsis wanbaensis resembles *M. integrifolia* (Maxim.) Franch. subsp. *souliei* (Fedde) Grey-Wilson and *M. lijiangensis* (Grey-Wilson) Grey-Wilson but differs from them in the prominently undulate petals, the filaments dilated toward the apex, the ellipsoid anthers with incurved thecae, and the obconical style.

Herbs, monocarpic, 30–50 cm tall in flower, to 70 cm tall in fruit. *Taproot* firm and flexible, narrowly elongate, to 8 cm long or more, 2–3 mm across, sometimes with 2–8 narrower and shorter roots clustered near transition to stem. *Most parts of plant* with dense soft spreading hairs; hairs buff colored, to 7 mm long. *Stem* (below lowermost bract) simple, 6–26 cm long, 6–10 mm across. *Leaves* crowded near base of plant, petiolate; petiole broadly linear, 5–12 cm long, 1.5–3 mm wide; lamina oblong or oblanceolate (small leaves elliptic), 2–11 cm long, 7–22 mm wide, base attenuate, margin entire, sometimes wavy, apex obtuse or acute. *Bracts* usually pseudo-whorled, occasionally alternate below pseudo-whorled ones, sessile; lamina linear-oblong or oblanceolate, base attenuate, margin entire, occasionally wavy, apex acute, acuminate, or obtuse. *Flowers* 2–7, bracteate, laterally facing or half nodding, dish or bowl shaped, 4.5–10 cm across. *Pedicels* 5–18 cm long in flower, to 35 cm long in fruit. *Calyx* 1.7–2.2 cm long. *Petals* (5–)6–11, pale yellow, obovate, broadly obovate or elliptic, 2.5–5 cm long, 1.3–4 cm wide, base cuneate, margin entire or irregularly denticulate near apex, always prominently

undulate except near base, apex obtuse or rounded. *Stamens* numerous; filaments similar to petals in color, linear, 8–15 mm long, dilated to 1 mm wide toward apex, grooved along midvein (vascular bundle); anthers ellipsoid, 1.2–2.4 mm long; thecae bright orange, incurved. *Ovary* ellipsoid, 6–12 mm long, with dense ascending hairs. *Style* yellowish green, obconical, 2–5 mm long, with 2–6 prominent ridges; ridges gradually more pronounced toward apex. *Stigma* yellowish green, with 4–6 lobes (rays); lobes oblong, 2.5–6 mm long, spreading over ridges of style, with dense short hairs on periphery. *Capsules* narrowly ellipsoid, 1.5–2.5 cm long, 5–8 mm across, with dense or sparse spreading hairs.

Distribution: CHINA, southwestern Sichuan: Wanba valley, Jiulong Xian, 3500–4050 m elevation. As far as is known, *Meconopsis wanbaensis* is endemic to Wanba valley.

Habitat: northwest-, west-, and southwest-facing slopes on metalliferous mountains; growing with other herbs and grasses on alpine slopes, on the lower margins of thickets and on steep slopes; rooting in wet gravelly humus soil.

Meconopsis pulchella T. Yoshida, H. Sun & D. E. Boufford var. ***melananthera*** T. Yoshida, *var. nov.* TYPE: CHINA. SW Sichuan: Jiulong Xian, east of Wanba Xiang (湾坝乡), 29°03'23"N, 102°04'43"E, 3550 m, 16 June 2017, T. Yoshida K110 (Holotype: KUN; Isotype: TI). Fig. 7–10.

Meconopsis pulchella var. *melananthera* differs from var. *pulchella* in the black anthers (not black in the latter) with dull orange margins, the bristles without a thick, blackish base (often with thick, blackish base in the latter), and the purple petals (magenta-purple in the latter).

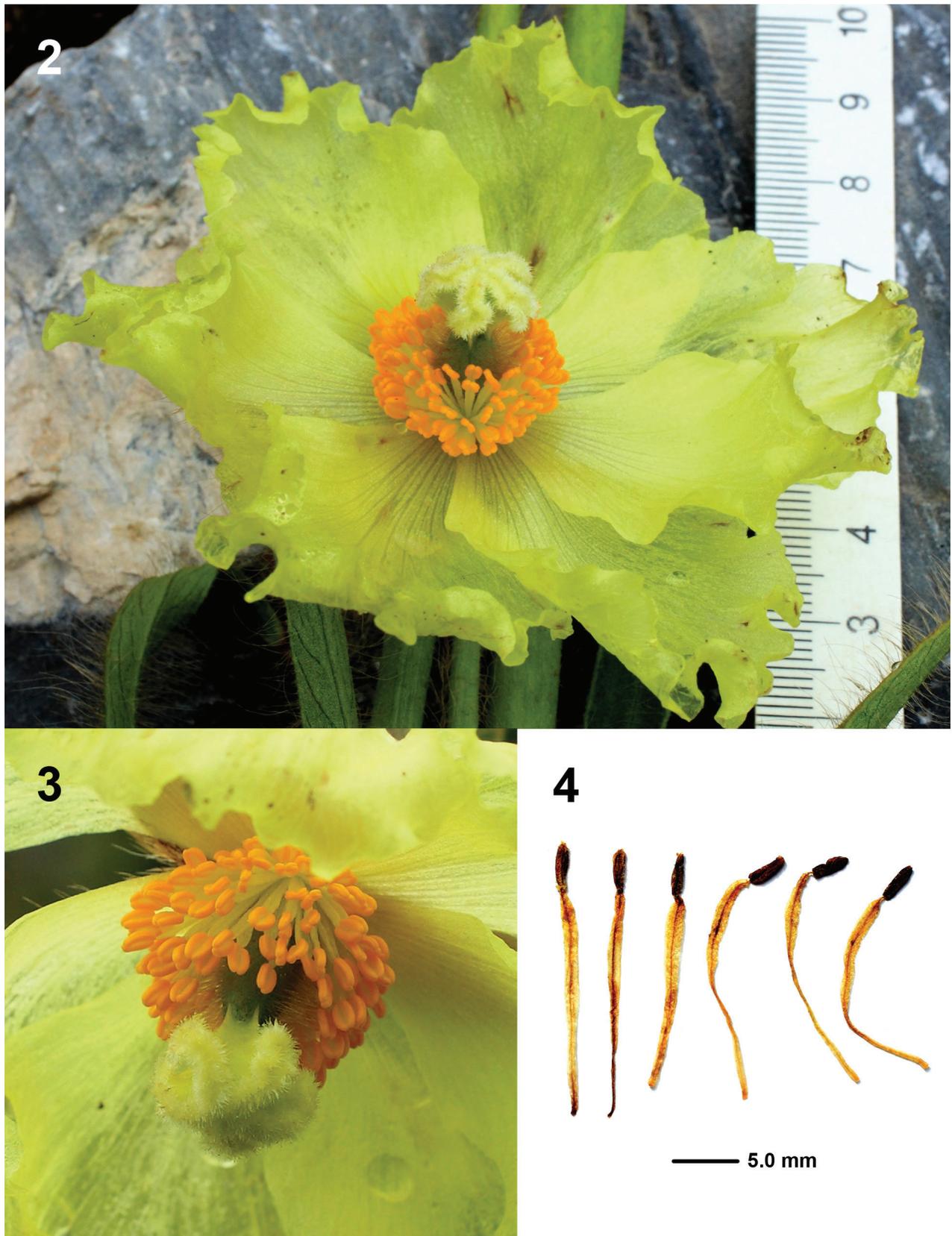
Herbs, monocarpic, 6–17 cm tall in flower, to 20 cm tall in fruit. *Taproot* elongate, to 4 cm long or more, 2.5–5 mm across. *Most parts of plant* bristly. *Stem* (below uppermost leaf) simple, 5–15 mm long. *Leaves* crowded on short stem, petiolate; petiole linear, 1–4 cm long, 0.8–2 mm wide; lamina ovate, elliptic, oblong, or oblanceolate, 1.2–6 cm long, 5–20 mm wide, base cuneate, attenuate, or rounded, margin entire, occasionally 2- to 4-toothed

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FIGURE 1. *Meconopsis wanbaensis* T. Yoshida at the type locality. Photograph by T. Yoshida, June 16, 2017.



FIGURES 2–4. 2–3, *Meconopsis wanbaensis* T. Yoshida at the type locality. Photograph by T. Yoshida, June 16, 2017; 4, *Stamens* of *Meconopsis wanbaensis* T. Yoshida from plants collected at the type locality on June 16, 2017. Photographs by T. Yoshida.



FIGURE 5. Fructing plant of *Meconopsis wanbaensis* T. Yoshida at the type locality. Photograph by T. Yoshida, June 17, 2017.



FIGURE 6. Young fruit of *Meconopsis wanbaensis* T. Yoshida at the type locality. Photograph by T. Yoshida, June 17, 2017.



FIGURE 7. *Meconopsis pulchella* T. Yoshida, H. Sun & D. E. Boufford var. *melananthera* T. Yoshida at the type locality. Photograph by T. Yoshida, June 16, 2017.



FIGURES 8–9. *Meconopsis pulchella* T. Yoshida, H. Sun & D. E. Boufford var. *melananthera* T. Yoshida at the type locality. Photograph by T. Yoshida, June 16, 2017.



FIGURE 10. *Meconopsis pulchella* T. Yoshida, H. Sun & D. E. Boufford var. *melananthera* T. Yoshida at the type locality. Photograph by Y. Liu, February 4, 2017.

or crenulate, apex obtuse, acute, or acuminate, upper surface moderately bristly, lower surface sparsely bristly. *Inflorescence* scapose with (2 or)3 or 4(or 5) flowers; scape 6–15 cm long, 1.5–2.5 mm across, densely or moderately covered with patent bristles; bristles rather hard, tinged pale brown, brown, or reddish brown, to 2.5–5 mm long. *Flowers* usually laterally facing, occasionally half nodding, opening flat or dish shaped in fine weather, 3–4.5 cm across. *Calyx* 8–11 mm long. *Petals* 4 or occasionally 5(or 6), deep purple or purple, ovate, broadly ovate, rhombic, rounded, or elliptic, 1.5–2.5 cm long, 1–2.5 cm wide, margin often irregularly denticulate near apex, apex obtuse, acute, or rounded. *Stamens* numerous; filaments similar to petals in color, filiform, 4–7 mm long; anthers black with dull orange margins, ellipsoid, 0.8–1.2 mm long. *Ovary* pale green,

ovoid, 3.5–6 mm long, with dense ascending bristles. *Style* pale green or whitish, 2–3.5 mm long in flower, to 5 mm long in fruit. *Stigma* capitate, 1–1.8 mm across, with 4–6 lobes (rays). *Capsules* cylindrical or narrowly obovoid, 1.5–2.5 cm long, 5–7 mm across, covered with patent bristles or occasionally glabrescent.

Distribution: CHINA, southwestern Sichuan, Wanba valley, 3500–3650 m elevation. As far as is known, *Meconopsis pulchella* var. *melananthera* is endemic to metalliferous mountains in this valley in Jiulong Xian, southwestern Sichuan, China.

Habitat: on northwest-facing steep slopes of metalliferous mountains with thick cover of mosses, other herbs, and grasses, sometimes on the lower margins of thickets; rooting in wet humus among rocks.

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REVISION OF *MECONOPSIS INTEGRIFOLIA* VAR. *UNIFLORA* (PAPAVERACEAE)

TOSHIO YOSHIDA,^{1,2} BO XU,³ AND DAVID E. BOUFFORD⁴

Abstract. *Meconopsis integrifolia* var. *uniflora* is raised to the rank of species with the name *M. uniflora*. An emended diagnosis, distribution information, description, habitat details, and explanatory photographs are provided.

Keywords: *Meconopsis integrifolia*, *Meconopsis pseudointegrifolia*, Haba Xueshan, Baima Xueshan, Xianggelila, Dêqên, Yunnan

Fruiting specimens of *Meconopsis integrifolia* (Maxim.) Franch. var. *uniflora* C. Y. Wu & H. Chuang were first collected on 25 August 1937, by K. M. Feng (冯国楸) on Haba Xueshan (哈巴雪山), Xianggelila Xian (香格里拉县; “Zhongdian Xian”), northwestern Yunnan (Fig. 1), then again on 7 September 1962 by the Zhongdian Team (中甸队) at the same locality as the first collection at 4350–4450 m elevation. On Haba Xueshan, the vertical zone above 4350 m comprises an area of calcareous rocky slopes around the highest peak of the mountain. Although no flowers were available, C. Y. Wu (吴征镒) and H. Chuang (庄璇) described the plant as a new variety (var. *uniflora*) of *M. integrifolia* in *Flora Yunnanica* (云南植物志), Vol. 2, p. 28 (1979).

In his monumental monograph of the genus, Grey-Wilson (2014) divided the conglomerate species *Meconopsis integrifolia* in the concept of G. Taylor (1934) into four species: *M. integrifolia* (Maxim.) Franch., *M. pseudointegrifolia* Prain, *M. sulphurea* Grey-Wilson, and *M. lijiangensis* (Grey-Wilson) Grey-Wilson. Grey-Wilson (2014) treated *M. integrifolia* var. *uniflora* as a synonym of *M. pseudointegrifolia*.

In 2017, B. Xu (徐波), one of the present authors, observed a dwarf yellow poppy in flower (12 July) and in fruit (5 October) on the calcareous scree of Baima Xueshan (白马雪山), Dêqên Xian (德钦县), northwestern Yunnan, at 4897 m elevation. Although the locality is some 120 km northwest of Haba Xueshan, our collaborative studies have determined the plants to be identical to *Meconopsis integrifolia* var. *uniflora* on Haba Xueshan. They share such features in common as the subscapose inflorescence with solitary flowers and shape and hairiness of the fruits. The ellipsoid fruiting capsules are rounded at both ends, reminiscent of the shape of a kiwi fruit. Persistent reddish brown hairs cover the fruiting capsules, which have short styles and relatively large stigmas that remain at maturity. Through the newly obtained information on the flowers from living plants, photographs, and specimens, we determined that *M. integrifolia* var. *uniflora* should be recognized as a distinct species from the related *M. pseudointegrifolia* in several features, as described below.

Meconopsis uniflora (C. Y. Wu & H. Chuang) T. Yoshida, B. Xu & D. E. Boufford, *stat. nov.* Fig. 1–6.

Basionym: *Meconopsis integrifolia* (Maxim.) Franch. var. *uniflora* C. Y. Wu & H. Chuang, *Flora Yunnanica* 2: 27 (1979). TYPE: CHINA. NW Yunnan: Zhongdian [Xianggelila] Xian, Haba Xueshan, 25 Aug. 1937, K. M. Feng 2195 (Holotype: KUN; Isotype: A).

Meconopsis uniflora differs from the related *M. pseudointegrifolia* Prain in the usually solitary flowers (usually 3- to 6-flowered in the latter), pale lemon yellow petals (yellow in the latter), abaxial surface of the petals covered with dark hairs except on the periphery (usually not hairy in the latter), stamens usually spreading together (radiating in the latter), style to 4 mm long (to 7 mm long in the latter), stigma to 11 mm across (to 7 mm across in the latter) and stigma lobes ca. 2 mm wide (ca. 1 mm wide in the latter), midvein prominently grooved on upper leaf surface (not prominently grooved in the latter) and broadened at the apex (scarcely broadened at the apex in the latter).

Herbs, monocarpic, 10–25 cm tall in flower, to 35 cm in fruit. *Taproot* elongate, 4–8 cm long, 5–7 mm across, abruptly enlarged at crown. *Most parts of plant* with dense soft spreading hairs; hairs to 8 mm long. *Stem* (below pseudo-whorl of bracts) simple, 1–6 cm long, 6–9 mm across in flower, to 10 cm long, 12 mm across in fruit. *Leaves* crowded near base, somewhat thick; petiole broadly linear, 2–4 cm long, 2–3 mm wide; lamina obovate, elliptic, oblong, or oblanceolate, 2–6 × 0.7–1.5 cm, base attenuate, margin entire, apex obtuse or acute, both surfaces with 3 visible parallel veins running from base toward apex, with dense pale greenish yellow hairs. *Inflorescence* subscapose, with solitary flowers, rarely with additional small flower; pseudo-whorled bracts 4–7, sessile or short petiolate, lamina linear-oblong, 2.5–4 cm long, 3–8 mm wide. *Flowers* half nodding or laterally facing, rarely upright, cup- or parabola-shaped, 5–8 cm across. *Pedicel* (scape) 7–15 cm long, 4–7 mm across in flower, to 22 cm long, 8 mm across in fruit, abruptly thickened at apex, with dense brownish hairs. *Calyx* unknown. *Petals* 10–13, pale lemon yellow, obovate

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FIGURES 1–3. 1, Holotype specimen of *Meconopsis integrifolia* var. *uniflora*, K. M. Feng 2195 (KUN); 2, *Meconopsis uniflora* with other herbs such as *Saussurea leucoma* Diels and mosses. China, NW Yunnan, Dêqên Xian, Baima Xueshan, 4897 m. Photograph by J. Peng, 12 July 2017; 3, *Meconopsis uniflora*. China, NW Yunnan, Dêqên Xian, Baima Xueshan, 4897 m. Photograph by J. Peng, 12 July 2017.



FIGURE 4. *Meconopsis uniflora*. Inner filaments of flower incurved with anthers adhering to stigma. China, NW Yunnan, Dêqên Xian, Baima Xueshan, 4897 m. Photograph by J. Peng, 12 July 2017.



FIGURE 5. *Meconopsis uniflora*. Abaxial surface of petals covered with dark hairs except along the margins. China, NW Yunnan, Dêqên Xian, Baima Xueshan, 4897 m. Photograph by B. Xu, 12 July 2017.

or narrowly obovate, 3.5–6 × 1.5–2.5 cm, undulate toward apex, margin entire or irregularly denticulate except near base, somewhat rolled inward except near base, abaxial surface with dark hairs except on periphery. *Stamens* usually spreading together; filaments similar to petals in color, filiform; anthers oblong; thecae orange. *Ovary* ellipsoid, with dense ascending brownish hairs; style 2–4 mm long, 3–4 mm across, ridged, hairy except near apex; stigma similar to petals in color, dome-shaped, with depression or hole in center, 7–11 mm across, lobes (rays) 7–10, linear-oblong with broadened apex, ca. 2 mm wide, upper surface grooved along midvein and raised on periphery, with dense short hairs especially on periphery. *Capsule* ellipsoid, 2.5–5 × 1.2–2.2 cm, base rounded, apex rounded or truncate, with dense persistent reddish brown hairs.

Distribution: China, northwestern Yunnan: Xianggelila Xian and Dêqên Xian, 4350–5000 m elevation.

Habitat: unstable southwest-facing, rocky limestone slopes and scree near ridge, often intermixed with reddish mudstone; rooting in thin sandy earth among rocks.

Additional specimens examined: CHINA. NW Yunnan: Xianggelila Xian, Nikeze (尼可则), alpine gravelly slope, 4350–4450 m, 7 Sept. 1962, *Zhongdian Team* 1890 (KUN);

Haba Xueshan, 4400–4700 m, 3 July 1987 (in flower), Z. D. Fang (方震东) 35 (KUN). Dêqên Xian, Baima Xueshan, alpine screes, 4897 m, 28°29'00"N, 99°00'29"E, 5 Oct. 2017, B. Xu Tsui-1031 (KUN).

Meconopsis uniflora is a rare endemic of unstable, calcareous rocky slopes in the higher alpine zone and limited to northwestern Yunnan. We consider it to be one of the most endangered species in the genus.

Meconopsis pseudointegrifolia usually grows with other herbs and grasses on stable, stony meadows, whereas *M. uniflora* is usually on unstable, calcareous scree and on rocky slopes near the ridge where there are few plants and few pollinators to visit the flowers. Although the filaments of *M. uniflora* are spreading at anthesis, some of the inner filaments are sometimes incurved with the anthers adhering to the stigma, as seen in Fig. 4, supposedly resulting in self-pollination.

The lower photo on page 186 of Grey-Wilson's (2014) monograph, taken by Joe Atkin on Baima Shan (Baima Xueshan), 5000 m, is not *Meconopsis pseudointegrifolia* as indicated in the caption, but *M. uniflora*.

An earlier *Meconopsis uniflora* Gumbel., Garden 22: 90 in obs. (1882), is a *nomen nudum*.



FIGURE 6. Fruiting plant of *Meconopsis uniflora* with an additional developing fruit. China, NW Yunnan, Dêqên Xian, Baima Xueshan, 4897 m. Photograph by B. Xu, 5 October 2017.

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JOHN LINDLEY'S IGNORED ORCHID NAMES

GUSTAVO A. ROMERO-GONZÁLEZ^{1,2} AND DELSY TRUJILLO^{3,4}

In the early 1990s, when the senior author consulted the John Lindley Orchid Herbarium, kept separately at the Royal Botanic Gardens, Kew, it became apparent that Lindley had names available for some Peruvian orchids later described by H. G. Reichenbach f. and J. R. Warszewicz.⁵ At that time, an auction catalogue, the source of Lindley's names, could not be located; the validity of Lindley's names was uncertain, and some authors treated the names as not validly published (e.g., *Catasetum secundum* Lindl. in Romero and Jenny, 1992: 246).

The catalogue was published by the famous auction house of J. C. Stevens, at "38, King Street, Covent Garden, London" (for other auctions of Orchidaceae, see Allingham, 1924: 92–127), which announced the sale of a great lot of Warszewicz's orchids in an advertisement appearing in the April 30, 1853, issue of the *Gardeners' Chronicle and Agricultural Gazette* (Stevens, 1853a):

"As the dried specimens and drawings of such as Mr. W. found in flower are now under inspection, a more descriptive advertisement will appear in the next Number of the *Chronicle*. The sale is fixed for the 19th and 20th of May."

The advertisement did appear in the May 7, 1853 issue of the *Gardeners' Chronicle* (Stevens, 1853b):

"NEW ORCHIDS

MR. J. C. STEVENS begs to notify, that he will sell by Auction, at his Great Room, 38, King Street, Covent Garden, on THURSDAY, 19th May, and following day, 12 for 1 o'clock, A MOST IMPORTANT COLLECTION OF ORCHIDS, just received from Mr. Warszewicz, who has succeeded at great peril in penetrating into the territory of the Xivaros Indians, near the sources of the Marañon, one of the tributaries of the Amazon river, and whence no European ever before returned; every plant included in the

collection is presumed new to this country; there are about 60 species, many of them exceedingly beautiful, and dried specimens and drawings of those seen in flower by Mr. W. will be produced at the sale; descriptive catalogues may be had of Mr. J. C. Stevens, 38, King Street, Covent Garden, London."

The catalogue, based on the previous advertisement, had already been printed by May 7, 1853. John Lindley (1853a), editor of the *Gardeners' Chronicle* (of "The Horticultural Part"), added separately:

"A fresh supply of Orchids has been received from Mr. Warszewicz, and is about to be sold at Stevens's rooms. (See advertisement.) Having this time had an opportunity of examining carefully the dried specimens sent home with them, we are able to say with confidence that the following are undoubtedly quite new, viz.:—*Epidendrum Friderici-Gulielmi*, *giganteum*, and *sclerocladium*; *Maxillaria conica* and *cinnabarina*; *Anachaste sanguinea*, *Chysis plana*, *Catasetum secundum*, *Brassia villosa*, *Eriopsis altissima*, *Gongora cymbiformis*, and *Masdevallia rufolutea*. MR. SKINNER is of opinion that he has identified all these with the specimens and drawings to which we apply the names; but there is in addition a considerable number of Odontogloss, Oncidiums, and Maxillarias also undescribed, though not susceptible of being identified with the drawings, &c. The pages of Stevens's catalogue explain the peculiarities of each new species, and should be consulted by buyers. It will be seen that many are plants of very striking beauty."

Johnson (1853) transcribed the introductory text of the catalogue:

We thank S. Dalström, G. Gerlach, E. Hågsater, R. Jenny, D. J. Mabberley, T. E. C. Meneguzzo, and particularly G. Carnevali, L. J. Dorr, P. Ormerod, and F. Pupulin for their useful comments; Meneguzzo also provided photographs of relevant specimens in the Lindley Herbarium. We are grateful to Kanchi Gandhi for his careful scrutiny of the text, and to the staff of K and W for their assistance during visits by the senior author. We also thank the staff of the Botany Library, Harvard University Herbaria, particularly J. Warnement and G. Wade, and F. Stauffer, at the Conservatoire et Jardin botaniques, Genève, who went out of their way to locate, unsuccessfully, a copy of the auction catalogue.

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⁵ The proper way to cite the name of Józef Warszewicz Ritter von Rawicz (1812–1866) poses a conundrum. Currently, in the botanical literature, one can find the following spelling variations: Warczewicz, Warszewicz, and Warszewicz. According to Franco Pupulin (pers. comm., 2019) "Warczewicz" and "Warszewicz" are both acceptable transliterations of the original spelling in Polish, adding that "Warczewicz" has gained momentum among botanists. Here we consistently use "Warszewicz," to maintain the status quo, as established in Brummitt and Powell (1992: 693).

“This fine collection of Orchids was made by Mr. Warszewicz, on the Eastern Cordillera of the Andes, principally on the hitherto unexplored banks of the Marañon River, near its source, and in the territory of the savage Xivaros Indians; the melancholy results attending all former attempts to penetrate into this country by European Naturalists, sufficiently show what must have been the perils Mr. W underwent, and not until he was menaced with the knife of the savage did he desist, and was compelled to make a hasty retreat, however carrying with him a fine collection, which still has to suffer their transport across the Andes to the port of embarkation; and some idea of this may be gathered from the fact of the collection being made previous to the 15th of November, and their embarkation not taking place till the 12th of February. Mr. Skinner, anxious to do justice to this collection, has given them a trial of two months in England, and although the deaths have been great, particularly amongst those of the most delicate habit, yet, what are now offered are perfectly safe and in good condition. Among such quantity of dead and rotten masses, the leaden tickets got much oxidized and often perfectly indistinguishable, consequently, among the Oncids and Odontoglosses, no certain determination can be given, but their remarkable habit show sufficiently that *all* (or with a few exceptions) are either undescribed or quite new to our gardens in Europe. No temptation (Mr. Warszewicz writes to Mr. Skinner) would induce him to repeat such a journey, and it is little likely an opportunity will occur to receive again similar plants. Moreover, Mr. W may be very soon expected in Europe, as he has just been appointed Inspector of the Botanical Garden at Cracow by the Emperor of Austria.”

Johnson (1853) also quoted a few entries of the catalogue, including *Epidendrum porphyreum* Lindl. (“Lot 16 ... a fine crimson flowered species, growing about 1 1/2 ft. to 2 ft. high ...”), which Lindley already had proposed (Lindley, 1841), and added that there had been “... altogether, 176 lots” for sale.

The auction was conducted as announced, and Lindley (1853b), soon after, published the following note (italics of plant names added herein):

“Mr. Warszewicz’s importation, alluded to at p. 292 [Lindley, 1853a], was sold the other day at Stevens’s, when some of the principal lots fetched the following prices:—*Epidendrum Friderici-Guilielmi* (one plant), 16*l.* 16*s.*; other lots of the same from 5*l.* 15*s.* to 7*l.* 5*s.*; *E. giganteum*, from 1*l.* to 8*l.*; *E. sclerocladium*,

from 1*l.* to 1*l.* 2*s.*; *Anachaste sanguinea*, from 1*l.* to 4*l.*; *Gongora cymbiformis*, from 1*l.* 1*s.* to 2*l.* 10*s.*; *Maxillaria conica*, from 2*l.* 2*s.*; *M. cinnabarina*, from 2*l.* 5*s.* to 4*l.*; *Masdevallia rufolutea*, from 1*l.* to 5*l.* 10*s.*; *Eriopsis altissima*, from 2*l.* 6*s.* to 2*l.* 10*s.*; *Chysis plana*, 1*l.* 11*s.* 6*d.*; *Brassia villosa*, from 1*l.* 4*s.* to 2*l.* 17*s.* 6*d.*; *Odontoglossum Halli*, from 1*l.* to 3*l.*; *Catasetum secundum*, from 1*l.* 14*s.* to 2*l.* 2*s.*; *Peristeria fuscata*, from 1*l.* 4*s.* to 2*l.* 15*s.*; *Bletia sanguinea*, from 1*l.* 1*s.* to 2*l.* 8*s.*; a *Lycaste*, from 2*l.* 2*s.* to 3*l.*; and an *Anguloa*, from 1*l.* 14*s.* to 3*l.* 5*s.* Others fetched from 1*l.* to 2*l.* per lot, of which there were in all 176.”

The auction was also announced in Germany, citing 18 orchid species, two solely under a generic name (“*Lycaste* sp.” and “*Anguloa* sp.”) and two previously published species, *Odontoglossum hallii* Lindl. (Lindley, 1837) and *Bletia sanguinea* Poepp. & Endl. (see Poeppig and Endlicher, 1836), plus a number of unrelated orchids from Guatemala (Otto and Dietrich, 1853).

A complete copy of the auction catalogue cited by Stevens and Lindley has not been located. Lindley, nonetheless, cut out the individual, printed descriptions and pasted them on sheets in his orchid herbarium (Fig. 1). According to Lindley (1853a), Skinner had identified the species listed, but the authorship of the names eventually was, except in one case (*Epidendrum Friderici-Guilielmi* Warsz., as the name appears in the *Catalogue*), attributed to Lindley, and the texts accompanying the names, although brief, in most cases do constitute valid descriptions.

Warszewicz next traveled to Germany, apparently carrying his dry specimens and drawings, which were the basis of the many species described in *Orchideae Warszewiczianae recientes* (Reichenbach f., 1854) and subsequent publications (e.g., Reichenbach f. 1856, 1857). These publications included most of the species already cited or described by Lindley.

Lindley proposed a new genus (*Anachaste* Lindl.) and 13 species (Lindley, 1853a). One of his new binomials has already been accepted (*Maxillaria cinnabarina*), and one is a later homonym (*Epidendrum giganteum* Lindl. *non* (Thunb.) Poir 1810).

As mentioned before, despite considerable effort, we have not been able to locate a complete copy of the auction catalogue. However, there is enough compelling evidence in the literature to consider the names Lindley proposed.

Here we reinstate two of the names (*Catasetum secundum* Lindl. and *Eriopsis altissima* Lindl.) in Lindley’s catalogue, relevant to the authors’ research. Another species (*Epidendrum sclerocladium* Lindl.) will be treated in a separate publication (Carnevali et al., in prep.). We encourage other researchers to consider the validity of the remaining names.

A summary of all names proposed by Lindley in the auction catalogue is presented in an Appendix.



FIGURE 1. Lectotype of *Catasetum secundum* Lindl. (see flower in the upper left corner). The faintly shown tracing below (annotated by H. G. Reichenbach f.) is a copy of the original Warszewicz's drawing (No. 14, on sheet number 24628, W). A note by R. A. Rolfe, without date, ("probably *C. incurvum*, Klotzsch") is without fundament, because *C. incurvum* is a separate specie with much larger flower (see Romero and Jenny, 1992). © Copyright of the Board of Trustees of the Royal Botanic Gardens, Kew.

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APPENDIX

Here we list, in alphabetical order, the names Lindley described in the auction catalogue most likely published by 7 May 1853. The numbers before the binomials evidently were the “Lot” numbers (see Johnson, 1853). The numbers in brackets and in bold letters (e.g., “**270/14**”), indicate the placement of each specimen in the microfiche edition of the Lindley Herbarium (IDC Publishers, 1987). The text that follows, in quotes, is in each case the description provided by Lindley; the “dry specimen” and/or “drawing” numbers were often transcribed from Lindley’s notes in his herbarium.

The nomenclature involving the species based on these two sets of collections (the ones at K, described by J. Lindley, versus the ones described by Reichenbach.f., at W) is complex. As for the names described by Lindley, it is highly advisable to lectotypify his names because it is uncertain what component of Warszewicz’s collections he employed to elaborate his brief descriptions, even if he kept particular fragments of this collection in his herbarium (K. Gandhi, pers. comm., 2019). Furthermore, according to article 52.2 of the current Code (the “Shenzhen code,” Turland et al., 2018), the types of the species that were described by Reichenbach f. that already had been described by Lindley are not isotypes of Lindley’s species, and Reichenbach f.’s names must be considered heterotypic synonyms, not homotypic synonyms (for an exception, see *Catasetum secundum* Lindl. below).

Anachaste Lindl., *Gen. nov.*, **Catalogue. 1853 [270/14]**.

“22 *Anachaste sanguinea* (Lindley), a new genus, apparently related to *Cochlioda*, with rich blood-red flowers, like that of *Comparettia falcata* in size (see drawing 16).”

Anachaste sanguinea Lindl. **Catalogue. 1853** (see description above).

TYPE: PERU. Sources of the Marañon, *J. R. Warszewicz* 16.

Brassia villosa Lindl. **Catalogue. 1853 [278/7]**.

“34 *Brassia villosa* (Lindley), a new species, near *B. cinnamomea* (dried specimen No 28), bears 2 to 3 flower stems, and richly scented...”

TYPE: PERU. Sources of the Marañon, *J. R. Warszewicz* 28.

Lindley (1854) re-described *Brassia villosa*, apparently based on the same specimen described above, adding “flowers smaller and much more fleshy than in any other of the genus (‘very sweet-scented’—W.). the four warts placed obliquely in front of a short, shaggy, double lamella are very peculiar.”

Catasetum secundum Lindl. **Catalogue. 1853 [245/13]**.

“32 *Catasetum secundum* (Lindley), a new species, with curious violet coloured flowers, all turned towards one side of a drooping raceme (drawing No. 14).”

Romero and Jenny (1992) proposed *Catasetum violascens* Rchb.f. & Warsc. as a natural hybrid between *Catasetum incurvum* Klotzsch and *C. discolor* (Lindl.) Lindl., an entity that has been accepted in the orchid literature. At that time, the authors regarded *Catasetum secundum* Lindl. as not validly published. However, the single flower in the Lindley herbarium (Fig. 1) was designated as the lectotype of *Catasetum* × *violascens* because we could find in the Reichenbach Herbarium only the original *Warszewicz*'s drawing (No. 14, on sheet number 24628; Fig. 2) and a tracing of the flower in the Lindley Herbarium (on sheet 24609, upper right corner). In this case in particular, following article 52.2 of the current Code (the "Shenzhen code," Turland et al., 2018), and because of the lectotypification proposed by Romero and Jenny (1992), *C. violascens* Rchb.f. & Warsz. is a homotypic synonym of *C. secundum* Lindl.

The following nomenclatural changes are needed to reinstate *Catasetum secundum*.

Catasetum × *secundum* Lindl. (*pro sp.*)

Catasetum secundum Lindl., in Stevens's Auction Catalogue. 1853.

A natural hybrid between *Catasetum incurvum* and *C. discolor*.

TYPE: PERU. Sources of the Marañon, "bei Cordillera Huancabamba," *J. R. Warszewicz 14* (Lectotype, here designated: flower in the upper left corner of the sheet, K-Lindl.).

Homotypic synonym: *C. violascens* Rchb.f. & Warsz., Bonplandia 2: 97. 1854.

Catasetum × *violascens* Rchb.f. & Warsz., Bonplandia (Hannover) 2: 97. 1854.

Chysis plana Lindl. [219/12], *nomen*.

Lindley (1853a) cited this name in the *Gardeners' Chronicle* but apparently did not include it in the catalogue: the label in his herbarium, which has no description, is handwritten. The same sheet bears an annotation by Reichenbach f. referring the specimen to *Chysis bruennowiana* Rchb.f. & Warsz.

Epidendrum frederici-guilielmi Warsz. ex Lindl. *Catalogue*. 1853 [as "*Frederici-Guilielmi* Warcz.": 167/16].

"1 *Epidendrum Friderici-Guilielmi* (Warcz.), a most magnificent new species, with large blood-red flowers certainly one of the finest in the genus; was found in rather damp soil (see drawing & dried specimen)."

In Lindley's handwriting, his label bears the following note: "No. 1 Column white." The original drawing is in the Reichenbach Herbarium (No. 4757).

Epidendrum giganteum Lindl., *Catalogue*. 1853 [150/8], *non* Poir (1810).

"26 *Epidendrum giganteum* (Lindley), a magnificent new species, with enormous panicles of crimson flowers, forming it is native habitat masses of a foot and a half in diameter (see drawing and dried specimen No. 2)."

Epidendrum sclerocladium Lindl., *Catalogue*. 1853 [162/21]. "60 *Epidendrum sclerocladium* (Lindley), a great branching new species, allied to *E. ceratistes*; flowers very fragrant, like pine-apples (No. 30)."

This name will be treated separately (Carnevali et al., in prep.).

Eriopsis altissima Lindl. *Catalogue*. 1853 [as "*altissima*"; 247/11].

"49 *Eriopsis altissima* (Lindley), a new species, with the middle lobe of the lip oblong, entire, white, spotted with dark green (drawing and dried specimen No. 5)."

TYPE: PERU. Sources of the Marañon, *J. R. Warszewicz 5* (Lectotype, here designated: K-Lindl.).

Heterotypic synonym: *Eriopsis sceptrum* Rchb.f., Bonplandia 2: 1854. TYPE: PERU. Reichenbach Herb. Orchid. No. 37988 (Lectotype, designated by Romero-González et al., 2015, ambiguous and herein rejected ["*Warszewicz* watercolor in the upper left, a Reichenbach f. drawing of the labellum, and three flowers"], new Lectotype, proposed here: flowers in a packet below the *Warszewicz*'s color drawing, Reichenbach Herb. Orchid No. 37988, W).

Reichenbach f. merely cited the locality and cited *Warszewicz*'s collection. Lindley's label bears, in his handwriting, the following note: "fls yellow, edged with brown."

Eriopsis altissima was already treated in Romero et al. (2015), where we suggested it was the valid name for what up to then was referred to *E. sceptrum*; the lectotype of *E. sceptrum* was shown on p. 123, fig. 16 (see also, therein, fig. 17–20), designated, perhaps ambiguously, as the holotype.

Gongora cymbiformis Lindl. *Catalogue*. 1853 [250/21].

"52 *Gongora cymbiformis* (Lindley), a beautiful new species, with cinnamon coloured flowers spotted with brown, very distinct, Mr. W says this plant generally has from 4 to 5 flower stems from each bulb, of 2 to 3 feet long, he counted as many as 140 flowers, and a delicious perfume was distinguishable 500 feet off (drawing and dried specimen No. 12)."

Masdevallia rufolutea Lindl. *Catalogue*. 1853 [109/18].

"78 *Masdevallia rufolutea* (Lindley), a pretty new species, with good sized yellow flowers, tawny outside... (Drawing No. 21)."

The original drawing is pasted on Reichenbach Orchid. Herb. 38730.

Maxillaria conica Lindl. *Catalogue*. 1853 [255/3].

"17 *Maxillaria conica* (Lindley), a new species, with large ivory white flowers (specimen No. 13)."

See Oakeley (2008: 411, 416–417) for detailed discussions of this name, which currently no doubt appears to be a taxonomic synonym of *Ida fimbriata* (Poepp. & Endl.) A. Ryan & Oakeley (based on *Maxillaria fimbriata* Poepp. & Endl., 1836) (see Pupulin and Karremans, 2017, for the priority of *Ida* A. Ryan & Oakeley over *Sudamerlycaste* Archila).



FIGURE 2. Warszewicz's original drawing of *Catasetum violascens* Rehb.f. & Warsz. on sheet 24628 of the Reichenbach Herbarium (W). Photograph courtesy of G. Gerlach, © Naturhistorisches Museum Wien.

Maxillaria cinnabarina Lindl. **Catalogue. 1853 [255/5].**

“108 *Maxillaria cinnabarina* (Lindley), a new species, with pale yellowish green flowers and a rich apricot coloured lip... ([Dry specimen and/or drawing] No. 58).”

See Oakleley (2008: 214–219) for a detailed and illustrated discussion of this species (as *Ida cinnabarina*). See also Rolfe (1893a,b).

Peristeria fuscata Lindl. **Catalogue. 1853 [248/7–8].**

“37 *Peristeria fuscata* (Lindley), a fine new species, with flowers as large as *P. cerina*, of a pale cinnamon, spotted with brown on the inside, dull pink on the outside, in pendulous racemes, from twelve to twenty flowers in a raceme, richly perfumed....”

Lindley (1856) re-described *Peristeria fuscata*. He added in the protologue: “it is in the rich collection of the Lord

Bishop of Winchester that this fine plant has at last flowered. Plants of it were sold by Stevens in May, 1853, along with other from M. Warzewitz....” Ignoring rules of priority, not quite knowing the group, and citing the prior publication of *Lycomormium squalidum* Rchb.f. (Reichenbach f., 1852), Lindley (1856) later added: “why this species should have been named ‘squalid’ we are unable to guess, for it might as well have been called scarlet; we, therefore, prefer the name of *fuscata*, under which the plant has existed in our gardens for the last three years.”

Jenny (2010) combined the epithet “*fuscata*” in *Lycomormium*, citing as type, however, the collection from the garden of the Lord Bishop of Winchester instead of the original collection from Warszewicz; in the same publication, Jenny listed, separately, *Lycomormium squalidum* (Poepp. & Endlicher) Rchb.f.

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A REPORT ON THE THIRD BOTANICAL NOMENCLATURE COURSE ORGANIZED BY THE BOTANICAL SURVEY OF INDIA AT COIMBATORE

P. LAKSHMINARASIMHAN,¹ C. MURUGAN,² K. A. SUJANA,² AND K. N. GANDHI³

The Botanical Survey of India (BSI) held its third Botanical Nomenclature Course on 11–15 March 2019 at the Institute of Forest Genetics and Tree Breeding (IFGTB). The course drew 99 participants from across the country, including 55 from outside BSI (Fig. 1A). Er. A. K. Pathak (Director In-charge of the BSI) was Convener of the course; Lakshminarasimhan and Murugan served as Coordinator and Facilitator, respectively. Participants were provided in advance with the latest International Code of Nomenclature for algae, fungi, and plants (“the Shenzhen Code”) (Turland et al., 2018).

The first Botanical Nomenclature Course was organized by the BSI and the ENVIS Centre on Floral Diversity of BSI at Kolkata on 11–13 January 2013 (with 96 participants). This course was the first of its kind in India. The second was organized by the BSI at Pune on 9–12 February 2017 (with 118 participants). For both courses, Dr. Paramjit Singh (ex-Director, BSI) and Lakshminarasimhan served as Convener and Coordinator, respectively. For all three events, Gandhi served as Director and taught the courses.

Sujana anchored the inaugural activities, at which Dr. Mohit Gera (IFS Director, IFGTB) was the chief guest, and Dr. M. Sanjappa (ex-Director, BSI), Dr. N. P. Balakrishnan (ex-Joint Director, BSI), Dr. Y. Thulajappa (retired Professor and Head of Department of Botany, The National College, Bengaluru), and Mrs. Rajalakshmi Prasad (Gandhi’s biographer and former student) were guests of honor. After Lakshminarasimhan welcomed the guests, short talks were given by Balakrishnan, Sanjappa, and Gandhi. Doctor Mohit Gera delivered the inaugural address (Fig. 1B).

Gandhi began the course with a historical review of botanical nomenclature from before Linnaeus to the

Shenzhen Code. He then provided a detailed description of the Shenzhen Code, with special emphasis on validity of publication and solving nomenclatural problems of the participants. Various sessions reviewed the physical structure of the Code: preamble, ranks, and names of taxa (Articles 1–5 and 16–28 of the Shenzhen Code); status, typification, starting points, conservation, and sanctioning (Articles 6–15); effective publication; validity of names, part I (Articles 29–39); validity of names, part II (Articles 40–45); authorship citation (Articles 46–50); rejection of names, I (Articles 51–59); and orthography (Articles 60–62). Gandhi also reviewed hybrid names and fungal code. Each day ended with a 1-hour discussion session with participants.

On the fourth day, course participants were asked to evaluate the course and provide suggestions for future course contents. On the morning of the fifth day, Thulajappa gave a talk on his botanical expedition in Silent Valley, Kerala.

At the end of the course there was a Valedictory Function, anchored by Mrs. M. Anantha Lakshmi (Sr. Pres. Asst., BSI, SRC, Coimbatore). Dr. S. Murugesan (Scientist G, IFGTB) was the chief guest, and Sanjappa, Thulajappa, Dr. V. S. Raju (retired Head and Chairperson, Board of Studies in Botany, Kakatiya University, Telangana) were guests of honor. Gandhi was presented with a memento of appreciation by Murugan. After the chief guest’s speech and remarks from the guests of honor, feedback on the course was given by five participants: Mr. Nayankumar Gourimath, Mr. Mohd. Danish Husain, Dr. Sanjay Mishra, Dr. Sangita Das Chowdhury, and Ms. Drisya V., and all the course participants were given certificates. A vote of thanks was proposed by Sujana.

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We thank Dr. Anthony R. Brach (A, GH) and Ms. Gretchen Wade (Harvard University Botany Libraries) for helpful suggestions on the text, and Mr. V. Ramesh (BSI–SRC) for the photographs and videos of the event.

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FIGURE 1. Third Botanical Nomenclature Course organized by the Botanical Survey of India at Coimbatore, Tamil Nadu. **A**, delegates of the course; **B**, inaugural address by Dr. Mohit Gera. At the table, from left to right, Dr. C. Murugan, Dr. M. Sanjappa, Dr. K. N. Gandhi, Dr. N. P. Balakrishnan, and Dr. P. Lakshminarasimhan. Photographs courtesy of V. Ramesh.

PSYCHOTRIA GOLMANII SP. NOV. (RUBIACEAE), A NEW ADDITION TO THE FLORA OF THE UPPER SEPIK IN PAPUA NEW GUINEA

WAYNE TAKEUCHI¹

Abstract. *Psychotria golmanii* is described from remote environments in Papua New Guinea's upper Sepik drainage. The new species is similar to other congeners with reflexed peduncles but is immediately distinguished by its diminutive stature and tomentose panicles.

Keywords: Kaiserin-Augusta-Fluss Expedition, new species, Papuasiasia

The upper Sepik basin in Papua New Guinea (PNG) is probably the most prolific geographic venue for botanical discovery in east Malesia. During PNG's German territorial period, the vast drainage was explored by the seminal Kaiserin-Augusta-Fluss Expedition of 1912–1913, laying the foundation for Lauterbach's (1912–1924) *Beitrage zur Flora von Papuasien* and all following floristic summaries

of Papuasiasia. Despite a century of subsequent progress, Sepik environments continue to yield unusual novelties from multidisciplinary surveys of its interior tributaries (Takeuchi and Golman, 2002; Crome, 2011). The author's specimen backlog from the 2009–2011 Frieda surveys has 21 *species novae* still queued on a deferred publication schedule (Takeuchi, 2011).

MATERIALS AND METHODS

Taxonomic descriptions are based on the attributes from dried specimens. Characters determined in situ from living plants are reported separately as "field characters."

Ancillary collections (silica-dried leaf samples and ethanol-preserved fruits) were misplaced during transit from expeditionary bivouacs and are presumed lost.

TAXONOMY

Psychotria golmanii W. N. Takeuchi, *sp. nov.* TYPE: PAPUA NEW GUINEA. West Sepik Province: Wara Mifyam, alluvial flats in floodplain forest, densely shaded understory, 04°09'37"S, 141°18'34"E, 140 m, 10 December 2017, W. N. Takeuchi 26972 (Holotype: A; Isotypes: BISH, K, L, LAE). Fig. 1–6.

Affinis Psychotriae apdavisianae W. N. Takeuchi *sed infructescentiis paniculatis fructibus pilosis persistentibus differt.*

Subshrubs 40–75(–125) cm tall, monoaxial or with 1(–3) branches. *Basal stems* cylindrical, 4–8 mm diam., firm, straight-ascending, nigrescent, dull, smooth (or obscurely furrowed), abscission scars lax, trigonous to circular, ca. 3–5 mm wide, lenticels absent. *Branchlets* (if present) obliquely spreading, usually opposed, compressed or cylindrical, 1.5–5.0 mm diam., planate-angulate at the top, pithy, black; indument tomentose, hirtellous on older parts, subsisting, orange brown, hairs ca. 0.5–1.0 mm long, crispate, septate; defoliate nodes transversely marked by stipule scars, bearded; internodes 1.5–11.0(–14.5) cm long. *Leaves* equal, divergent, bicolorous; stipules ovate, 14–26 × 12–19 mm, notched or cleft to the middle, paired, free, persisting, papery, brittle, black, adaxially lanate-barbate at the base, elsewhere densely pilosulous on the inside, fringed, outer side variably hairy, glabrescent, lobes acuminate, 5–11(–15) × 5–9 mm; petioles 10–40(–72) × 1–3 mm, planoconvex, indument as the subtending branch, not articulated, not expanded at either pole; leaf-blades elliptic, obovate, (or orbicular), (5.6–)11.0–22.0(–29.0) ×

(3.9–)6.4–11.6 cm, chartaceous; base cuneate or attenuate, symmetrical, poorly delimited from the petiole or not; margin entire; apex acuminate (or acute), acumen to ca. 2.2 × 1.5 cm, often curved to one side; lamina surfaces adaxially fuliginous, glabrescent, minutely pustulate, cystoliths linear, discolourously pale, infrequent, abaxially brunnescent to orange brown, persistently hirtellous especially along veins, domatia absent; venation brochidodromous (or eucamptodromous), secondary veins (7–)13–24 per side, 3–18 mm apart, at the lamina center straight-diverging 45°–80° from midribs (elliptic blades with the smaller angles and intervein separations), ± parallel, closing by abruptly looping nerves 0.5–4.0 mm from margins, not anastomose beyond the commissural loops; tertiary (crossing) nerves scalariform, reticulum conspicuous, coarsely areolate; all veins weakly raised or invisible on the upper side, prominent beneath. *Inflorescence* (seen only in early emergence) terminal, condensed, globular, ca. 12 × 15 mm, all parts obscured by orange brown tomentum; peduncle ca. 10 × 2 mm, nodding. *Flowers* unknown. *Infructescence* paniculiform, 47–87 × 32–44 mm, solitary, persistently bracteate, velutinous, surfaces black, striate or not; primary axes 5–13 × 0.8–2.0 mm; secondary axes 3–12 × 0.5–2.0 mm, 2–4 together in pseudowhorls; bracts linear-acuminate, 2.0–6.5 × 0.3–1.2 mm; pedicels cylindrical, 1.5–2.5(–4.0) × 0.5–0.8 mm, not articulated. *Drupes* obovoid (or ellipsoid), 5–8 × 3.5–5.5 mm (exclusive of calyx), sparsely hirtellous, exocarp jet black, copiously set with pale raphides; fruiting sepals 5, free, ovate to triangular, ca. 1.0–1.5 × 1 mm,

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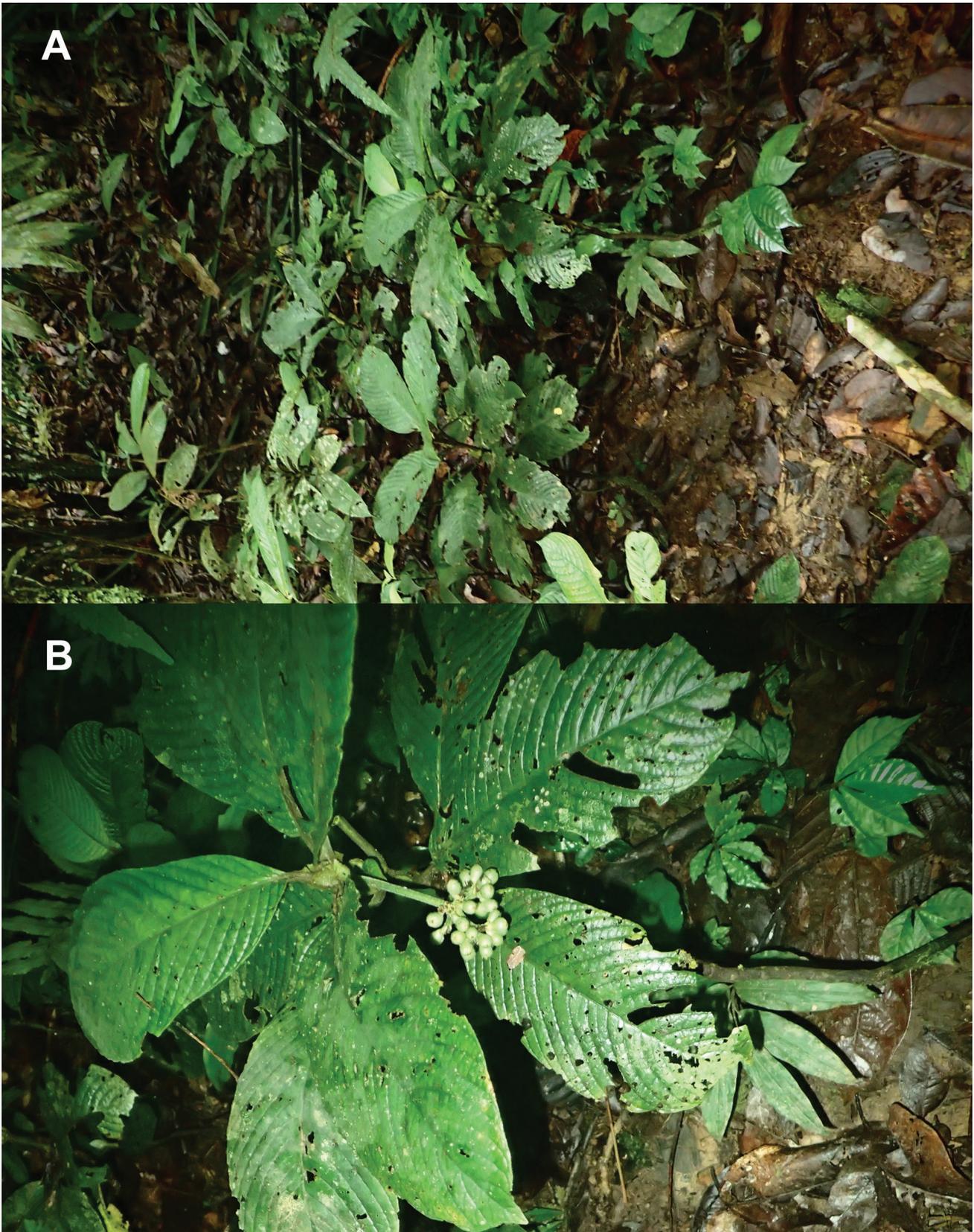


FIGURE 1. *Psychotria golmanii* W. N. Takeuchi. Habit. **A**, understory monocauls 40–50 cm tall in alluvial forest; **B**, leaves are often insect-damaged or covered by debris and bryophytic epiphylls. From *W. N. Takeuchi 26972*.

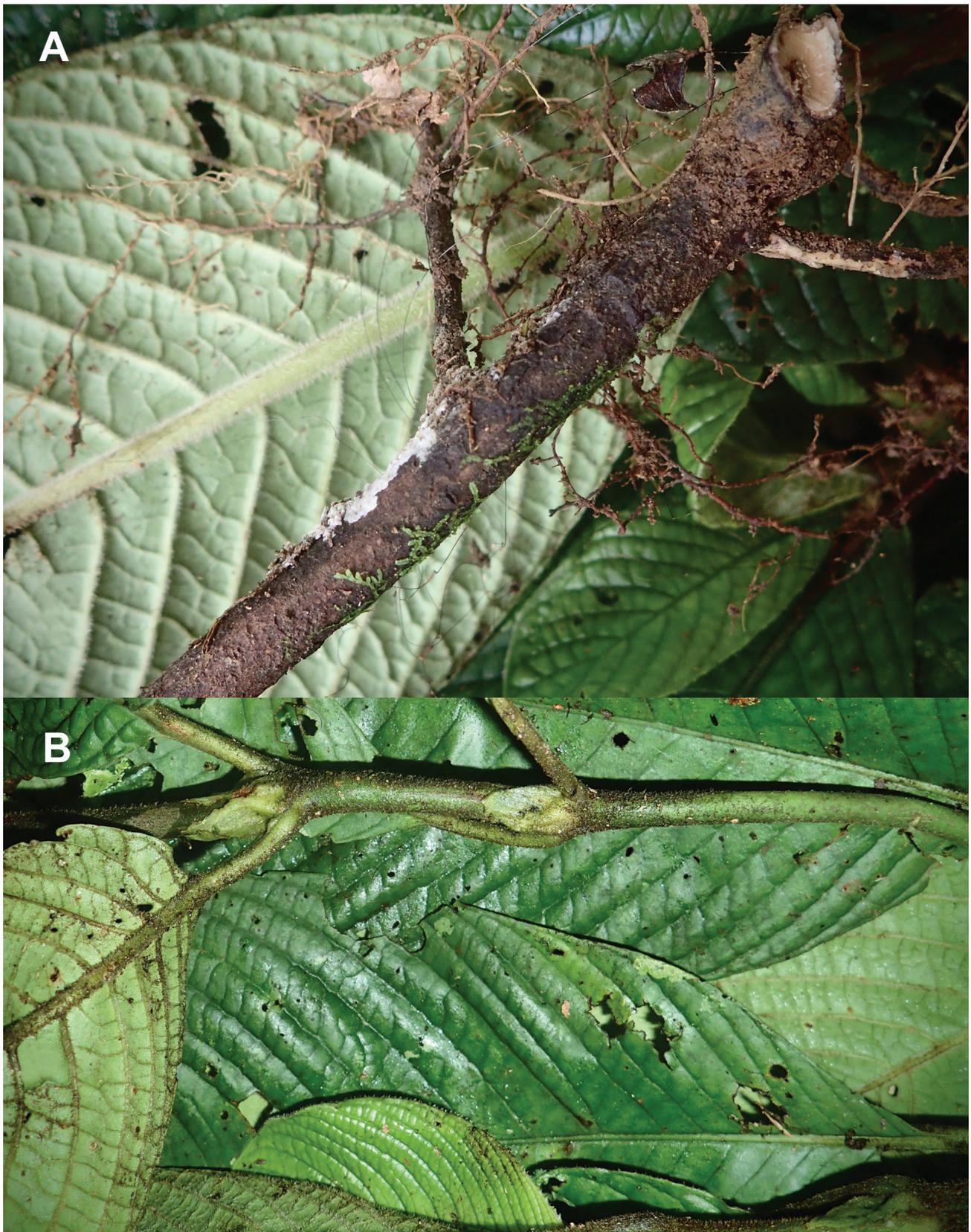


FIGURE 2. *Psychotria golmanii* W. N. Takeuchi. Stems. **A**, basal section; **B**, apical section. From W. N. Takeuchi 26972.

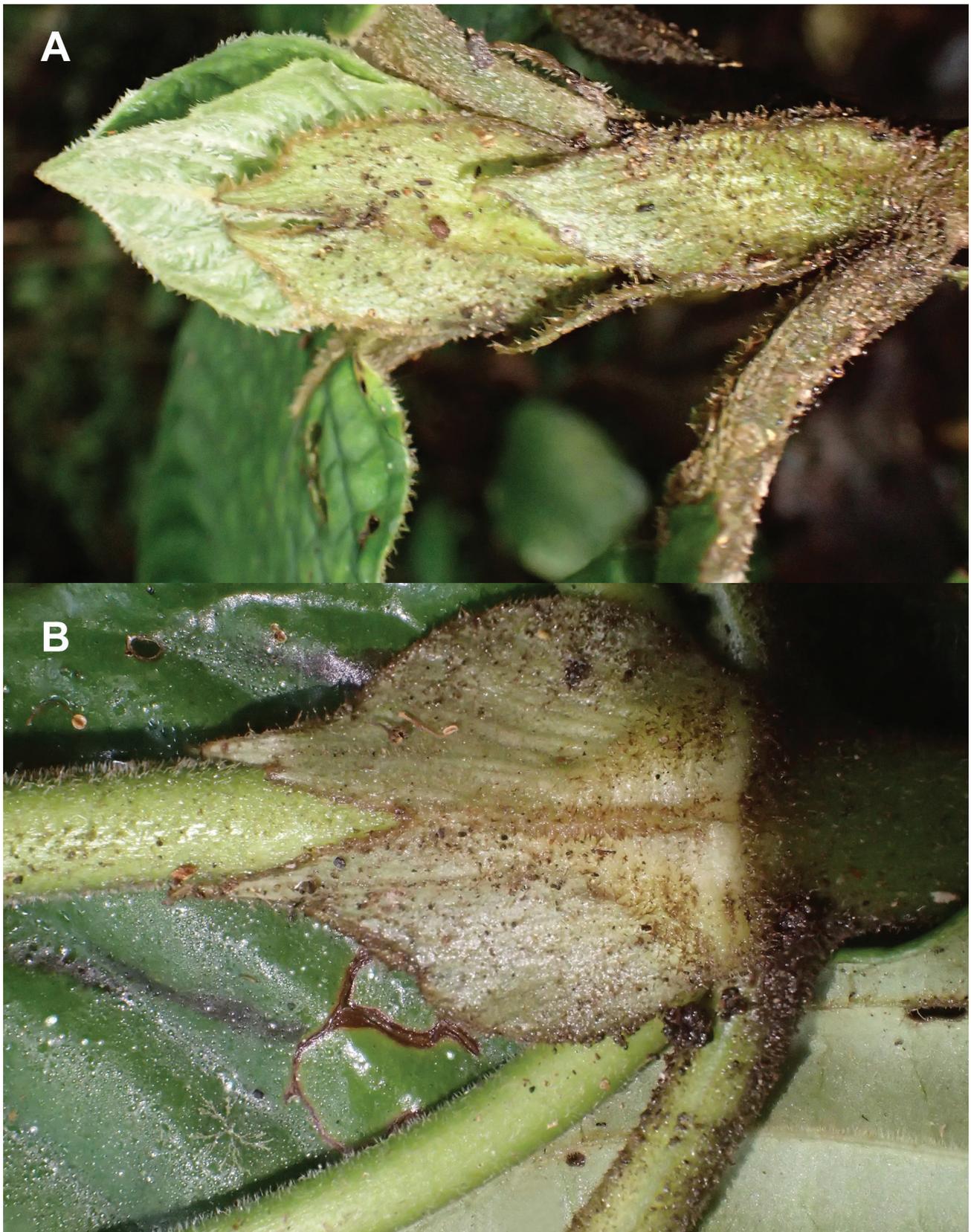


FIGURE 3. *Psychotria golmanii* W. N. Takeuchi. Stipules. **A**, from apical nodes (two shown); **B**, lower node. From W. N. Takeuchi 26972.

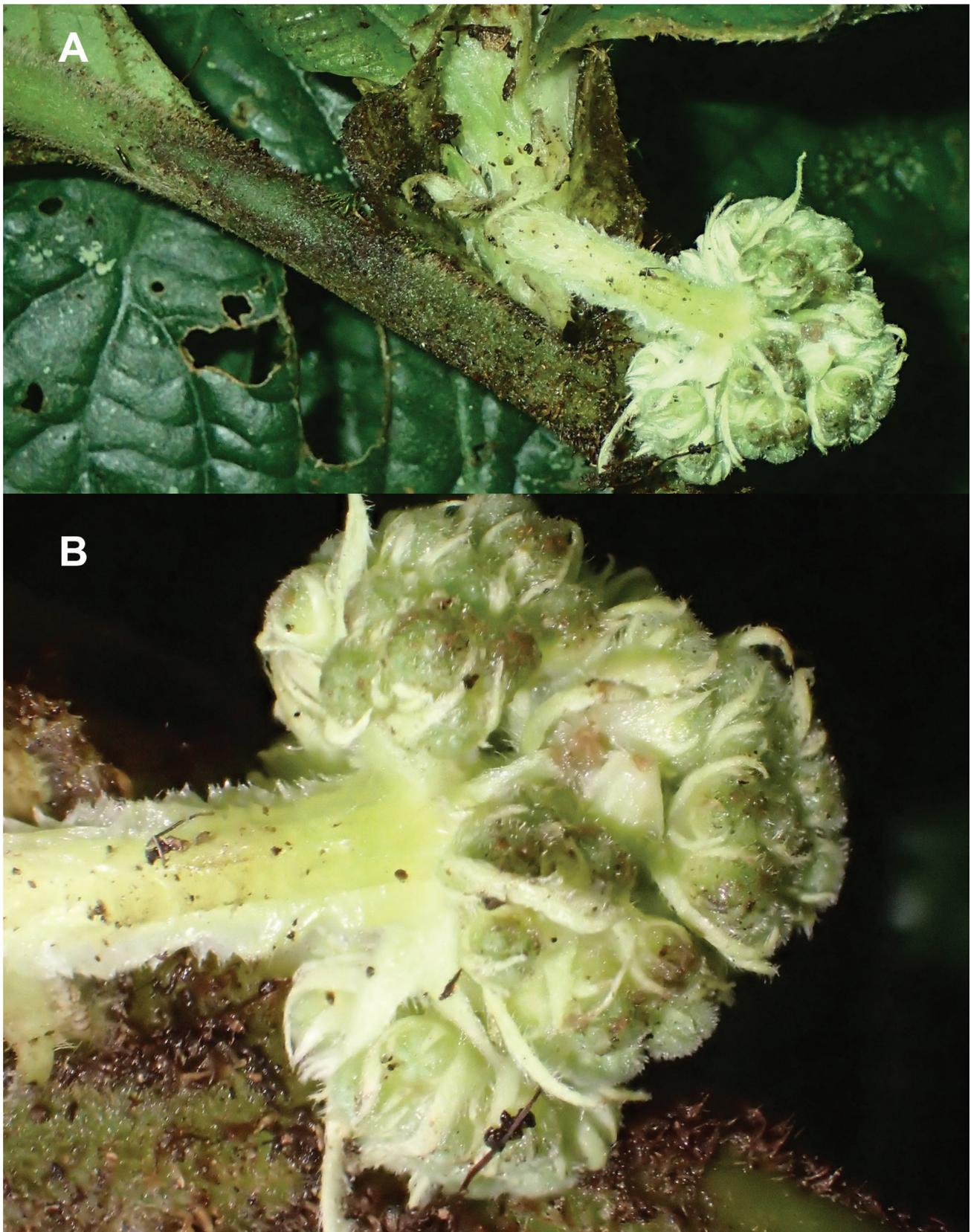


FIGURE 4. *Psychotria golmanii* W. N. Takeuchi. Emerging inflorescence. **A**, aspect; **B**, same, in close-up. From W. N. Takeuchi 26972.



FIGURE 5. *Psychotria golmanii* W. N. Takeuchi. Infructescence. **A**, aspect; **B**, submature fruits. The ripe drupes are probably white, as in other dwarf congeners. From W. N. Takeuchi 26972.



FIGURE 6. Comparison of fruiting structures between *Psychotria golmanii* W. N. Takeuchi and the species closest to it (*P. apdavisiana* W. N. Takeuchi). **A**, infructescence paniculate in *P. golmanii*; **B**, capituliform in *P. apdavisiana*. **A** from W. N. Takeuchi 26972; **B** from W. N. Takeuchi, A. Gambia & T. Jisaka 23261 (from the type collection).

ascending or curled; pyrenes 2, hemispherical, endocarp crustaceous, acutely 3(–4)-ridged on the back, commissural face flat; preformed germination slits 2, marginal, extending halfway to the apex; seed coat without ethanol soluble pigments, endosperm ruminant.

Etymology: the new species is named after Martin Wakiagamb Golman, the current director of the PNG Forest Research Institute and the writer’s longtime colleague in Papuanian botany.

Field characters: erect understory subshrubs, gregarious,

not stoloniferous, usually monoaxial, periderm dark brown, smooth; stem indument brown, shaggy; stipules foliaceous, thickened at the base, pale yellow green; leaf-blades fleshy, adaxially rugose, dark green, abaxially yellow green to mid-green; immature inflorescence whitish green, bracts linear-deltate; infructescence always directed downward, surfaces pale green, indument white, dense, setiform.

Distribution: throughout the alluvial and colline zones of West Sepik Province, near historical localities of the Kaiserin-Augusta-Fluss Expedition of 1912–1913 (Fig. 7).

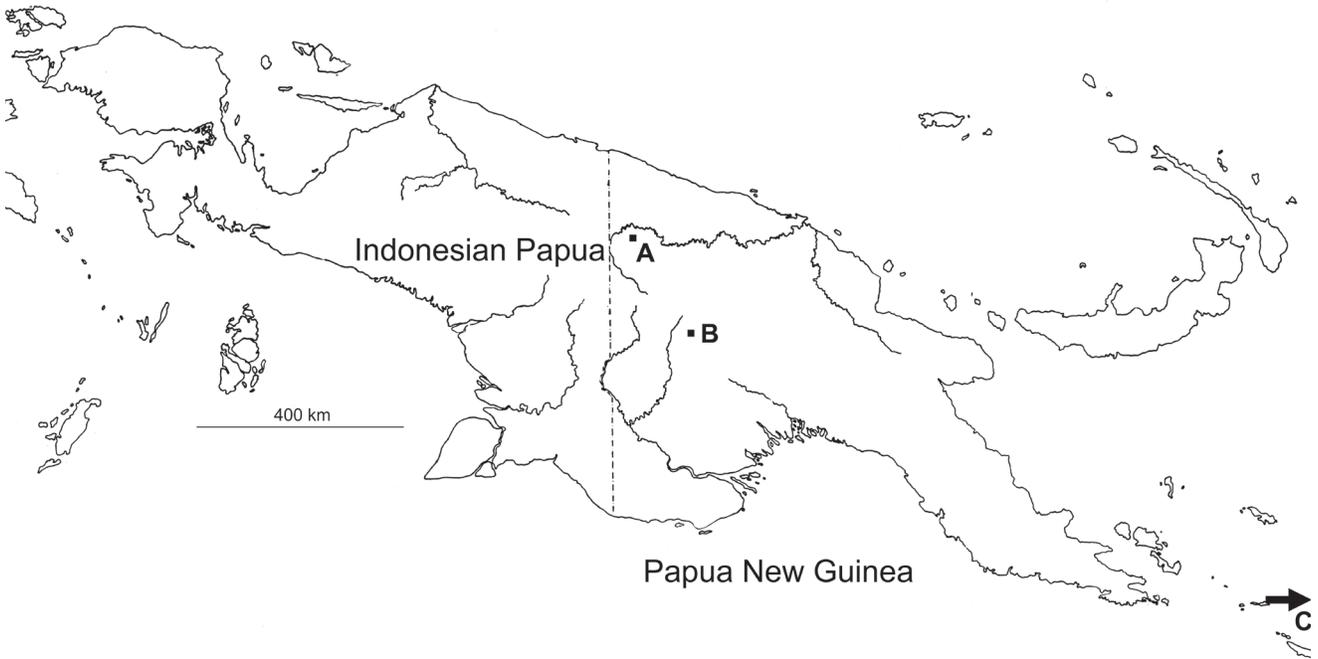


FIGURE 7. Island of New Guinea. **A**, type locality for *Psychotria golmanii*; **B**, type locality for *P. apdavisiana*; **C**, type locality for *P. reflexapedunculata* (Rossel Island, ca. 35 km outside the map’s lower right margin).

Habitat and ecology: a dominant understory species in lowland forests from 115 to 160 m.

Phenology: scattered individuals fruiting or in the early stages of flowering during December.

The *species nova* is a miniature monocaul with reflexed peduncles. Among Papuanian congeners, only *Psychotria reflexapedunculata* Sohmer from Rossel Island and *P. apdavisiana* W. N. Takeuchi of Western Province have this unusual combination of features (Sohmer, 1988; Takeuchi, 2013). Because of its small stature and downward-directed inflorescence, the fertile structures in the new plant are

concealed beneath the foliage. This circumstance is probably responsible for historical failures at detection, despite the presence of large populations.

Although vegetatively similar to *Psychotria apdavisiana*, the Sepik novelty is instantly distinguished by its paniculate infructescence and hirsute fruits. With their known ranges restricted to opposite-flowing drainages across the Central Divide, *P. golmanii* and *P. apdavisiana* are possibly sister species. The Papuanian congeners with reflexed peduncles can be readily separated using the following key:

- 1a. Glabrous or nearly so on all parts (Milne Bay Province) *Psychotria reflexapedunculata*
- 1b. Plants conspicuously hairy on all parts 2
- 2a. Fruits sessile, congested in a single terminal cluster. (Western Province) *P. apdavisiana*
- 2b. Fruits pedicellate, lax, arranged in an open panicle (West Sepik Province) *P. golmanii*

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APPENDIX

ADDITIONAL SPECIMEN CITED IN THE TEXT

- Psychotria apdavisiana* W.N.Takeuchi. PAPUA NEW GUINEA. Western Province: Strickland drainage, Juha South, survey track 1 to sinkhole area, mossy montane forest, 5°53.994'S, 142°26.234'E, 910 m, 21 February 2008, *Takeuchi, Gambia & Jisaka 23261* (holotype: A; isotypes: K, LAE).

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BOOK REVIEW

MICHAELA SCHMULL¹

Delmarva Lichens: An Illustrated Manual by James C. Lendemer and Nastassja Noell. 2018. 386 pp. ISSN 2380128X; ISBN 978-0-9996525-2-7; e-ISSN 978-0-99965253-4 (hardcover), \$30, plus shipping. *Memoirs of the Torrey Botanical Society*, Volume 28. The Torrey Botanical Society, New York Botanical Garden, Bronx, New York, U.S.A.

Delmarva Lichens: An Illustrated Manual treats a total of 299 species of lichenized and allied fungi, including lichenicolous fungi, from the Delmarva Peninsula, covering an area of about 320 km north to south and 110 km at its widest point west to east, occupied by Delaware and parts of the eastern shores of Maryland and Virginia. The manual covers macro- and microlichens and not only presents complete keys for this particular peninsula but can also be used for identifications along the eastern U.S. coast from Virginia to Massachusetts.

The organization and layout of the book makes it easy to navigate for both the professional and experienced amateur lichenologist. It comes with a new twist, however: in addition to the alphabetical checklist of species, the authors use a phylogenetically arranged checklist that is mirrored in the species treatments. This may make it unusual to use at first, but it should not deter any lichenologist, new or experienced, from consulting this valuable new contribution to lichenology. The book begins with several informative introductory sections covering important aspects of the area's natural history, human settlement on Delmarva, Delmarva's lichen floristic elements, study methods and materials, and Delmarva's lichen conservation, as well as offering a synopsis of other useful lichen publications. To give a better understanding of the geography and physiographic regions, a map is provided inside the front cover. The chapter "Checklists and Excluded Species" is presented in two forms: the first itemizes an alphabetical list of lichens, allied fungi, and all lichenicolous fungi; the second follows mostly the above-mentioned, recently published phylogenetic arrangement (Lücking et al., 2016, 2017). This latter list includes numbers of specimens of lichens and "lichen allies" per state, the total number for Delmarva, and a conservation rank for each species. "Lichen allies" exclude those lichenicolous fungi that do not belong to lichen-forming and allied fungi, and these lichenicolous fungi are also not treated in the identification keys. The "Summary of Study Methods and Materials" outlines the extensive fieldwork that the authors undertook, which included the photography of selected species in the field. On the basis of these observations and the study of

herbarium specimens, 17 previously reported species were excluded from the Delmarva Peninsula checklists. In the chapter "Lichen Conservation on Delmarva," the authors describe the effort they made to assess the conservation ranks for lichen species. This very important attempt, tying field work, the study of herbarium material, and consultation of existing literature together, is crucial for lichen conservation since they are often excluded from conservation and management policies, resulting in only two federally protected lichen species to date within the entire United States. The conservation ranks distinguished by the authors range from "regionally extinct" to "least concern" and "data deficient."

The chapter "Identification Keys" includes a dichotomous "Key to Keys" and nine smaller keys that recognize easily identified morphological groups: Calicioid Fungi, Foliose Cyanolichens, Foliose Chlorolichens, *Cladonia*, Fruticose Macrolichens, Typically Asexually Reproducing Crustose Lichens, Crustose Pyrenolichens, Crustose Apotheciate Lichens with Hyaline Spores, and Crustose Apotheciate Lichens with Brown Spores. *Multiclavula mucida* and *Dibaeis baeomyces* can be keyed out directly in the "Key to Keys." All keys are well constructed and clearly arranged. The keys include macroscopic characters important for identification, microscopic characters, and chemistry (spot tests and reactions under UV light). The "Phylogenetically Arranged Species Treatments" are formatted into taxonomy, description, distribution and ecology, conservation, and discussion sections and include distribution maps for each species, separating findings before and after 1950. While at the beginning of each genus treatment a short description of key characters of the respective genus is given, each species description lists detailed morphological-key characters, information about the photobiont, spot test results for standard chemical reagents, and chemistry obtained through TLC. The distribution and ecology section explains how frequently each species occurs on the Delmarva Peninsula, where it can be found (location and substrate), and where the species limits lie. The conservation section lists the above-mentioned ranks, and the discussion concludes with notes on specific characters the researcher should pay attention to, similar-looking lichens, and other topics. Color images of the species' general habitus are not in this section but are compiled at the end of the book. The book closes with "Literature Cited" where interested lichenologists can dig deeper into past publications, and the "Figure Captions for Color Photographs" as well as the photographs themselves.

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This work is an important contribution to U.S. East Coast lichen identification. It is comprehensive, including lichenized, lichenicolous, and allied fungi, with the important addition of conservation rank for each species. Its size and durable construction make it convenient to use in the field as well as at the microscope work table. Challenging aspects

of the book for new lichen enthusiasts include its lack of a general introduction to lichens or glossary, and the unusual species treatment arrangement in phylogenetic order. But those issues should not prevent anyone from consulting this extremely valuable identification key for the Delmarva Peninsula and beyond along the East Coast.

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This issue of *Harvard Papers in Botany* was composed by Barbara Kroner Morra, using Adobe InDesign CS6 for the Macintosh. The body of the text is set in 10-point Times Roman on 11 points of leading.

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Volume 24, Number 1

June 2019

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