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TAXONOMIC VALIDATION OF A WELL-KNOWN *ODONTOGLOSSUM* (ORCHIDACEAE: ONCIDIINAE) "GHOST"

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ABSTRACT. The plant that was first called "*Odontoglossum wyattianum*" by Gurney Wilson was exhibited at a meeting of the Royal Horticultural Society on January 3, 1928. No official description was ever published and no type specimen was ever designated, or has surfaced, hence making this distinct species a taxonomic 'ghost'. The taxonomic validation of *Odontoglossum wyattianum* is made here through the designation of a holotype, together with a diagnosis, a brief taxonomic history and comparison with similar and closely related species.

KEY WORDS: *Odontoglossum,* Oncidiinae, Cymbidieae, Epidendroideae, Peru*,* taxonomic validation

The plant that was first called *Odontoglossum wyattianum* by Gurney Wilson was exhibited by Frederick Sander at a meeting of the Royal Horticultural Society on January 3, 1928. Later the same day, the plant received a Botanical Certificate from the R.H.S. Scientific Committee. The plant had been obtained by Sander from Reverend Paul Wyatt, Bedford, England, who in turn had received it from a friend in Peru (Wilson 1928). Since then this 'species' has become a taxonomic 'ghost'. No official description was ever made and no type specimen was ever designated, or has ever surfaced. It also vanished from cultivation shortly after its introduction together with *Odm. harryanum* Rchb.f., which appears to be its closest relative.

Due to the earlier rarity of *Odontoglossum wyattianum* in cultivation, in addition to its close visual resemblance to primarily *Odm. harryanum*, these species have been mixed-up in both literature and horticulture. Charles Schweinfurth included a collection of *Odm. wyattianum* by the Polish collector Felix Woytkowski (*Woytkowski 35352*, UC-Berkeley = holotype), from the Tarma area in Junín, central Peru, as "*Odontoglossum harryanum*" in Orchids of Peru (Schweinfurth 1961). This was probably the reason why plants of *Odm. wyattianum* subsequently and for years were imported from Peru under the name of "*Odm. harryanum*". An attempt to clarify the situation was made by Jack Fowlie, who explained that the imports were made prior to the re-discovery of the long lost *Odm. harryanum* in Colombia (Fowlie 1973). Another reason for the continuation of this confusion was the treatment of the Ecuadorean form of *Odm. harryanum*, as "*Odm. wyattianum*" by Leonore Bockemühl (1989). Mark Chase added to this by treating *Odm. wyattianum* as a variety of *Odm. harryanum* in The Pictorial Encyclopedia of *Oncidium* (Chase in Zelenko 1997). When placing flowers of *Odm. wyattianum* next to the other species in the '*Odm. harryanum* complex' (Fig. 1), however, it is easy to recognize the morphological differences in the column shape, which displays a more distinct curve, and with much larger and serrated wings, versus straighter columns with forward projecting minute wings for other and closely related species, such as *Odm. deburghgraeveanum* Dalström & G.Merino, *Odm. harryanum* and *Odm. helgae* Königer.

Species of *Odontoglossum* have been transferred to *Oncidium* by some authors. A justification for rejecting this treatment is explained in more detail elsewhere (Dalström 2012, 2014).

TAXONOMIC TREATMENT

Odontoglossum wyattianum A.G.Wilson *ex* Dalström, *spec. nov*.

TYPE: Peru. Junín, Tarma, Utcuyaco, 1900 m, upon a rotten tree trunk in low forest, 20 Feb. 1948, *F. Woytkowski 35352* (holotype and isotype: UC-Berkeley). Fig. 2–3.

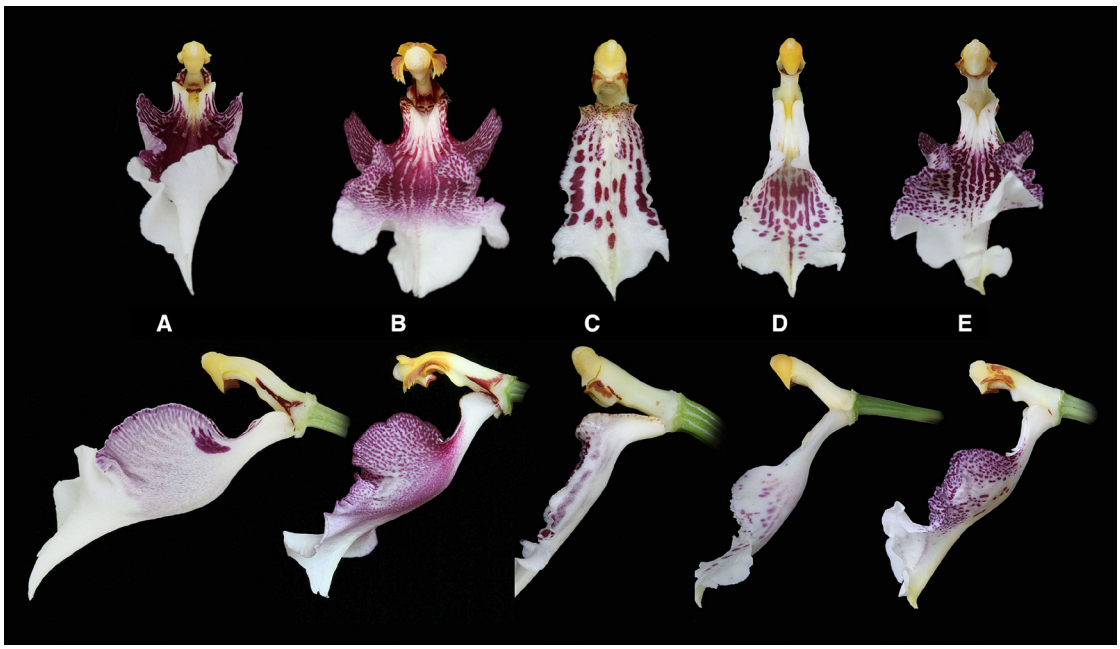

FIGURE 1. Comparison of species in the '*Odm. harryanum* complex', lip and column views. **A**. *Odm. harryanum*; **B**. *Odm. wyattianum*; **C**. *Odm. velleum*; **D**. *Odm. helgae*; **E**. *Odm. deburghgraeveanum*. Plants cultivated and photographed by G. Deburghgraeve.

Diagnosis: *Odontoglossum wyattianum* differs from the closely related and morphologically similar *Odm. deburghgraeveanum*, *Odm. harryanum* and *Odm. helgae* in that *Odm. wyattianum* has a more distinctly curved column carrying much larger, triangular, serrate wings, and frequently with a serrate column hood, versus straighter columns with insignificant and acute winglets for the other species.

Epiphytic *herb*. *Pseudobulbs* caespitose, oblong-ovoid to pyriform and apically variably truncate, ancipitous and slightly compressed, bifoliate, 6–8 × 2.5–3.0 cm, subtended basally by 7 to 9 distichous sheaths, the uppermost foliaceous. *Leaves* subpetiolate, conduplicate, elongate obovate, obtuse-acuminate, to *ca.* 44 × 2.5–4.0 cm. *Inflorescence* axillary from the base of the uppermost sheath, erect and arching, to *ca*. 1 m long, almost straight to loosely flexuous to *ca*. 10-flowered raceme; *bracts* appressed, scale-like, *ca*. 1.0–1.5 cm long. *Flower* campanulate, showy and fragrant; *dorsal sepal* light to dark brown with a white transverse bar or markings near the base, and a yellow apex, elliptic-oblong to elliptic, acute to acuminate, 4.5 × 1.3–2.5 cm; *lateral sepals* similar and slightly oblique; *petals* similar to the sepals but slightly smaller and slightly oblique; *lip* white to pale purplish heavily marked with purple near base, fading towards the middle of the lamina and often white near the apex, rigidly attached to the base of the column by a short, fleshy keel, then diverging away from the column in a 90° angle, with basal erect, rounded lobes, then unguiculate and broadly laminate, pandurate to trilobate with rounded, slightly concave lateral lobes, and a wavy, bilobed to retuse, slightly convolute, apiculate front lobe, *ca*. 3.5 × 2.5 cm; *callus* white, spotted with purple, emerging from the base as longitudinal, low and fleshy ridges, ending in more or less developed erect digitate denticles or tendrils near the base of the expanded lamina; *column* basally white then yellow with variable reddish brown markings, clavate, erect, and straight for *ca*. 2/3rd of the length, then strongly curved towards the lip, ventrally canaliculate with low angles, or lobes below the stigma, and with a large, triangular and slightly falcate wing on each side, 1.2–1.7 cm long; *anther cap* white to pale yellow, campanulate and rounded rostrate, dorsally weakly lobulate; *pollinarium* of two cleft/folded pyriform pollinia on an oblong-rectangular, *ca*. 3 mm long stipe, on a slightly hooked, pulvinate viscidium.

FIGURE 2. *Odontoglossum wyattianum*. Holotype, *F. Woytkowski 35352* (UC-Berkeley).

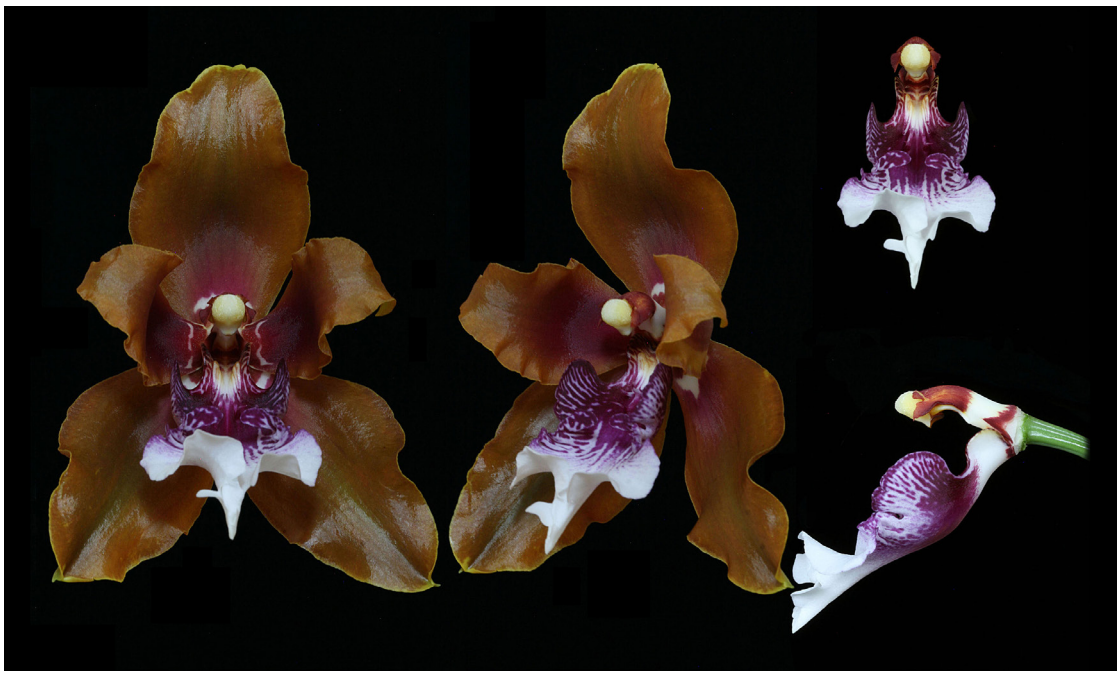

FIGURE 3. *Odontoglossum wyattianum*. Plant cultivated and photographed by G. Deburghgraeve.

ADDITIONAL MATERIAL SEEN: Peru. Huanuco, Leoncio Prado, Cuevas de Las Pavas, "950 m" [probably 1950 m], collected by E. Jara Mar. 1989, ex *D. E. Bennett 4532* (MO). Junín, Tarma, Agua Dulce near Utcuyaco, collected by *F. Woytkowski 27*, dried specimen prepared Oct. 1951 by *P. C. Hutchison s.n.* (UC-Berkeley; accession number 50.1517-1). Same area, San Ramón, Quebrada Carmen, 17 Feb. 1964, collected by D. E. Bennett and flowered in cultivation, ex *P. C. Hutchison & J. K. Wright 4127* (UC-Berkeley). Between San Ramón and Tarma, *ca.* 2000 m, flowered in cultivation, 22 Aug. 1979, *W. Gann 27*; OIC 3131 (SEL). Cusco, Paucartambo, Pilcopata, Kosñipata, "700" [probably 1700] m, 30 Dec. 1961, *C. Vargas 014996* (CUZ). Paucartambo, Pillawata, Yanamayo-Tambo, 2200–1800 m, 3 Nov. 1965, *C. Vargas 016736* (CUZ).

DISTRIBUTION: *Odontoglossum wyattianum* is only known from the seasonally wet cloud forests of central Peru, at altitudes of *ca.* 1700–2500 m.

EPONYMY: Named in honor of Rev. Paul Wyatt, of Bedford, England, to whom the plant had been forwarded by a friend in Peru, which is assumed to be the plant's origin.

ACKNOWLEDGMENTS. I thank Wesley Higgins for reviewing and commenting on the manuscript, Guido Deburghgraeve for lending his color photographs, and the curators of the UC-Berkeley and SEL herbaria for providing the opportunity to study the type specimen.

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NOTES ON COSTA RICAN *PTERICHIS* (ORCHIDACEAE) – NEW TAXA AND ADDITIONS TO NATIONAL ORCHID FLORA

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Abstract. A new species of the orchid genus *Pterichis, P. herrerae*, and a new variety of *P. habenarioides*, *P. habenarioides* var. *costaricensis*, are described and illustrated based on Costa Rican material. Information about new Costa Rican records of *P. pauciflora* and *P. parvifolia* is provided. An updated key to Costa Rican species of *Pterichis* is presented.

Key words: Costa Rica, new species, Orchidaceae, *Pterichis*, taxonomy

Introduction. The Neotropical orchid genus *Pterichis* was described by John Lindley (1840) based on Peruvian *P. galeata.* The author considered this species similar to *Sarcoglottis* C. Presl, but subsequent morphological (Pfitzer 1887) and molecular (eg. Salazar *et al.* 2003) studies revealed that the two genera are not closely related. Another orchid genus which Lindley found similar to his newly established *Pterichis* in the gynostemium structure was *Cryptostylis* R. Br., but this genus was classified by Szlachetko & Rutkowski (2000) in different subfamilies based i.a. on their anther form and position. Molecular data (Salazar *et al.* 2009) indicates that *Pterichis* is sister to other Cranichidinae (e.g., *Cranichis* Sw., *Ponthieva* R. Br. and *Baskervilla* Lindl.).

Morphologically representatives of *Pterichis* are easily distinguished from other cranichid orchids based on their floral characters. The abbreviate, massive gynostemium is observed also in *Cranichis, Fuertesiella* Schltr., *Pseudocentrum* Lindl. and *Ponthieva.* From the two latter genera *Pterichis* differs in the petals and lip being free from the column part and from other two by the scape developing separately from leaves.

Plants of *Pterichis* produce tuberous, clustered roots. The non-resupinate flowers are arranged into a loosely to subdensely flowered raceme (rarely congested). The tepals of *Pterichis* are subsimilar, with the petals narrower than the dorsal sepal and often adnate to it. The sessile lip is concave, usually with a pubescent disc and ornamented with swollen cells or knob-like projections along the margins. The gynostemium is short and erect, and the motile anther is much longer than the rest of the column. Four oblong-ovoid pollinia are produced. The rostellum is narrow, delicate, filiform and the hamulus is finger-like (Szlachetko & Rutkowski 2000).

The plants of *Pterichis* grow terrestrially and they are usually found in grassy slopes or shrubby paramo above 2800 m of elevation. Most of the currently recognized 25 species are distributed along the Andes; however, some species occur in Jamaica, Panama and Costa Rica (Cribb 2003, Dueñas Gómez & Fernández Alonso 2009).

Dressler (2003) reported two species of *Pterichis* from Costa Rica: *P. habenarioides* (F. Lehm. & Kraenzl.) Schltr. and *P. galeata* Lindl. considering *P. costaricensis* Ames & C. Schweinf. and *P. leo* L.D. Gómez & Gómez-Laur. as their respective synonyms. The Costa Rican populations are found in the elevations above 2250 m, often in wet montane forest and paramo.

During recent studies of herbarium specimens a new species of *Pterichis* was found and is described here. Moreover, an unusual form of *P. habenarioides* recognized in Costa Rican material is proposed here as a new variety. Two species of *Pterichis, P. pauciflora* Schltr. and *P. parvifolia* (Lindl.) Schltr. are reported here for Costa Rica for the first time.

Material and Methods. Dried herbarium specimens of *Pterichis*, over 180 in total, deposited or borrowed from AMES, COL, CUVC, F, FLAS, FMB, HUA, K,

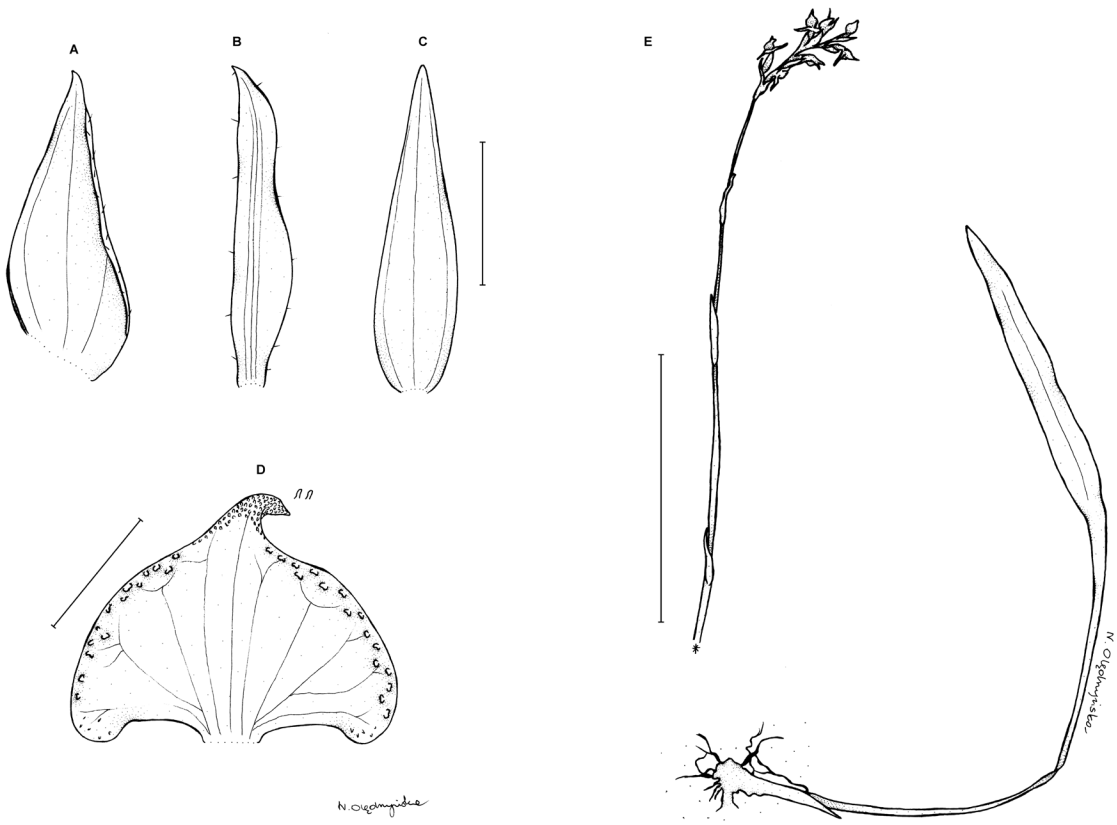

FIGURE 1. *Pterichis herrerae* A. Lateral sepal. B. Petal. C. Dorsal sepal. D. Lip. Scale bars = 3 mm. E. Scape, spike and leaf. Scale bar = 3 cm. Drawn by N. Olędrzyńska from the holotype.

MO, NY, P, PSO, SEL, VALLE and W were examined. Every studied specimen was photographed and the data from the labels were recorded. The presence and shape of the leaf as well as the length and the surface of the scape were studied. The examination of the vegetative structures included the form and number of the tubular sheaths enveloping the scape and the form of the floral bracts and ovaries. From each specimens 3-5 flowers were examined. The perianth parts were studied after rehydrating flowers in boiling water.

NEW TAXA

Pterichis herrerae Kolan., *sp. nov.*

TYPE: Costa Rica. Puntarenas. Cantón de Buenos Aires, Ujarrás, cumbre y ladera Atlántica de Cerro Dúrika, 9°22'35"N 83°18'24"W, 3280 m, 12 Oct 1989, *G. Herrera 3665* (holotype, F!; isotypes, F!, MO, SEL). Fig. 1–2.

DIAGNOSIS. This species resembles *P. habenarioides* and *P. triloba* (Lindl.) Schltr., but it is distinguished by the cordate lip base, obliquely ovate, rounded lip lateral lobes and lip margins ornamented with prominent, knob-like projections.

Plant up to 32 cm tall. *Leaf* basal, long-petiolate; blade 9.5 cm long, linear-lanceolate, acute; petiole 12 cm long. *Scape* up to 27 cm long, with 4 glabrous, tubular sheaths, pubescent in the upper part. *Spike* 2.7−5.0 cm long, pubescent, subdensely 4−10-flowered. *Flowers* green with yellowish-green lip. *Floral bracts* up to 8 mm long, 3 mm wide, pubescent, narrowly ovate, subobtuse. *Ovary* 9 mm long, pubescent. *Dorsal sepal* 7.0 × 1.5 mm, externally sparsely ciliate, lanceolate, obtuse, 3-veined. *Petals* 6.8 × 1.2 mm, adnate to dorsal sepal, sparsely ciliate along margins, linear-lanceolate, unguiculate at the base and constricted in the upper third, acute, 3-veined. *Lateral sepals* 6.5 × 2.5 mm,

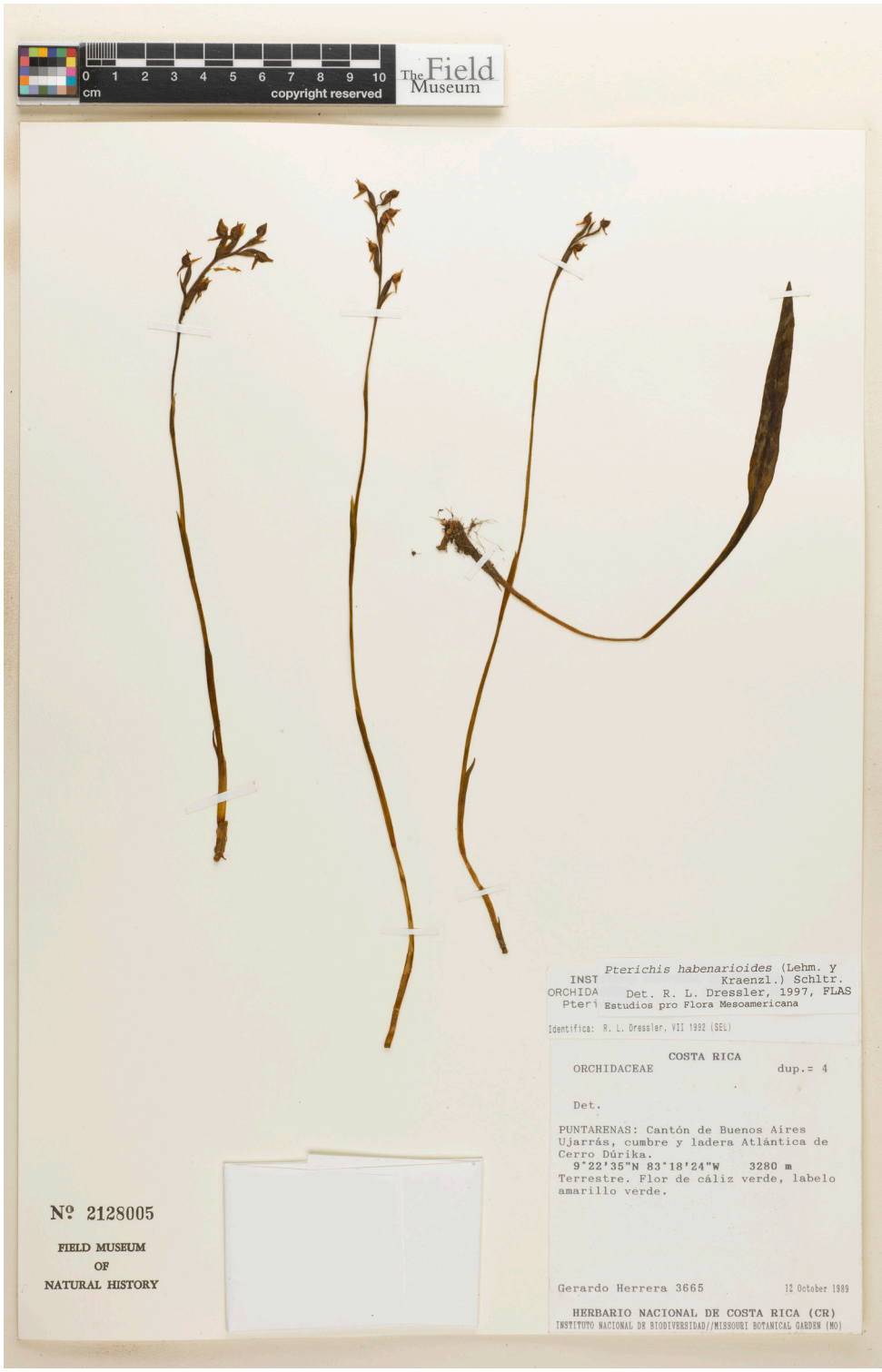

FIGURE 2. The holotype of *Pterichis herrerae*. Courtesy of the Field Museum of Natural History.

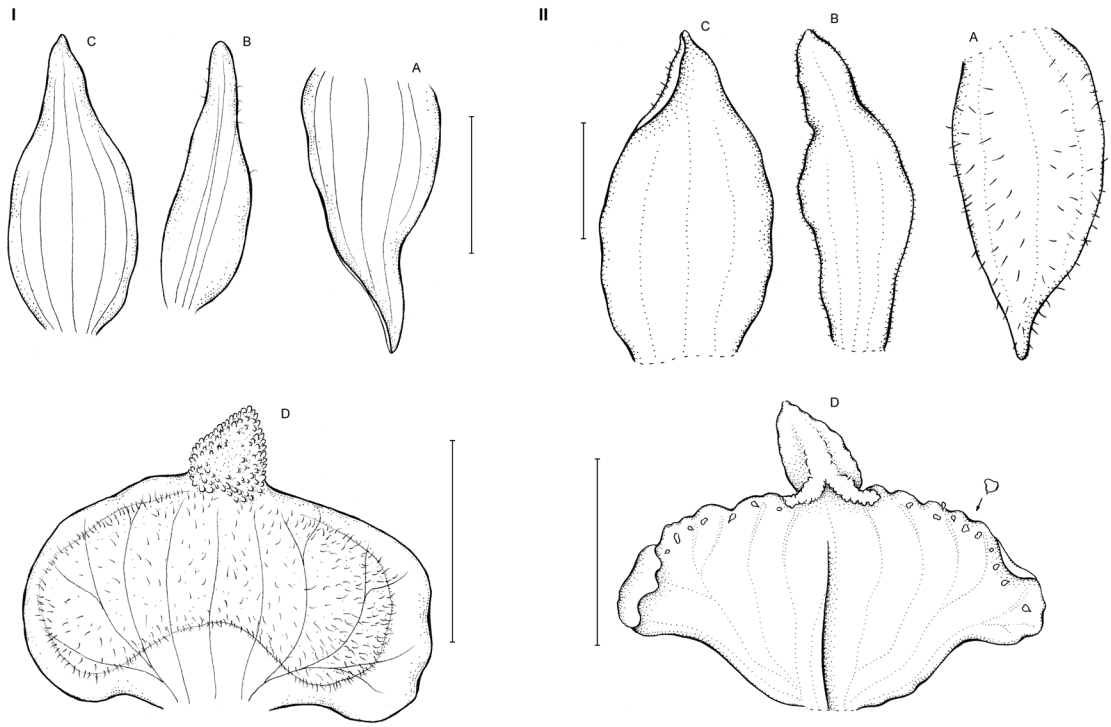

FIGURE 3. Perianth segments of *Pterichis habenarioides* (I, *Pedraza & al. 247*, COL) and *P. triloba* (II, *Jameson s.n.*, W). A. Dorsal sepal. B. Petal. C. Lateral sepal. D. Lip. Scale bars = 3 mm. Drawn by A. Król and S. Nowak.

externally sparsely ciliate, obliquely ovate, subacute, 2-veined. *Lip* about 5 × 7 mm, 3-lobed, cordate at the base; middle lobe about 1/4 of the lip length, reflexed, triangular-ovate, acute, densely glandular-pubescent; lateral lobes obliquely triangular-ovate, rounded; disc 5-veined, veins branching, margins ornamented with knob-like projections and swollen cells in the basal part. *Gynostemium* 2.5 mm long. *Fruit* not seen.

ETYMOLOGY. Dedicated to collector of the type specimen.

DISTRIBUTION AND ECOLOGY. So far this species is known exclusively from Costa Rican province of Puntarenas, where it was found growing terrestrially at the altitude of over 3200 m. Flowering occurs at least in October.

TAXONOMIC NOTES. This species resembles *P. habenarioides* (F.Lehm. & Kraenzl.) Schltr. and *P. triloba* (Lindl.) Schltr. (Fig. 3). From the latter species *P. herrerae* is easily distinguished by the cordate lip base (vs. truncate in *P. triloba*), the 5-veined lip disc (vs. 7-veined) and presence of numerous (over 30 in total) knob-like projections along the lip margins (vs. 8−10 projections on each side). The floral bracts of *P. habenarioides* are glabrous, its dorsal sepal is ovate-lanceolate (vs. lanceolate in *P. herrerae*), the petals are obovate-lanceolate, not unguiculate (vs. linear-lanceolate above, unguiculate basally), and the lip is transversely triangular-elliptic in outline (vs. cordate in *P. herrerae*). Another similar species is the South American *P. diuris* Rchb. f., which has petals free from dorsal sepal, the lip base is truncate and disc lacks any knob-like projections.

Pterichsis habenarioides var. ***costaricensis*** Kolan., *var. nov.*

DIAGNOSIS: Distinguished from *P. habenarioides var. habenarioides* by the glabrous dorsal sepal and petals, the sparsely ciliate, 2-veined lateral sepals, and the lateral lobes of the lip form auricles.

TYPE: Costa Rica. Limon. Cordillera de Talamanca, Atlantic slope, Kámuk massif, páramo north-east of the main Kámuk peak, 9°16’30”N 83°01’00”W, 3000−3300 m, 17−19 Sep 1984, *G. Davidse & G. Herrera 29296* (holotype, F!; isotype: CR). Fig. 4–5.

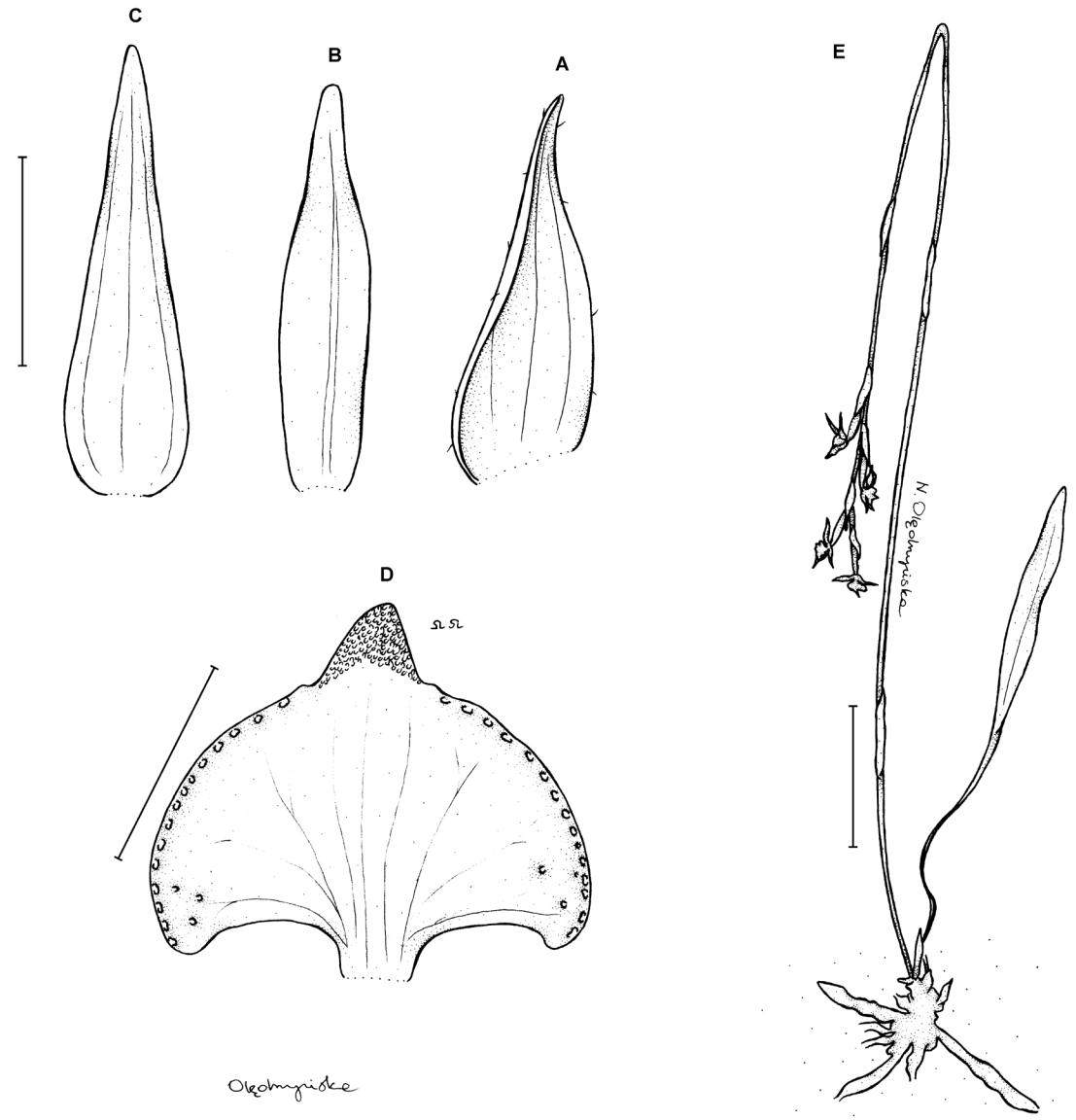

Figure 4. *Pterichsis habenarioides* var. *costaricensis* A. Lateral sepal. B. Petal. C. Dorsal sepal. D. Lip, flattened. E. Habit. Scale bar = 3 cm. Drawn by N. Olędrzyńska from the holotype.

Plants up to 40 cm tall. *Leaf* basal, petiolate; blade 5.5-6.0 cm long, linear-lanceolate, acute; petiole 4.5-6.5 cm long. *Scape* up to 36 cm long, scape with 3-4 tubular sheaths. *Flower* greenish-yellow, lip yellow with green or brown veins. *Floral bracts* up to 13 mm long, 4 mm wide, pubescent. *Ovary* up to 13 mm long, pubescent. *Dorsal sepal* 6.5 mm long, 1.5 mm wide, glabrous, lanceolate, obtuse, 3-veined. *Petals* 5.9 × 1.2 mm, adnate to dorsal sepal, glabrous, ligulate-lanceolate, obtuse, 2-veined. *Lateral sepals* 5.5 × 1.8 mm, ovate, obtuse, sparsely ciliate, 2-veined. *Lip* 6 mm long and about the same wide, indistinctly 3-lobed; middle lobe broadly ovate, short, densely glandular-pubescent, obtuse, reflexed; lateral lobes obliquely ovate, rounded; disc 5-veined, lateral veins branching, ornamented with numerous swollen cells along the margins. *Gynostemium* 2.5 mm long. *Fruit* not seen.

FIGURE 5. The holotype of *Pterichis habenarioides* var. *costaricensis*. Courtesy of the Field Museum of Natural History.

Etymology: In reference to the origin of the type specimen.

Distribution and ecology. So far this variety is known exclusively from Cordillera de Talamanca. The population was found growing in *Blechnum*-shrub association in *Chusquea-Hypericum* paramo. Flowering occurs in September.

Examined Specimens of *P. habenarioides var. habenarioides*: Colombia. Boyacá. Mpio. de Chinavita. Cerro Mamapacha. Vereda Mundo Nuevo, Laguna La Jarilla, paramo, 3300 m, 26 Jul 2001, *H. Duenas, F. Cortes, J. Farfan, E.C. Buitrago, M.F. Rodriguez & J. Puentes 3107* (COL!), Cauca. Mpio. de Purace. Parque Nacional Natural de Purace. Cercanias de la Laguna San Rafael, 3300 m, 6 Oct 1984, *G. Lozano, O. Rangel, L.F. de Turbay, A. Sanabria & N. Espejo 4654* (COL!), Macizo Colombiano. Paramo de Las Papas. Colinas al SE de la Laguna La Magdalena, vertiente del rio Magdalena, 3350-3450 m, 12 Sep 1958, *Idrobo, Pinto & Bischler 3249* (COL!), Macizo Colombiano. Paramo Las Papas. Filo entre el Boqueron y el cerro de Penas Blancas, 3330 m, 14 Sep 1958, *Idrobo, Pinto 7 Bischler 3321* (COL!), Macizo Colombiano. Valle del Cauca, cerca de su nacimiento, 3000 m, 19 Sep 1958, *Idrobo, Pinto & Bischler 3460* (COL!), Macizo Colombiano. Valle de Las Papas, alrededores de Valencia, Los Andes. Alt. 3150 m. Wet cienga between scrub patches, an extension of Station 4, approx. 3 km from casa of Hacienda Los Andes, 1 Oct 1958, *Barclay & P. Juajibioy 5892* (COL!), Paramo Guanacas. *Lehmann 6419* (K!), Cundinamarca. D.C., localidad 20, Parque Nacional Natural Sumapaz, vereda Santa Rosa, arriba de la laguna Casa Blanca, 3500 m, 7 Aug 1998, *P. Pedraza, P. Franco, D. Stancik & A. Neira 247 p.p.* (COL!), Bogotá. Paramo de Cruz Verde, 3200 m, 6 Sep 1977, *G. Morales & Flenley 30* (COL!), San Miguel. *Schneider 673* (COL!), Huila. Mpio. de Gigante. Vered Ventanas, Cerro de Miraflores, subida desde el Campamento 1, en bosque andino de *Winmannia, Brunellia, Clusia* hasta el subparamo (3050 m), con *Dipostephium, Brachyotum, Gynoxis, Weinmannia,* 12-16 Aug 1997, *J.L. Fernandez Alonso, E. Linares, P. Balcazar, R. Vasquez, J. Velez & G. Salazar 14851* (COL!), Meta. Macizo de Sumapaz. Alrededores de la Laguna La Guitarra, alt. 3380-3420 m, 4 Jul 1981, *S. Diaz P. 2404* (COL!), Nariño/Putumayo. Mpio. de Santiago Vereda. Paramo del Bordoncillo. 1°11'N, 77°06'W, 3200-3400 m, 17 Apr 1993, *A. Munoz & D. Ramirez 414* (COL), Quindio. Pijao. Paramo del Chili, km 28, paramo, 3600 m, 17 Sep 1998, *Gil-Correa 115 & N. Ocampo, M. Piepenbring, C. Velez* (COL!), *Sine loc. Lehmann 6419* (K!).

New records

Pterichis pauciflora Schltr., Repert. Spec. Nov. Regni Veg., Beih. 8: 41. 1921.

TYPE(Garay 1978): Ecuador. Loja, in Andibus orientalibus, 3000−3400 m, *Lehmann 7111* (holotype: B†, lectotype, K!).

Plant 14−62 cm tall, erect. *Leaf* basal, petiolate; petiole 2−3 cm long; blade about 5 × 1−2 cm, linear to oblong-lanceolate, acute. *Scape* up to 58 cm tall, erect, minutely puberulent in the upper part, with 3−6 tubular, pubescent sheaths. *Spike* 2−4 cm long, pubescent, loosely to subdensely 5−10-flowered. *Flowers* yellowish-orange to yellowish-brown according to the herbarium label. *Floral bracts* up to 8 mm long, ovate-lanceolate, glabrous. Pedicellate ovary 9−11 mm long, densely glandular. *Dorsal sepal* 6.0−6.8 × 1.7−2.2 mm, ovate-lanceolate to ovate, obtuse, almost glabrous, 3-veined. *Petals* 6.0−6.5 × 1.0−1.2 mm, adnate to dorsal sepal, obliquely linear-lanceolate, acuminate, margin sparsely ciliate, l-veined. *Lateral sepals* 5.5−6.5 × 1.5−2 mm, obliquely ovate-lanceolate to ovate, concave, acuminate, glabrous or sparsely ciliate externally, 3−4-veined. *Lip* 5,0 × 4.5−7.0 mm, indistinctly 3-lobed; basal part triangular-elliptic; apical lobe triangular, obtuse, reflexed, glandulose-papillose; disc 7-veined, margin ornamented with swollen cells. *Gynostemium* 2.3 mm long. *Fruit* not seen.

Representative specimens: Costa Rica. Puntarenas. Cantón de Coto Brus. P.N. La Amistad, Cuenca Térraba-Sierpe, Cerro Echandi, 9°01'57"N 82°49'19"W, 3000−3150 m, 13 Aug 1997, *Gamboa & al. 1718* (FLAS!); Cartago. Carretera Panamericana Sur, 2700 m, 17 Jul 1963, *A. Jimenez 849* (F!, Fig. 6).

Distribution and ecology. Until now this species was reported from Ecuador and Colombia. In Costa Rica it was found growing terrestrially in paramo, forest edges and vegetation with *Sphagnum* at the altitude

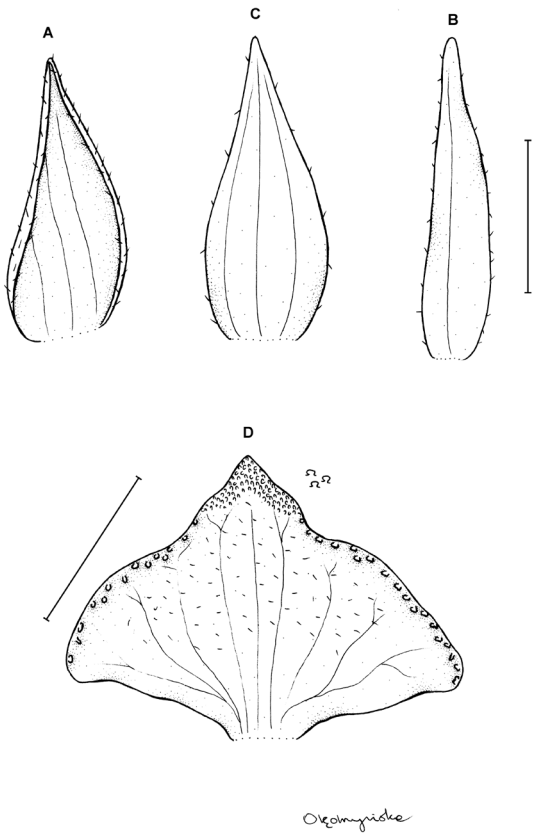

FIGURE 6. *Pterichis pauciflora* A. Lateral sepal. B. Petal. C. Dorsal sepal. D. Lip. Scale bars = 3 mm. Drawn by N. Olędrzyńska from *Jimenez 849* (F).

above 2700 m. Flowering occurs in July and August.

OTHER SPECIMENS EXAMINED: Colombia. Boyacá. Mpio. Arcabuco. Santuario de Flora y Fauna de Igauque. Camino a la Laguna. Paramo dominado por *Espeletia, Calamagrostis, Hypericum, Lupinus, Monnina, Cavendishia, Castilleja,* 3600 m, 24 Sep 2002, *H. Duenas, F. Cortes & N. Aranguren 3130* (COL!), Mpio. Villa de Leyva. Parque Nacional Natural santuario de Iguaque, 3700 m, 20 Jul 1979, *M. Melampy 207* (COL!), Mpio. Pesca. Paramo de la Cortadera. Vereda La Pena, 3600 m, 21 Aug 1982, *M. Bejarano B. 245* (COL!), Cundinamarca. D.C., localidad 20, Parque Nacional Natural Sumapaz, vereda Santa Rosa, arriba de la laguna Casa Blanca, 3500 m, 7 Aug 1998, *P. Pedraza, P. Franco, D. Stancik & A. Neira 247 p.p.* (COL!), Bogotá. Paramo de Monserrate, 3000 m, 26 Jul 1943, *Schneider 243* (COL!), Carretera Paramo de Palacio a Rio Chuza, cabeceras Valle Chocolatel. Vertiente pedregoso con *Calamagrostis effusa* y *Oreobolus obtusangulus,* 3700 m, 9 Sep 1972, *A.M. Cleef 5435* (COL!), Paramo entre Cogua y San Cayetano. Laguna Verde y alrededores Paramo seco con *Calamagrostis effusa,* 2 km al NW de la Laguna, 3600 m, 19 Aug 1972, *A.M. Cleef, M.T. Murillo & van der Hammen 5164* (COL!), Meta. Macizo de Sumapaz. Alrededores de la Laguna El Sorbedero, 3550 m, 4 Jul 1981, *S. Diaz P., A.M. Cleef, van der Hammen, O. Rangel & S. Salamanca 2472* (COL!), Upland E of Sesquile, 3300 m, 5 Jul 1947, *Haught 5929* (COL!). Ecuador. Loja. *Lehmann 7111* (K!).

Pterichis parvifolia (Lindl.) Schltr., Bot. Jahrb. Syst. 45: 389. 1911. ≡ *Acraea parvifolia* Lindl., Pl. Hartw.: 155. 1845.

TYPE: Ecuador. Loja. *Hartweg 50* (K-Lindl.!).

Plant about 37 cm tall. *Leaf* basal, petiolate; petiole 6.5−9 cm long, canaliculated; blade up to 11.0 × 0.6−1.0 cm, linear-lanceolate, subacute. *Scape* about 25 cm tall, pubescent, with 5 sheaths decreasing in size distally along the scape, pubescent in upper half. *Spike* 8−9 cm long, pubescent, loosely several-flowered. *Flowers* greenish with yellow lip with brownish veins. *Floral bracts* up to 9 mm long, glabrous, ovate-lanceolate, acute. Pedicellate *ovary* up to 13 mm long, pubescent. *Dorsal sepal* 7 × 2 mm, ovate-lanceolate, subacuminate, obtuse, glabrous, 3-veined. *Petals* 7.0 × 1.5 mm, ciliate along margins, unguiculate in lower fifth, obliquely oblong-lanceolate, subacute, 2-veined. *Lateral sepals* 5.5 × 2.5 mm, glabrous, obliquely ovate, subacuminate, 2-veined. *Lip* about 5−6 × 7 mm, 3-lobed, base truncate; middle lobe reflexed, densely glandular-pubescent, ovate-triangular, subobtuse; lateral lobes obliquely ovate; disc 5-veined, lateral lobes branching, margin ornamented with a row of prominent papillae. *Gynostemium* 2 mm long. *Fruit* not seen.

REPRESENTATIVE SPECIMEN: Costa Rica. San Jose and Cartago. Below the highest point of Interamerican Highway, northwest of La Asuncion, 9°34'N 83°45'W, 3000-3200 m, 27 Oct 1975, *W. Burger & R. Baker 9505* (F!, Fig. 7).

DISTRIBUTION AND ECOLOGY. Until now this species was reported from Peru, Ecuador and Colombia. In

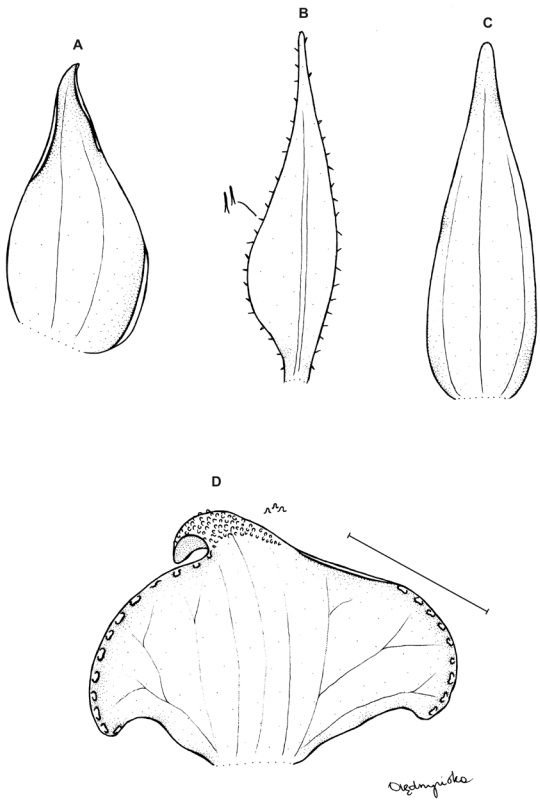

Figure 7. *Pterichis parvifolia* A. Lateral sepal. B. Petal. C. Dorsal sepal. D. Lip. Scale bars = 3 mm. Drawn by N. Olędrzyńska from *Burger & Baker 9505* (F).

Costa Rica it was found in steep wet grassy slope at an altitude of about 3000-3200 m. Flowering occurs at least in October.

Other specimens examined: Colombia. Nariño. Mpio. Guachucal-Cumbal. Paramo de Infernillo. The ridge in direction to Vulcan Cumbal. Grassy paramo with *Calamagrostis effusa, Cortadera, Diplostephium, Espeletia, Puya.* Flowers yellowish, 3700 m, 5-9 Mar 1999, *Stancik 2687* (COL!), Mpio. Mallama-Piedrahancha. Vereda Pueblo Viejo. Paramo del Infernillo. Reserve Natural Pueblo Viejo. Km 97 via Pasto-Tumaco, desvio a la izquierda viajando hacia Tumaco y ascenda de 2 km por la carretera via Pueblo Viejo Coleccion entre la Cabana principal de la reserve y el sitio "La Lagunetas", 1°03'02.9"-1°01'16.2"N, 77°46'43.7"-77°47'7.8"W, 3318-3739 m, 8 Jan 2009, *L.M. Caballero, O. Rivera Diaz, G. Silva, C. Leguizamo, M. Ayala, J. Gil & M. Rodriguez LMC3* (COL!). Ecuador. Loja. *Hartweg 50* (K-Lindl.!).

Key to Costa Rican species of *Pterichis*

1. Petals free from dorsal sepal ..... *P. galeata*
1a. Petals adnate to dorsal sepal 2
2. Lateral lobes of the lip not forming auricles ..... *P. habenarioides* var. *habenarioides*
2a. Lateral lobes of the lip forming auricles 3
3. Petals glabrous ..... *P. habenarioides* var. *costaricensis*
3a. Petals ciliate on margins 4
4. Petals sessile, 1-veined ..... *P. pauciflora*
4a. Petals unguiculate, 2-veined 5
5. Petals constricted in the upper third, sepals externally ciliate *P. herrerae*
5a. Petals not contricted in the upper part, sepals glabrous ..... *P. parvifolia*

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LANKESTERIANA 14(2): 109—114. 2014.

REDISCOVERY OF *MALAXIS NANA* (ORCHIDACEAE: MALAXIDEAE) IN COSTA RICA, WITH AN UPDATED DESCRIPTION

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Abstract. *Malaxis nana* C. Schweinf. is known from two herbarium specimens collected in 1925 in San Ramón, Alajuela province, and three additional specimens without detailed locality data collected in the late 1800's, all of them in Costa Rica. This species had not been registered since. *Malaxis nana* is hereby first reported for Las Cruces Biological Station, Puntarenas province, in southern Costa Rica. An updated description, illustration, photographs and distribution map for this taxon are provided.

Resumen. *Malaxis nana* C. Schweinf. se conoce de dos especímenes recolectados en 1925 en San Ramón, provincia de Alajuela, y tres especímenes adicionales sin datos de localidad detallados y recolectados en los finales de los 1800's, todos de Costa Rica. Esta especie no había sido registrada desde entonces. Aquí informamos por vez primera sobre la existencia de *Malaxis nana* en la Estación Biológica Las Cruces, provincia de Puntarenas, en el sur de Costa Rica. Se presenta una descripción actualizada, ilustración, fotografías y mapa de distribución para este taxón.

Key words: Alberto M. Brenes, Auguste R. Endrés, Las Cruces Biological Station

Introduction. The genus *Malaxis* Sol. ex Sw. (1788: 119; Orchidaceae) encompasses ca. 300 species (Todzia 1995, Dodson 2002, Dressler 2003, Cribb 2005) distributed worldwide, with at ca. 100 species in the Western Hemisphere (Dodson 2002) and 21 reported so far for Costa Rica (Pupulin 2002, Dressler 2003). According to a preliminary molecular phylogenetic analysis (Cameron 2005) the genus is at least diphyletic in its traditional circumscription. Here, we adopt the generic classification of tribe Malaxideae Lindl. of Cribb (2005; 13 genera), as well as his circumscription of *Malaxis*. Szlachetko and Margońska (2006) recognize at least two generic segregates of Neotropical *Malaxis* sensu Cribb (2005) (i.e., *Microstylis* (Nutt.) Eaton and *Tamayorkis* Szlach.); however, their rationale is not explicit, and the species treated here would still be included in their narrow circumscription of *Malaxis*.

Tropical species of *Malaxis* occur in a great variety of environments, ranging from lowlands rain forests to paramos (and reportedly also from semiarid environments; González-Tamayo 2002), from sea level to 3500 m elevation (González-Tamayo 2002). Plants of *Malaxis* are easily recognized by their herbaceous, sympodial habit, rhizomatous stems often with small pseudobulbs or corms covered by membranaceous cataphylls, one or two non-articulated leaves produced per sympodial unit, terminal inflorescences (either racemes or corymbs), and small, usually green flowers with a frequently concave disc (sometimes transversally divided by a longitudinal ridge) located at the base of the labellum.

During the botanical field course "Sistemática de Plantas Tropicales (OET 2013-18)" at Las Cruces Biological Station (southern Fila Costeña, Puntarenas Province, Costa Rica), a small epiphytic plant of *Malaxis* was found growing in late secondary forest at the base of a mature tree with ca. 50 cm of diameter at breast height (DBH); this plant was eventually identified as *M. nana* C. Schweinf. (1938: 89–91).

After studying specimens from six herbaria in Costa Rica (CR, HLDG, INB, JBL, LSCR, and USJ) and other important herbarium databases available on-line (AMES, K, MO, NY and W), only three additional specimens of *M. nana* were found (*Endres 138* and *Endres s.n.* [2 specimens], both at W, collected somewhere in Costa Rica between 1866 and 1874; see discussion).

Because of the dearth of information on *Malaxis nana*, we provide an updated description, illustrations, a distribution map, and brief commentaries on the ecology of this taxon.

Materials and methods. Live plants of *Malaxis nana* were collected on July 2013 in the forest preserve of Las Cruces Biological Station (see detailed locality data under "additional specimens examined", below). The identification was made using the treatment of Dressler (2003) and verified by comparing the plant with the protologue (Schweinfurth 1938). A dry herbarium specimen was prepared, and flowers were also preserved in liquid (70% ethanol, 20% water, 10% glycerol). The updated description below was prepared based on all six collections of *M. nana* available to us (either as physical specimens or as digital images) by early 2014. Distribution maps were generated using DIVA-GIS.

Taxonomic treatment

Malaxis nana C. Schweinf., Bot. Mus. Leafl. 5(6): 89–91. 1938. (Figs. 1, 2)

Type: —COSTA RICA. [Alajuela: San Ramón,] bois à San Pedro de San Ramón, epiphyte, de 7 cm. haut., alt. 850 m, 27 June 1925, *Brenes* (*96*) *1301* (holotype: AMES [image!], mounted on same sheet as paratype).

Epiphytic, sympodial, cespitose *herbs* (usually with only 2 consecutive sympodial units present at any given moment), 2–6 cm tall (to the top of the inflorescence). *Roots* 1.0–1.9 mm in diameter, whitish, pilose, growing from the base of each pseudobulb. *Pseudobulbs* 5–13 × 4–6 mm, green, ellipsoid to ovoid, heteroblastic, covered by 1–2 membranaceous cataphylls 0.5–2.0 cm long. *Leaves* 2 per sympodial unit (produced from the apex of the pseudobulb), present only in the most recent sympodial unit, shortly pseudopetiolate; pseudopetioles (sheaths of the foliage leaves) U-shaped in cross section, 5–27 × 3–4 mm (folded), erect, enveloping each other and the inflorescence, forming a pseudostem that projects above the hidden pseudobulb; blades 13.0−68.0 × 2.1–36.0 mm (in flowering shoots), often slightly anisophyllous, horizontal to ascending, subopposite, broadly lanceolate to ovate, basally cuneate to round, apically acute, shiny green with crystalline texture adaxially, matte greyish green abaxially, herbaceous, 9–16 veined, the midvein impressed. *Inflorescences* 22–45 mm long (including peduncle), erect to arcuate; peduncle 23–41 mm long, minutely ribbed, of a single visible internode; rachis 2–4 mm long, corymbose, with up to 25 simultaneously open flowers and ca. 12 developing buds. *Floral bracts* up to 2 × 1 mm, spreading, membranaceous, green, triangular, 1-veined. *Pedicel* plus *ovary* 5–15 mm long, seemingly increasing in length with age during both before and during anthesis. *Flowers* relatively big for the size of the plant (open perianth ca. 9 mm long), secondarily non-resupinate (by 180 degree twisting and upward bending of the pedicel), emerald green, turning coppery orange when old (or "chestnut brown" according to one herbarium collection), membranaceous, sepals and petals lustrous and somewhat translucent. *Dorsal sepal* 6.0–7.6 × 1.2–2.0 mm, spreading, adpressed to the ovary, narrowly lanceolate, acute to long-acuminate, entire, retrorse towards the apex, 3-veined. *Lateral sepals* 6.1–8.0 × 1.8 mm, free, spreading, obliquely narrowly lanceolate, acute to acuminate, entire, margins slightly revolute, 3-veined. *Petals* 6.0–7.0 × 0.5–1.0 mm, spreading, slightly recurved upon the middle part, narrowly triangular to linear, acute, entire, 1-veined. *Labellum* 5.1–6.5 × 2.1–4.0 mm, spreading, ovate to lanceolate, long-acuminate, entire, fleshy, concave at the proximal half, disc cavity non-divided, somewhat darker than the rest of the labellum. *Column* 1.1 × 2.0 mm (wider than long), dorsiventrally compressed, emarginate. *Anther* dorsal, with 2 divergent thecae. *Pollinia* 4 in 2 hemipollinaria (1 per theca), each pollinium ca. 1 mm long, yellow, narrowly ovoid; the two pollinia in each hemipollinarium tightly appressed to each other, sharing a single apical caudicle ca. 0.2 mm long. *Rostellum* concave. *Stigma* ventral, transversally bilobed, ca. 0.7 × 1.5 mm. *Fruit* a capsule, 5 mm long when dehisced, apparently with 2 narrow valves and 1 wider valve separating at apex.

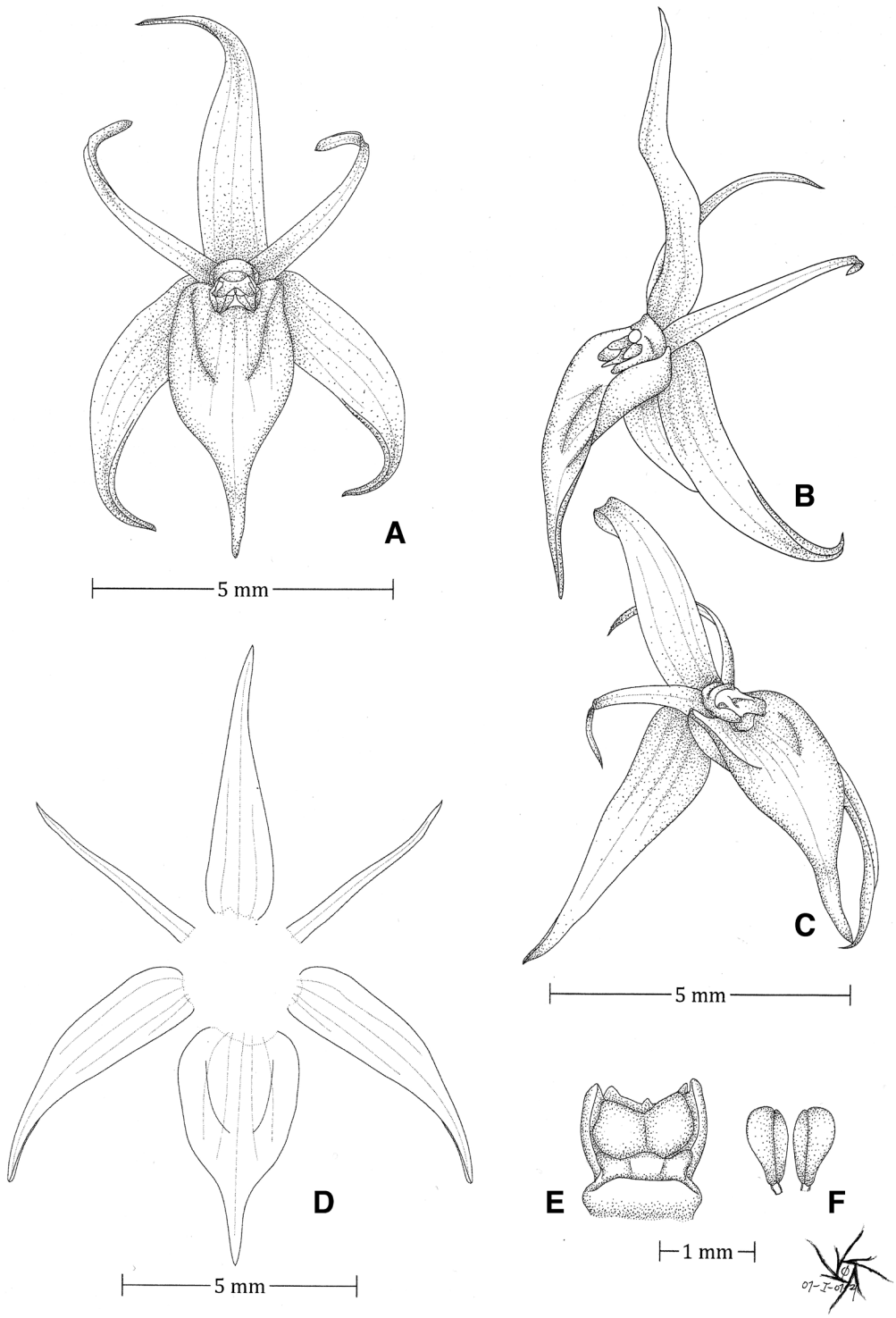

Figure 1. *Malaxis nana*. A. Flower, front view. B. Flower, side view. C. Flower, oblique view. D. Dissected perianth. E. Column, dorsal view, with hemipollinaria removed. F. Hemipollinaria. Drawn by O. Pérez from *Pérez 1412*.

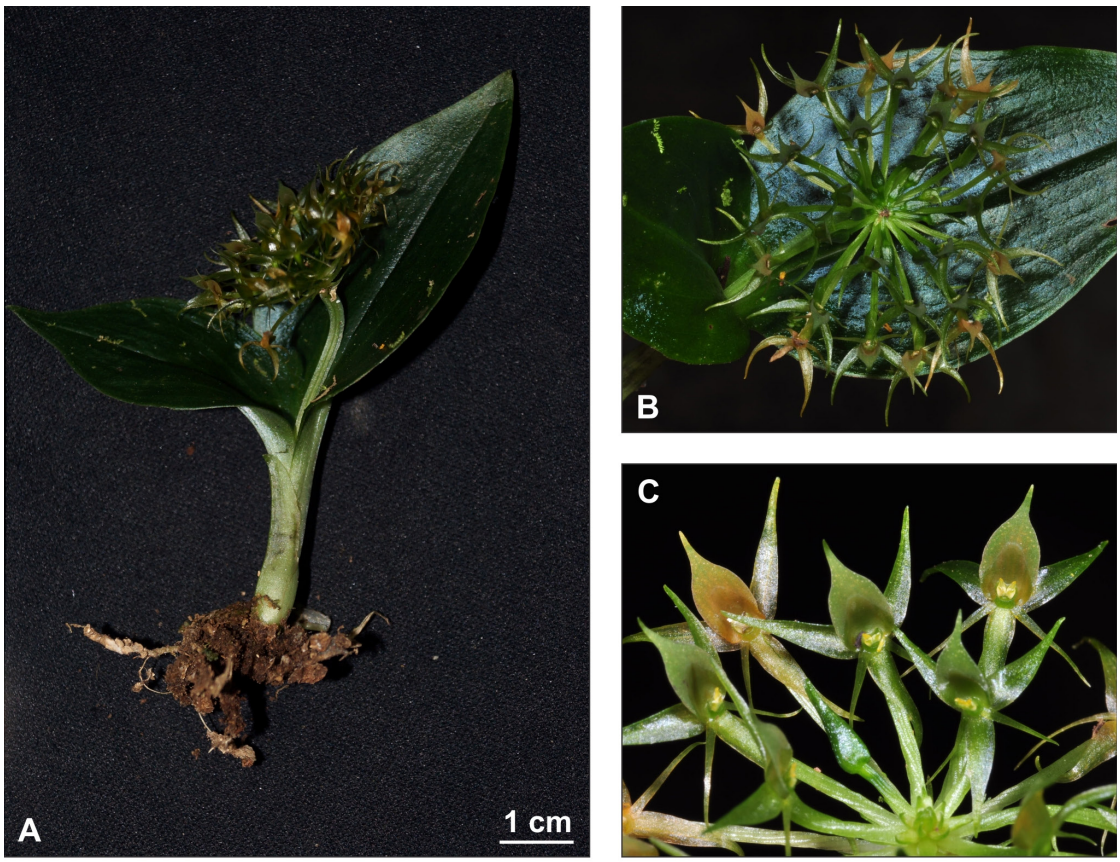

Figure 2. *Malaxis nana*. A. Plant habit. B. Inflorescence, top view. C. Flowers, top view. Note flowers secondarily non-resupinate by the 180 degree twisting and upward bending of the pedicels, and the old flowers turning yellowish orange. Photos by M. A. Blanco & O. Pérez.

Additional specimens examined: COSTA RICA. Without additional data: *Endrés s.n.* (W no. 1889-39091, image!), 1867, *Endrés 138* (W no. 19521 [image!] & 1889-40326 [image!]). [Alajuela: San Ramón,] Bosquet du Cerro de San Isidro de San Ramón, 1175 m, 10 July 1925, *Brenes (131) 1334* (AMES [image!, mounted on same sheet as holotype], CR!). Puntarenas: Coto Brus, San Vito, Estación Biológica Las Cruces, sendero Río Java, 1200 m, lat.: 8.786788°, long.: -82.965540°, 14 July 2013, *Pérez 1412* (USJ!, JBL-liquid!).

Distribution and ecology: *Malaxis nana* is considered endemic to Costa Rica and so far it is known only from Alajuela Province, San Ramón County (type locality and San Isidro Hill) and Puntarenas Province, Coto Brus County (Las Cruces Biological Station) (Fig. 3). The last locality is only 6 km away from the Panamanian border; thus, it is highly likely that the species also occurs in Panama.

Plants of *Malaxis nana* grow as epiphytes in the lower strata of premontane wet forests, in an elevational range of 850–1200 m. In Las Cruces Biological Station, plants of *M. nana* were observed growing on mature trees of ca. 50 cm DBH. When the present manuscript was in press, we learned that *M. nana* was collected again in Las Cruces Biological Station in June 2014, this time during the course "Tropical Plant Systematics" (voucher: *Bonifacino & Damián 5001*, to be deposited at USJ; verified by photos of the live plant sent to us), apparently from the very same colony as *Pérez 1412*. Flowering plants have been collected at least in June and July (the Endrés specimens do not indicate a collecting date).

Commentary: *Malaxis nana* was described by Charles Schweinfurth (1938: 89–91) from a plant collected

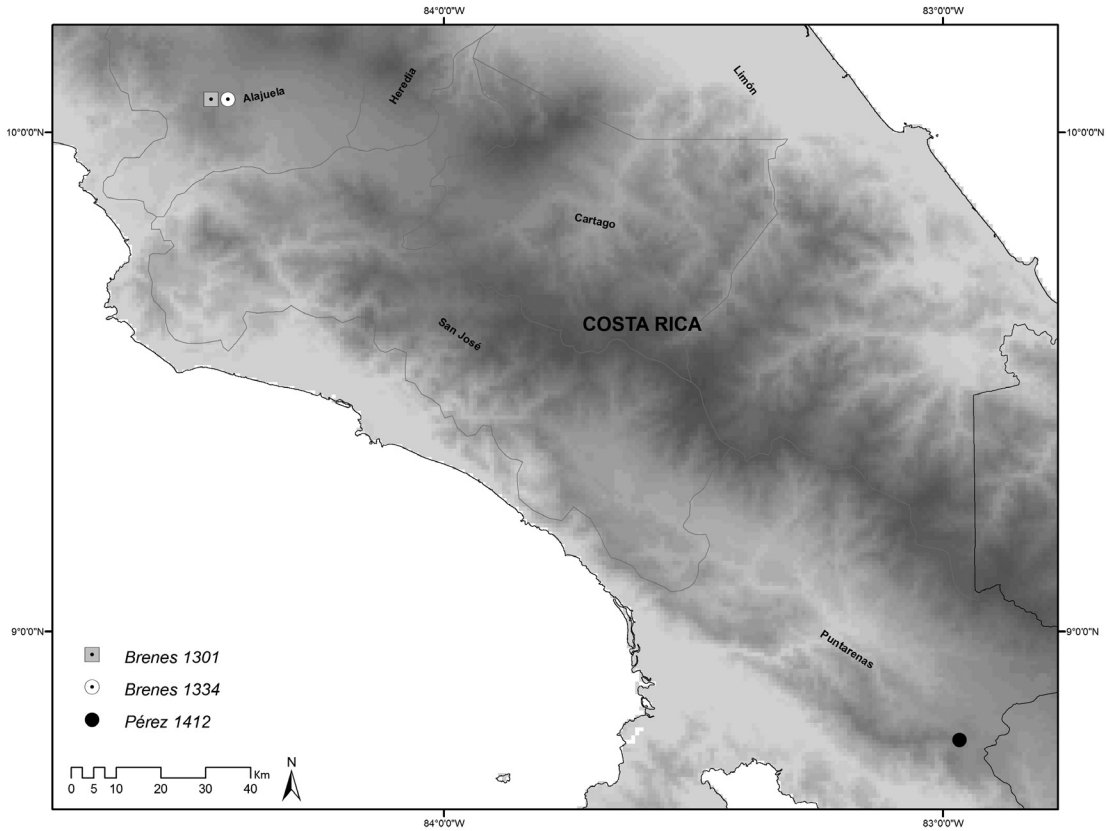

Figure 3. Distribution of *Malaxis nana* (based on available herbarium specimens with locality data)

in San Ramón county, Alajuela province, and from another record from a nearby locality (San Isidro Hill); both plants were collected by Alberto M. Brenes (for information about Brenes's collecting activities and the numbering of his collections see Barringer 1986).

Three other herbarium specimens (unknown to Schweinfurth) were collected by Auguste R. Endrés in Costa Rica sometime between 1866 and 1874 (during his stay in that country; Ossenbach *et al*. 2010) – at least two of them in 1867 (see below). Endrés sent his specimens to H.G. Reichenbach in Hamburg, and they are currently deposited in the herbarium of the Naturhistorische Museum in Vienna (W). These three specimens lack additional locality information; however, they were possibly collected in the region of San Ramón, where Endrés lived during most of his time in Costa Rica (Ossenbach *et al*. 2010). Like many other collections that Endrés sent to Reichenbach, these represented a then-undescribed species but Reichenbach never described it (see Pupulin *et al*. 2011). They were identified as *Malaxis nana* by Robert L. Dressler in 2001. Images of these and other Endrés collections are available through the Virtual Herbaria website (http://herbarium.univie.ac.at/database/search.php).

Two of the Endrés specimens have attached pieces of rag paper with the handwritten annotation "1867 […] Nº 138 *Microstylis* − fls. chestnutbrown (concolored)". The first number probably refers to the year of collection. The second number is the "species number"; Endrés did not use collection numbers in the modern sense (i.e., to designate gatherings), but he used these numbers to correlate drawings and descriptions with plants that in his opinion belonged to the same species (Pupulin *et al*. 2011). It is interesting that the flowers of these specimens were described as "chestnut brown", in contrast to the plant from Las Cruces, which had green flowers. None of the two Brenes collections have a description of the flower color.

In spite of more or less constant and intensive botanical explorations in Costa Rica ever since, no additional collections of this species were known until now. After 73 years of its description, hereby another population is reported, growing on a premontane wet forest from Puntarenas province, Coto Brus County (ca. 220 km SE from the type locality). *Malaxis nana* can be recognized from other Costa Rican congeners by the small size of the plant, very short pseudobulbs bearing two leaves each, very short rhizome segments, thyrsoid inflorescences, relatively large flowers, the entire, acuminate labellum without auricles or lobes at the base, and the non divided disc cavity.

Acknowledgements. We thank the Organization of Tropical Studies for the logistical support provided for the course "Sistemática de Plantas Tropicales, OET 2013-18", during which the plant of *Malaxis nana* was documented. To the curators of the herbaria CR, INB, JBL, LSCR and USJ, for making specimens available for study. To Alexander Damián Loaiza for informing us of their collection of M. nana in Las Cruces Biological Station. Plants were collected under the permit number 026-2013-SINAC, granted by the Sistema Nacional de Áreas de Conservación to O.A. Pérez.

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NUEVOS REGISTROS DE ORCHIDACEAE PARA HONDURAS

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Abstract. Eight new records of orchids for the Honduras flora are reported here. The new records are: *Goodyera major* (Santa Bárbara department), *Lophiaris* × *oerstelurida* (Atlántida), *Maxillaria reichenheimiana* (El Paraíso), *Microchilus killipii* (Cortés), *Mormodes nagelli* (Ocotepeque), *M. sotoana* (Choluteca), *Specklinia spectabilis* (Cortés), and *Triphora debilis* (Santa Bárbara). We provide photos of these species and their habitats, and a map for their known localities in Honduras.

Resumen. Se registran ocho novedades de orquídeas para la flora de Honduras. Los nuevos registros son: *Goodyera major* (Departamento Santa Bárbara), *Lophiaris* × *oerstelurida* (Atlántida), *Maxillaria reichenheimiana* (El Paraíso), *Microchilus killipii* (Cortés), *Mormodes nagelli* (Ocotepeque), *M. sotoana* (Choluteca), *Specklinia spectabilis* (Cortés) y *Triphora debilis* (Santa Bárbara). Incluimos ilustraciones de las especies y los hábitats y un mapa de distribución.

Key words: Atlántida, Cortés, Choluteca, El Paraíso, Ocotepeque, Santa Bárbara, Parques Nacionales, Orchids

En la actualidad Honduras no cuenta con un inventario completo de su orquideoflora que incluya información actualizada sobre nomenclatura, distribución geográfica, tipos de vegetación, estado de conservación y ejemplares de respaldo. Las primeras obras de referencia para conocer la diversidad de Orchidaceae en el país fueron los estudios de Williams (1956) y Molina (1975) donde registraron 63 y 366 especies, respetivamente. Otra contribución es la de Ossenbach *et al*. (2007) donde registraron 621 especies para Honduras, pero cuyo objetivo fue listar el número de especies de orquídeas en Centroamérica. El estudio florístico más reciente registra la presencia de 652 especies y 146 géneros de Orchidaceae para Honduras (Nelson Sutherland 2008). Sin embargo, esta lista requiere una revisión para actualizar y corregir muchos de los nombres considerados. Por otro lado, para obtener un mayor conocimiento de la riqueza orquidológica de Honduras, se requiere también la revisión de las colecciones nacionales y la realización de estudios florísticos, particularmente en las áreas que albergan la mayor biodiversidad de Honduras.

Por otra parte, en revisiones sistemáticas y base de datos internacionales (p. ej., w3Tropicos, revisado en enero 2014) en ocasiones se ha señalado para algunas especies de orquídeas centroamericanas los puntos extremos de sus distribuciones (desde del sur de México (o Guatemala) hasta Costa Rica (o Panamá)) sin especificar a los países que se encuentran en la mitad de su distribución (Honduras, Nicaragua); lo anterior hace suponer su presencia en todo el amplio rango distribucional a pesar de que en ocasiones se carece de material de herbario de respaldo para algún país particular. También hay estudios en donde se indica específicamente los países que cuentan con material de herbario de respaldo aun cuando las especies poseen un rango distribucional amplio. Por ejemplo, Pupulin *et al*. (2012) citan con especímenes de herbario a *Specklinia spectabilis* en México, Nicaragua, Costa Rica y Panamá, pero no incluyen en su distribución a Guatemala y Honduras por falta de material de respaldo.

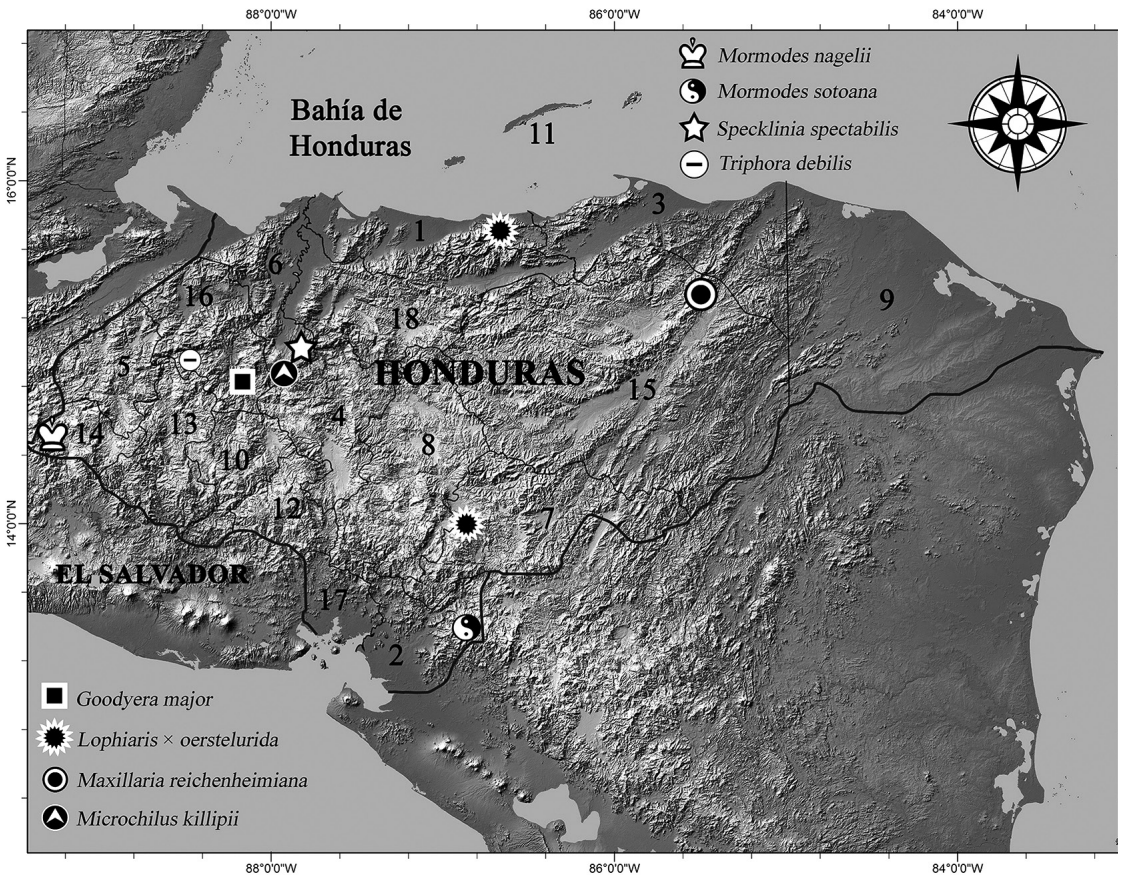

FIGURA 1. Ubicación de los nuevos registros en Honduras. 1. Islas de Bahía. 2. Cortés. 3. Atlántida. 4. Colón. 5. Gracias a Dios. 6. Copán. 7. Santa Bárbara. 8. Yoro. 9. Olancho. 10. Ocotepeque. 11. Lempira. 12. Intibucá. 13. Comayagua. 14. Francisco Morazán. 15. El Paraíso. 16. La Paz. 17. Valle. 18. Choluteca.

En este sentido, cuando se estudia la biodiversidad en términos geopolíticos (países, departamentos, etc.) la presencia de una especie debe ser confirmada con especímenes de herbario de respaldo en lugar de tratarla como "esperada o probable". La ausencia de información en especies con amplios rangos de distribución se debe en algunos casos posiblemente a la falta de nichos adecuados para que se establezcan o por la falta de información disponible a través de colecciones vivas o de material de herbario disponible. El corroborar la presencia de una especie a través de testigos (fotografías, material de herbario) permite a otros usuarios estudiar y entender la variación morfológica, el patrón de distribución de las poblaciones, los tipos de vegetación donde crece, la altitud, etc. Además, permite identificar regiones prioritarias de conservación de la biodiversidad.

Como parte de la preparación de un estudio sistemático de las orquídeas de Honduras y como un esfuerzo por contribuir a un mayor conocimiento de la flora del país, se realizó un viaje de exploración y recolección botánica en diversos departamentos del país (Atlántida, Cortés, Choluteca, El Paraíso, Ocotepeque y Santa Bárbara, Figura 1). Durante este trabajo se localizaron especies de orquídeas no registradas en la flora de Honduras. Los especímenes en que se basan estos registros fueron fotografiados en su hábitat (Figuras 2-3), herborizados y depositados en los herbarios de la Universidad Nacional Autónoma de Honduras (TEFH) y Paul Standley de la Escuela Agrícola Zamorano (EAP). A continuación se presentan los nuevos registros:

1. ***Goodyera major*** Ames & Correll, Bot. Mus. Leafl.

10(4): 68–70, t. 4. 1942. TIPO: Guatemala. Zacapa: cloud forest in ravine bordering Quebrada Alejandría, summit of Sierra de las Minas, vicinity of finca Alejandría, 2,500 m, 13 Octubre 1939, *J. A. Steyermark 29886* (holotipo: AMES; isotipo: F).

Distribución: México, Guatemala, El Salvador, Honduras, Nicaragua y Costa Rica.

Hábitat en Honduras: Terrestre (Figura 2A-B), crece sobre capas de hojarasca entre los bordes del sotobosque y zonas abiertas del bosque nuboso en la zona núcleo del Parque Nacional Montaña de Santa Bárbara (Figura 3A), a 2,200 m de elevación. Esta especie es de amplia distribución en Centroamérica, en Honduras sólo se encontró un individuo en la zona núcleo del parque.

Fenología: Florece en julio.

Material examinado: Santa Bárbara: Campamento Wells, Parque Nacional Montaña de Santa Bárbara, 14°51'53.39"N, 88° 8'4.40"O, 2,200 m, 17 Julio 2011, *H. Vega 355* (TEFH).

2. ***Lophiaris* × *oerstelurida*** Cetzal & Balam, J. Torrey Bot. Soc. 139(1): 20–24, f. 4A1–C4. 2012. TIPO: México. Chiapas: Colonia Reforma, Acacoyagua, colectado el 7 de Noviembre del 2008 y florecida en cultivo en marzo del 2009, *C. R. Beutelspacher s.n.* (holotipo: HEM).

Distribución: México, Guatemala y Honduras.

Hábitat en Honduras: Epífita de flores marrón café-rojizo (Figura 2C) en la selva baja caducifolia (departamento Atlántida) y el bosque mixto subtropical (departamento El Paraíso), entre 31 y 700 m de elevación. Esta notoespecie previamente se conocía solo de especímenes restringidos a la frontera de México, estado de Chiapas y Guatemala, departamento Huehuetenango (Cetzal-Ix & Balam 2012). Las dos colecciones aquí citadas de la vertiente atlántica y pacífica se encuentran a 550 y 600 km de distancia de los especímenes registrados en la vertiente pacífica en México y Guatemala, estos registros incrementa su rango de distribución conocido.

Fenología: Florece en Julio.

Material examinado: Atlántida: Cerca de Jutiapa, 31 m, 29 abril 2013, *P. House s.n.* (TEFH). El Paraíso: Bosque Mixto de km 73 entre El Ojo de Agua y Río California, 700 m, 11 Julio 1964, *A. Molina 14486* (EAP).

3. ***Maxillaria reichenheimiana*** Endrés & Rchb.f., Gard. Chron. 1871: 1678. 1871. TIPO: Costa Rica: Discovered by M. Endres in 1867, alt. 5500 ft, and was gathered later by Mr. Zahn, *A. R. Endres s.n.* (holotipo: W).

Distribución: Honduras, Nicaragua, Costa Rica, Panamá, Colombia, Venezuela, Ecuador y Perú.

Hábitat in Honduras: Epífita de flores café-verdosas a rosado salmón (Figura 2F), en el bosque nublado en el Parque Nacional Patuca (Figura 3B) de la cordillera "Entre Ríos", a 1,519 m de elevación. Se trata de una especie de amplia distribución en el norte de Centroamérica y la región de los Andes en Sudamérica. Este registro incrementa el rango de distribución de la especie hacia el norte de Centroamérica.

Fenología: Florece de Junio a Julio.

Material examinado: El Paraíso: Cordillera Entre Ríos, Parque Nacional Patuca, bosque nublado, 14°5'1.42"N, 85°44'48.34"O, 1519 m, 1 Julio 2013, *K. Soler 839* (EAP).

4. ***Microchilus killipii*** (Ames) Ormerod, Lindleyana 17(4): 217. 2002. *Erythrodes killipii* Ames, Proc. Biol. Soc. Wash. 34: 150. 1921. TIPO: Panamá. Chiriquí: valley of the Río Caldera, from El Boquete to the Cordillera, 1 Feb 1918, *Killip 3561* (holotipo: AMES; isotipos: AMES, US).

Distribución: Honduras, Costa Rica y Panamá

Hábitat in Honduras: Terrestre (Figura 2D-E) sobre capas de humus muy denso en el bosque lluvioso tropical. La localidad aquí registrada se encuentra aproximadamente a 600 km de distancia de las poblaciones más próximas de Costa Rica (Dressler 2003a; w3Tropicos, revisado en abril 2014).

Fenología: Florece en Marzo.

Material examinado: Cortés: Sendero Los Vencejos, Parque Nacional Cerro Azul Meámbar, 14°52'15.47"N, 87°54'21.38"O, 2 marzo 2012, 835 m, *H. Vega 1966* (TEFH).

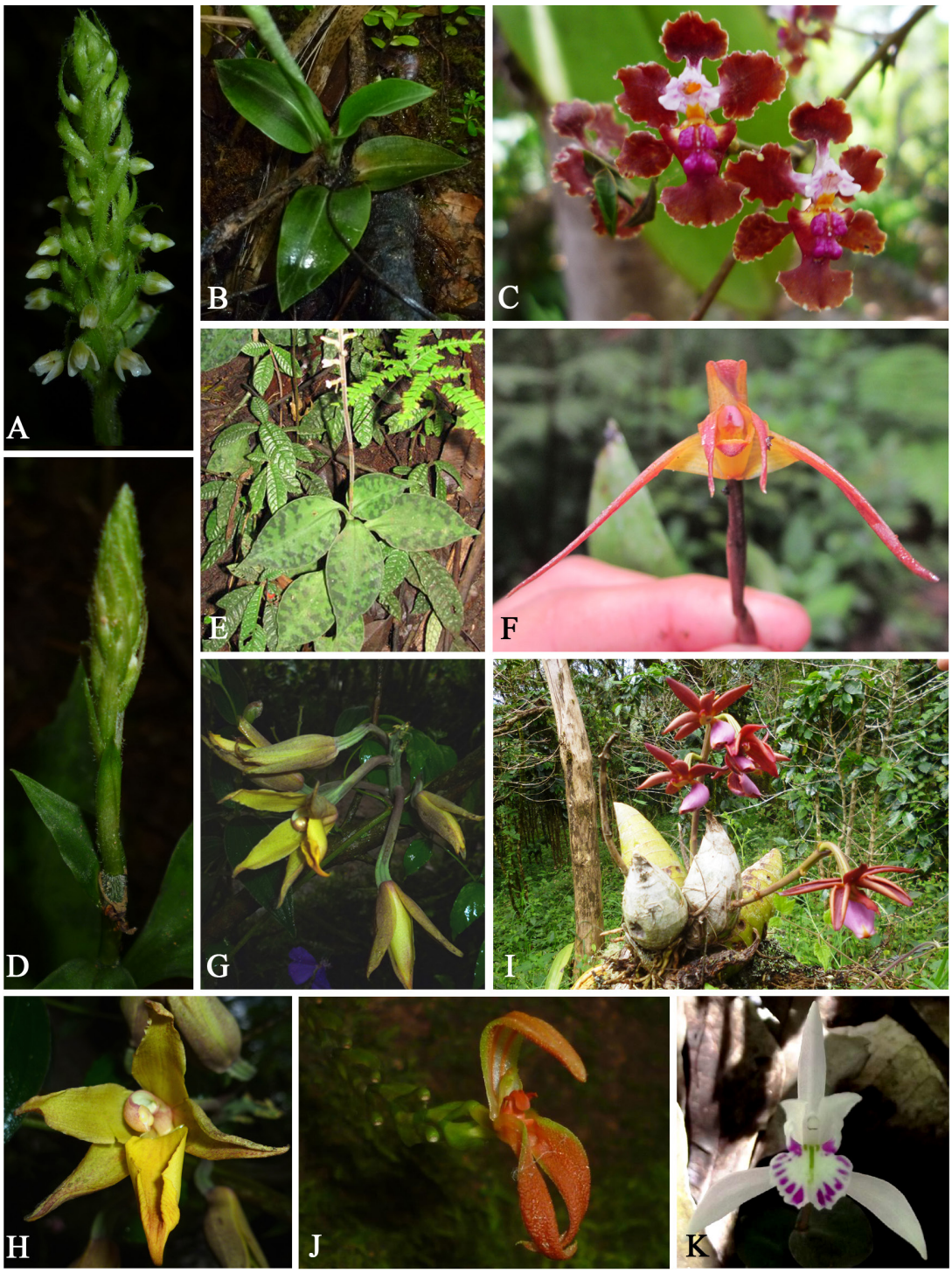

FIGURA 2. Nuevo registros de Honduras. A-B. *Goodyera major*. C. *Lophiaris* × *oerstelurida*. D-E. *Microchilus killipii*. F. *Maxillaria reichenheimiana*. G-H. *Mormodes nagelli*. I. *Mormodes sotoana*. J. *Specklinia spectabilis* K. *Triphora debilis.*

5. ***Mormodes nagelii*** L.O.Williams, Amer. Orchid Soc. Bull. 9: 153 (1940). TIPO: México. Chiapas: shore of Lake Xalhueche near San José del Arco, 1350 m, 24 Marzo 1936, *O. Nagel 5554* (holotipo: AMES; isotipo: MO).

Distribución: México, Guatemala y Honduras.

Hábitat en Honduras: Epífita de flores cafés, salmón rojizo o amarillas (Figura 2G-H), en cafetales dentro del bosque mixto cerca de los límites con Guatemala y El Salvador, a 1,512 m de elevación. La especie previamente solo se conocía de Chiapas, México (Salazar 2002) y en los departamentos de Alta Verapaz, Baja Verapaz y Zacapa, en Guatemala.

Fenología: Florece de Mayo a Julio

Material examinado: Ocotepeque: Parque Nacional Montecristo Trifinio, cerca de la comunidad La Quesera, cafetal en bosque mixto. 14°28'13.21"N, 89°17'26.30"O, 1,512 m, 1 julio 2011, *P. House, H. Vega & I. Rivera s.n.* (TEFH).

6. ***Mormodes sotoana*** Salazar, Orquídea (Mexico City), n.s., 12(2): 261–263, f. 1–2. TIPO: Guatemala. Alta Verapaz: Aldea Choval, ca. 10 km de Cobán por el camino al Río Sachichaj, 1100 m, *G. A. Salazar & M. A. Soto 4450* (holotipo: AMO; isotipos: AMES, BR, CAS, K, MEXU, NY, UVAL).

Distribución: México, Belice, Guatemala, Honduras, Nicaragua y Costa Rica.

Hábitat en Honduras: Epífita de flores café rojizas a café amarillentas o rojo ladrillo (Figura 2I), sobre árboles de sombra dentro de cafetales y en fragmentos de bosque mixto perturbado, a 1,300 m de elevación. Esta especie requiere de regímenes de perturbación del hábitat para su establecimiento. Es de amplia distribución en Centroamérica, incluyendo Chiapas, México. En México se encuentra catalogada como en peligro de extinción debido a la reducción de su hábitat y su alta especificidad al mismo (Soto Arenas 2001). En Honduras se encontró creciendo en cafetales de sombra alta y en fragmentos de bosque mixto perturbado, a una altitud de 1,300 m. Aparentemente crece en lugares perturbados con vegetación emergente. En la zona donde se observaron los individuos es una zona protegida de la Reserva La Botija (Figura 3E), sin embargo, está muy fragmentado por potreros y cafetales.

Fenología: Florece en Noviembre.

Material examinado: Choluteca: Las Mesas Duyusupo, San Marcos de Colón, bosque mixto en cafetal, 13°19'51.39"N, 86°43'39.19"O, 26 de noviembre de 2013, 1350 m, *H. Vega 1866* (TEFH).

7. ***Specklinia spectabilis*** (Ames & C.Schweinf.) Pupulin & Karremans, Phytotaxa 63: 15–18, f. 3B, 4, 5D, 10–11. 2012. *Pleurothallis spectabilis* Ames & Schweinfurth, Sched. Orch. 8: 34–35. 1925. TIPO: Panamá. Veraguas: Santa Fé, Feb. 1924, 1500 ft, *Powell 382* (holotipo: AMES; isotipo: MO).

Distribución: México, Guatemala, Honduras, Nicaragua y Costa Rica.

Hábitat en Honduras: Epífita (Figura 2J) en el bosque mixto, a 1,016 m de elevación. Es una especie de amplia distribución en Centroamérica, desde Oaxaca y Chiapas en México, hasta Panamá. Sin embargo, hasta el momento no se había confirmado su presencia con colecciones de herbario en Honduras. El espécimen aquí registrado se encontró en bosque mixto en el Parque Nacional Cerro Azul Meámbar, a 1,016 m de elevación.

Fenología: Florece en Enero.

Material examinado: Cortés: Parque Nacional Cerro Azul Meámbar, Sendero Sinaí, cerca de la cascada, 14°51'59.38"N, 87°54'0.17"O, 1,016 m, 28 enero 2014, *H. Vega & J. Hernández 1966* (TEFH).

8. ***Triphora debilis*** (Schltr.) Schltr., Repert. Spec. Nov. Regni Veg. 17(481/485): 139. 1921. Pogonia debilis Schltr., Repert. Spec. Nov. Regni Veg. 15(427/433): 196. 1918. *Eremophila debilis* (Schltr.) Chinnock J. Adelaide Bot. Gard. 15(1): 77. 1992. TIPO: Guatemala. Chilion, locis umbrosis, Aug. 1867, *Bernoulli & Cario 520* (holotipo: B, destruido, isotipo: RENZ-50154).

Distribución: México, Guatemala, Honduras, Nicaragua, Costa Rica y Panamá.

Hábitat en Honduras: Terrestre (Figura 2K) sobre rocas calcáreas en bosque seco (Figura 3F), a 700 m

Figura 3. Hábitats donde crecen los nuevos registros de Honduras. A. *Goodyera major*. B. M*axillaria reichenheimiana*. C. *Microchilus killipii*. D. *Mormodes nagelli*. E. *Mormodes sotoana*. F. *Triphora debilis.*

de elevación. La localidad aquí reportada se encuentra en la sierra de Atima, Santa Bárbara, cuya vegetación se encuentra severamente fragmentado debido a la actividad minera ahí realizada.

Fenología: Florece en Agosto, septiembre y octubre.

Material examinado: Santa Bárbara: Pencaligüe, Atima, 700 m, bosque seco maduro, Septiembre 2012, *D. Germer 201* (TEFH).

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Pupulin, F., A.P. Karremans & B. Gravendeel. 2012. A reconsideration of the empusellous species of *Specklinia* (Orchidaceae: Pleurothallidinae) in Costa Rica. Phytotaxa 63: 1–20.

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CONTRIBUTIONS TO THE GENUS *HETAERIA* (ORCHIDACEAE: GOODYERINAE) IN VIETNAM

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ABSTRACT. As a result of Hon Ba nature reserve survey, *Hetaeria finlaysoniana*, previously recorded from Thailand, Myanmar and southern China, is newly recorded from Vietnam. Description of studied plants is presented together with notes on ecology and photographic documentation. These plants were collected in southern Vietnam (Hon Ba Nature Reserve, Khanh Hoa), which is located quite far from other known localities and thus a larger distribution of this possibly overlooked species could be expected. Additionally, *H. youngsayei* is newly recorded from the same reserve, 540 km from the nearest previously known locality. Distribution of both species is discussed and an updated identification key for all Vietnamese members of the genus *Hetaeria* is presented.

KEY WORDS: *Hetaeria finlaysoniana, youngsayei,* new record, distribution, Hon Ba, Khanh Hoa

Introduction. *Hetaeria* Blume is a genus of about 30 species (Pridgeon *et al.* 2003, Chen *et al.* 2012) belonging to the Goodyerinae subtribe of family Orchidaceae (subfamily Orchidoideae, tribe Cranichideae; Pridgeon *et al.* 2003). It is distributed from tropical Africa through tropical Asia to the Pacific islands (Pridgeon *et al.* 2003, Chen *et al.* 2012). There are 5 species reported to-date from Vietnam (Averyanov 2008); however, this number may not be final. Members of this genus are inconspicuous plants, often present in low densities of flowering individuals which can be easily overlooked by botanists. Moreover, the Vietnamese flora as whole with its very high diversity is still poorly explored (Averyanov *et al.* 2009).

Hetaeria finlaysoniana Seidenf. is a species similar to other taxa in which the labellum is narrowed toward the apex, often with a poorly differentiated epichile. It was first mentioned in 1832, in Wallich's catalogue as *Etaeria elongata*, but not validly described until 1840 when Lindely named it Goodyera elongata. Eventually Trimen made the combination *Hetaeria elongata* in 1885 but he overlooked the earlier use of the same epithet in 1859 by F.A.W. Miquel for a New Guinea species, now known as *Vrydagzynea elongata* Blume. Since *Hetaeria elongata* (Lindl.) Trimen is a homonym, and thus illegitimate, Seidenfaden proposed the new name *H. finlaysoniana* in 1997. To date, this species has been recorded from Thailand, Myanmar (Ormerod & Sathish Kumar 2003) and southern China (Guangxi, Hainan; Chen *et al.* 2012).

Material and methods. Plants were collected in the field and stored in plastic bag with a wet moss until planted in Prague Botanical Garden (CITES permission No: 12CZ022452). Plants were growing in a mix of Seramis, perlite, pumice and peat in a plastic pot and kept slightly shaded in a glasshouse with day / night temperature (20 – 30) / (18 – 25)°C. Pots were watered regularly to be still moist. When flowering in cultivation, photographs were taken using a digital camera with a macro lens (Canon EOS 60D with Canon Macro EF 100mm 1:2,8 L IS USM) or a digital camera mounted on a stereomicroscope (Canon EOS 60D on Olympus SZ X7).

Results and discussion

Hetaeria finlaysoniana Seidenf., Contr. Orchid Fl. Thailand 13: 10. 1997 ≡ *Etaeria elongata* Lindl., Wall. Cat. 1832, No. 7384, 18. nom. nud. ≡ *Goodyera elongata* Lindl., Gen. Sp. Orchid. Pl. 494. 1840 ≡ *Hetaeria elongata* (Lindl.) Trimen, Syst. Cat. Fl. Pl. Ceylon: 10, 1885 [not (Blume) Miquel 1859]; Seidenf., Dansk Bot. Ark. 32(2): 99, fig. 61 ≡ *Rhamphidia elongata* (Lindl.) Lindl., J. Proc. Linn. Soc., Bot. 1: 181, 1857.

TYPE: Origin unknown, possibly Thailand, Surat Thani province (Seidenfaden 1997) (K 000873768 & 000387653, *Finlayson s.n. in Herb. Wallich* 7384, Photo!). Fig. 1, 3.

Plants terrestrial, creeping, 40 to 50 cm tall. *Rhizome* elongate, creeping, glabrous. *Stem* erect, brown, 2.3–5.7 mm in diameter, bearing 4 to 5 leaves, scattered along stem while growing, clustered at stem apex when flowering, approximately 5–15 cm above the ground. *Leaves* oblong to elliptic, base obtuse, apex acute, blade 4.5–6.0 × 2.5–3.0 cm, glabrous, green with distinctly darker reticulate veins. Petiole-like base 1.5–2.0 cm long (including tubular sheath). *Peduncle* pubescent, pale green to brownish yellow, 20 cm long, 2 mm wide, with 3 sterile bracts 11–18 mm long. *Rachis* pubescent, about 15 cm long with subdensely arranged flowers. *Floral bracts* pubescent, pink, lanceolate, cymbiform, 5–8 mm long, shorter than ovary. *Flowers* not resupinate, half open, spaced on rachis into four sides, inflorescence slightly spirally twisted. *Ovary* pubescent, 8–12 mm long, 2 mm wide, placed nearly parallel to the longitudinal axis of the inflorescence. *Sepals* sparsely pubescent at outer side, oblong to ovate-oblong, 5–6 × 2.8–3.0 mm. *Lateral sepals* pink to reddish pink. *Dorsal sepal* pink to white. *Lateral petals* white, thin and translucent, rhombic-obovate, 5–6 × 3 mm. *Lip* yellow, oblong-lanceolate, 4.5 × 2.2 mm, hypochile saccate, epichile attenuated into acuminate apex with involuted parts of margins. *Column* 2.0–2.5 mm long.

Distribution. So far, this species has been recorded from tropical evergreen forests in Chantaburi, Kanchanaburi and Surat Thani provinces in Thailand (Seidenfaden 1997, Pedersen 2011), Myanmar (Ormerod & Sathish Kumar 2003) and provinces Guangxi and Hainan in southern China (Chen *et al.* 2012), nevertheless records from China require to be verified due to common confusion of taxa in this group (reviewer note). Material presented here was collected in Hon Ba reserve in Khanh Hoa province of southern Vietnam which is located relatively far from other collections and thus larger distribution could be proposed for this taxon, perhaps including also Cambodia.

Flowering time. Perhaps from January to the beginning of March in Hon Ba, February to April in Thailand (Pedersen 2011), March in Myanmar.

Pollination. We have not observed fruit production from any flower except those which were previously hand-pollinated. Based on this we propose that these plants are allogamous.

Ecology. Plants were growing in leaf litter on a ground in evergreen tropical lowland primary forest with granite bedrock. The locality is in close proximity to the river, however prominently above the water level during periodical floods; the habitat is a rather dry slope in the broad-leaved forest. Other terrestrial orchids growing in the same place are *Erythrorchis altissima* (Blume) Blume and *Zeuxine glandulosa King & Pantl.*. On more wet places along stream grows *Neuwiedia zollingeri* var. *javanica* (J.J.Sm.) de Vogel.

Specimens seen. Czech Republic, cultivated in Prague Botanical Garden, 13 March 2013 (originally collected in Vietnam, Khánh Hòa province, Cam Lâm District, Hòn Bà Nature Reserve, lowland evergreen forest near the Day river (Song Day), alt. 250 m, 4 March 2012), *J. Ponert* 523 (PRC!).

Hetaeria youngsayei Ormerod, Oasis Suppl. 3: 7, 2004 ≡ *Hetaeria shiuyingiana* L.Li & F.W.Xing, Novon 19: 187, 2009. *Hetaeria nitida auct. non* Ridl., J. Linn. Soc., Bot. 32: 404, 1896 – Fig. 2.

This species has been recorded from the province Ha Giang in northern Vietnam and province Quang Tri in central Vietnam under the name *Hetaeria nitida* Ridl. (Averyanov 2008) which was misapplied for this taxon many times (see Ormerod, 2004). Our collection was made in Khanh Hoa province, about 540 km as the crow flies far from the nearest locality in Quang Tri province, and it is the first record for southern part of Vietnam. Interestingly this species has been

Figure 1. *Hetaeria finlaysoniana.* A. Flower from the front. B. Flower. C. Flower from the side. D. Leaves. E. Habit. F. Inflorescence. G. Peduncle with sterile bract. H. Closeup of the inflorescence. Scale bars: A, B, C, G = 1 mm; D, E, F, H = 1 cm. Photo J. Ponert. Cultivated in Prague Botanical Garden (Leg. *J. Ponert* 523, PRC!).

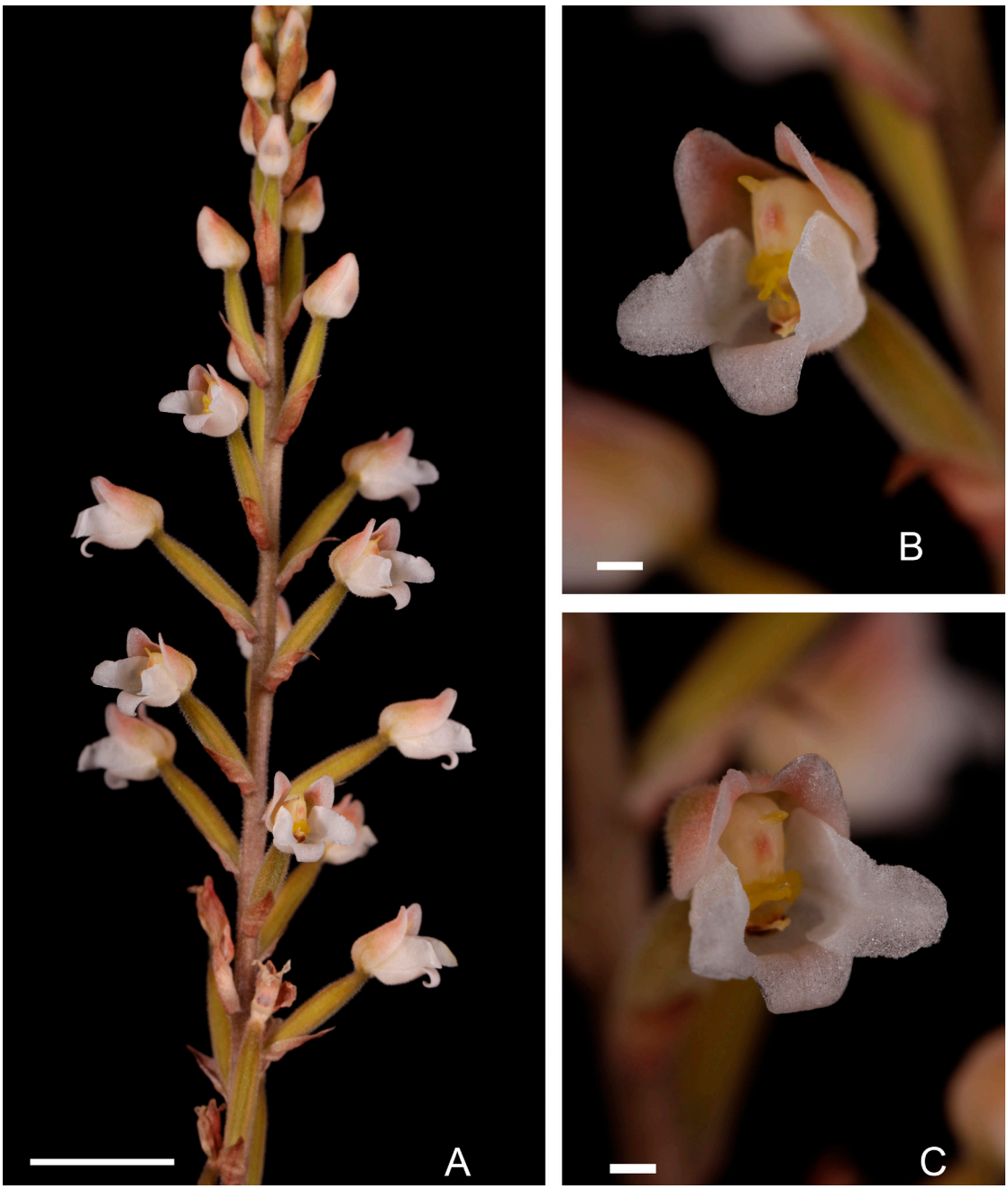

FIGURE 2. *Hetaeria youngsayei*. A. Inflorescence. B-C. Details of flowers. Photo J. Ponert. Cultivated in Prague Botanical Garden (Leg. *J. Ponert* 524, PRC!).

reported from Thailand, Hainan and Hong Kong but not yet from Cambodia or Laos which lie between Vietnam and Thailand. Our collection shows that this species may be distributed not only in northern part of Vietnam, but more likely in nearly the whole country, because of the long distance between available records. Similarly as in *H. finlaysoniana* mentioned above we hypothesize a larger distribution area which may extend from Thailand through Laos and Cambodia to Vietnam, Hainan and Hong Kong.

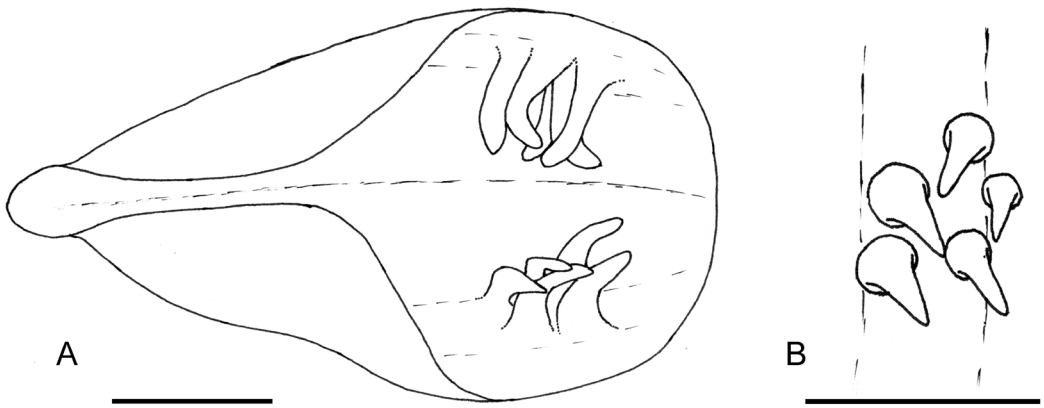

Figure 3. Lip of *Hetaeria finlaysoniana.* A. Lip from above in native shape. B. Top view of a cluster of glands when lip is flattened. Scale bars = 1 mm. Drawn by J. Ponert (Leg. *J. Ponert* 523, PRC!).

Flowering time. Flowering specimens were observed from January to February in Hon Ba what is the same as reported from other places (Pedersen 2011).

Pollination. We have not observed fruit production in culture from any flower except those which were previously hand-pollinated. Based on this we propose that these plants are allogamous.

Ecology. Plants were growing in leaf litter on a ground in evergreen tropical primary forest with granite bedrock at elevations from about 600 m to 1000 m on slopes of the Hon Ba massive. Other terrestrial orchids growing in the similar places are *Didymoplexis* sp., *Erythrorchis altissima* (Blume) Blume and *Zeuxine affinis* (Lindl.) Benth. ex Hook.f..

Specimens seen. Czech Republic, cultivated in Prague Botanical Garden, 17 March 2013 (originally collected in Vietnam, Khánh Hòa province, Cam Lâm District, Hòn Bà Nature Reserve, trail in evergreen tropical forest near the road, alt. 836 m, 14 March 2012), *J. Ponert* 524 (PRC!).

Acknowledgements. Authors express their sincere gratitude to all participants of Hon Ba Nature Reserve field trip of 2012. Special expression of thanks belongs to Prague Botanical Garden, Czech Republic, which is sponsoring the biodiversity research of Hon Ba Nature Reserve in the field and the Charles University in Prague (SVV 265203 / 2012) where detailed study of plant material was done. Special thanks belong to anonymous reviewers who significantly improved the manuscript.

Artificial identification key to the Vietnamese species of *Hetaeria**

1a. Lip dividend into hypochile, mesochile and epichile. Epichile large, two-lobed, c. 2.5 mm wide *H. anomala*
1b. Lip without distinguishable mesochile, epichile entire and very small 2
2a. Epichile dilated and broadly ovate, apex obtuse ..... *H. affinis*
2b. Epichile linear, abruptly attenuate, sometimes with a small terminal lobule 3
3a. Lip basal part inside with 1 to 2 simple or multiarmed glands on either side ..... *H. alta*
3b. Lip basal part inside with 3 to 8 separated (sometimes connate at base) glands on either side 4
4a. Glands inside the lip fleshy, 3 to 5 on either side, arranged in one dense cluster, inflorescence rather lax ..... *H. youngsayei*
4b. Glands inside the lip filiform, 4 to 8 on either side, at least some of them clearly separated from each other, inflorescence rather dense 5
5a. Dorsal sepal 3–4 mm long, petals 0.8–1.3 mm wide, leaves 3–9 cm long ..... *H. oblongifolia*
5b. Dorsal sepal 5–6 mm long, petals 1.6–2.1 mm wide, leaves 8–11 cm long ..... *H. finlaysoniana*

* This key is based on data from Seidenfaden & Wood (1992), Ormerod (2004), Averyanov (2008), Lin & Fu-Wu (2009), Pedersen & Ormerod (2009), Pedersen (2011) and Chen *et al.* (2012).

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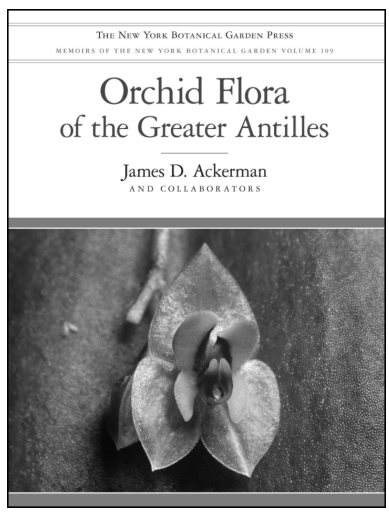
BOOKS

Orchid Flora of the Greater Antilles

James D. Ackerman and collaborators. New York Botanical Garden Press (*Memoirs of the New York Botanical Garden* 109), New York, 2014. ISBN: 978-0-893275-12-9. Hardcover, 200 × 273 mm, 640 pages, 159 plates (line drawings). English with bilingual identification keys in English and Spanish. $140 / €96 approx.



The Greater Antilles, which extend from Cuba in the west to Anegada (in the British Virgin Islands) in the east, host a complex flora, and the largest of the West Indies. As several of the largest islands were botanized at the beginning of modern botany, the flora of the Greater Antilles also harbors many of the oldest plant names, whose scrutiny is necessary to understand their correct application throughout the entire Neotropical region. A systematic treatment of the orchid flora of the Greater Antilles was due long ago, to update the knowledge about the islands previously covered by local monographs (i.e., Jamaica, Puerto Rico and, in part, Cuba), and to reveal overall diversity in one of the world's biodiversity hotspots.

Renown orchidologist and main author, Dr. James Ackerman (director of the Herbarium and Zoology Museum at the University of Puerto Rico - Río Piedras) has to be acknowledged for assuming the commitment over 20 years ago and for producing an outstanding monograph that will surely resist the test of time.

With collaborations by Paul M. Brown, Marta A. Díaz, the late Ed Greenwood, Eric Hágsater, Carlyle A. Luer, Ernesto Mújica Benítez, Mark Nir, Gustavo Romero-González and Victoria Sosa, the treatment offers clear and detailed accounts of almost 600 orchid species in more than 100 genera (594 species according to Ackerman's account; the number of genera largely depending on the preferred circumscriptions), 70% of which endemic to the archipelago. With 117 recorded species, the most diverse genus is *Lepanthes*, a species of which (the Jamaican *L. ovalis*) embellishes the cover of the book, followed by *Pleurothallis* (sensu lato) with 71 species, and *Epidendrum* with 45 species.

An artificial, bilingual (English / Spanish) key to the genera is provided at the beginning of the monograph. It is clear that the monographers adopt most of the phylogenetic circumscriptions revealed by recent molecular systematics, with some notable exceptions where traditional approaches have been followed, particularly in the most contentious cases (i.e., *Pleurothallis*). Latest generic assignments are however consigned to a final Appendix, a rational and polite approach to be highly esteemed. For each genus, bilingual keys to the species are provided. Whilst the genera are presented in alphabetical order, making it easier to search for a specific entry, in another appendix the author provides a phylogenetic classification of the orchid genera of the Greater Antilles.

Species treatments include complete synonymy with type citations, description, relevant taxonomic literature (mostly generic treatments), popular names, discussion of taxonomy, distribution, ecology, and conservation status. In several cases, spread throughout the treatment, the discussion chapter is nothing less than a short taxonomic paper on the given topic (see, for example, the discussions of *Campylocentrum jamaicense* on pages 69–70, *Platythelys querceticola* on page 366, or *Trichocentrum undulatum* on pages 537–539).

The book is profusely illustrated with scientific drawings of the highest quality, almost entirely provided by renown illustrator Bobbi Angell (others are by C. A. Luer and Arlee M. Montalvo). With the exceptions of *Goodyera, Heterotaxis, Maxillariella, Pseudogoodyera, Pterichis, Pteroglossaspis, Stenorrhynchos*, and *Tomzanonia*, all the genera are illustrated by one ore more botanical drawings (21 species are depicted in *Pleurothallis*, 15 in *Lepanthes*, 8 in *Epidendrum*). In particular, it is noteworthy that, with a few exceptions, all the specimens used to prepare the illustrations were effectively native to the studied area, something that makes the work an invaluable source for real comparison of the taxonomic concepts used in the West Indies against their equivalent species in continental floras.

I found the list of lectotypifications and neotypifications (98 in total in the treatment) provided at the beginning of the treatment particularly useful, as well as the initial reference to the only new combination, *Antilla denticulata*. A new species, *Acianthera stenzelii*, is described at the end of Appendix 1, on page 575.

The only fault I can find to this otherwise extensively researched and unexceptionable work is the lack of color photographs. Considering the high degree of endemism of the orchid flora of the Greater Antilles, it will be difficult to find another source for this information in order to have a clearer concept of species that are often limited in distribution to a single island.

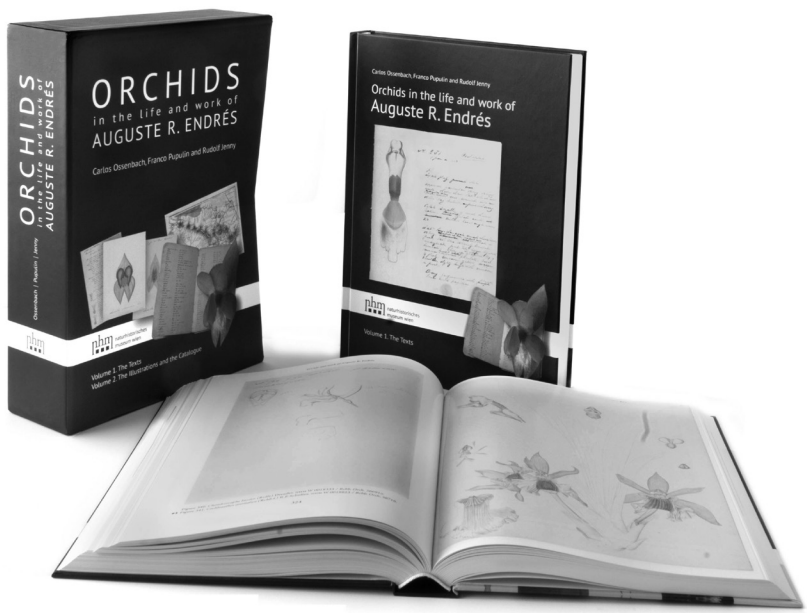
I warmly recommend the book to any orchidologist, the serious orchid librarian, and the naturalist interested in the flora of these fascinating islands. It is a highest-quality treatment to stand for many years.

Franco Pupulin

Orchids in the life and work of Auguste R. Endrés. Volume 1. The texts.
Carlos Ossenbach, Franco Pupulin and Rudolf Jenny (eds.), with contributions by Christa Riedl-Dorn and Ernst Vitek. [6], xiii, [1], 354 pages, 150 figures.

Orchids in the life and work of Auguste R. Endrés. Volume 2. The illustrations and the catalogue.
Carlos Ossenbach, Franco Pupulin and Rudolf Jenny (eds.), with contribution by Ernst Vitek. [6], iv, 536 pages, 407 figures.

Vienna, Naturhistorische Museum Wien, 2013. ISBN: 978-3-902421-77-7. Hardcover, 19 × 27 cm. 2 volumes in box. €385.00 / $500.00 approx.



A long-standing question in orchidology – Who was Endrés? – is asked again in the first sentence of the Foreword of Volume 1 of this two-volume work. The question is answered here to a large degree through the efforts of several individuals dedicated to finding out just who was Auguste R. Endrés, collector, botanist, author and illustrator of orchids. Although brief sketches of Endrés have appeared in print over the years, the nearly universal lament in these has been how little is known about the person who made such remarkable collections and illustrations of orchids in such a short time in Central and South America. Through a collaborative effort and diligent search of both primary and secondary sources of information, a remarkable story of the life and work of the short-lived Endrés has emerged. Gaps still remain regarding his education and acquisition of such an extensive knowledge of orchids in his early years but incompleteness is not an unusual problem for biographers. In such cases, the life and work of the subject is pieced together to the extent possible based on bits of available and often diverse information. The authors of this biography of Endrés have accomplished this job very effectively. Moreover, they have skillfully set his life and work within context of the culture, politics, economics, and science of the times.

The basic biography of Endrés presented in Chapter 1 "Auguste R. Endrés (1838-1874) his life" by Carlos Ossenbach traces him from his birth in French Alsace, his emigration to the United States and eventual move to Costa Rica where most of his work on orchids was done, and, finally, to his tragic death in Colombia at the age of 36. At an early age, Endrés became acquainted with several prominent orchidologists and others who helped him in various ways in his success as an independent collector and development as a knowledgeable and productive botanist in his own right. He emigrated to Costa Rica

in 1866 to collect orchids for European botanists. His work there is reviewed with emphasis on the difficulties he faced as a collector and illustrator of orchids and how he managed to sustain himself financially and intellectually for several years under often dire circumstances. In this regard, his is a story that has been repeated many times for other pioneer collectors of plants and animals. In 1874, as his health and finances worsened, he became depressed by what he considered as failure and left Costa Rica. Others, however, question Endrés' personal view of the lack of his own accomplishments. For example, in the chapter on assessment of Endrés as a botanist, Franco Pupulin states: "It is no exaggeration to say that Endrés was the most proficient and dedicated botanist who visited Costa Rica during the nineteenth century." After leaving Costa Rica and briefly visiting Europe and the United States, in late 1874 Endrés accompanied Benedict Roezl, the famous orchid collector, to Colombia to collect orchids. He died shortly after arrival in the country.

Additional details of Endrés' life and work are presented in the following chapters: Orchid collecting in that rich coast (Ossenbach and Pupulin); Endrés the botanist (Pupulin); Endrés as an illustrator (Pupulin); The human context: important figures in Endrés' life (Ossenbach and Jenny); Endrés legacy at the Reichenbach Herbarium, Natural History Museum in Vienna (Vitek); On Endrés traces: The Departmental Archives of the History of Science at the Natural History Museum in Vienna (Riedl-Dorn); and, Species Endresianae (Pupulin, Ossenbach, Jenny and Vitek) The remarkable amount of supplemental information included in these chapters greatly expands our knowledge of the man who previously was so little known yet who under often less than favorable circumstances accomplished so much for botany.

Volume 1 is extensively illustrated with 150 numbered figures. This visual treat includes a panoply of mostly color images ranging from maps, portraits, drawings and paintings of orchids, historical photographs, and pages copied from notebooks. Perusal of these illustrations alone would provide a substantial view into the history of tropical American orchidology. The volume concludes with an extensive bibliography section but, unfortunately, without a much-needed index, at least one to the many individuals covered.

In addition to the Foreword and Introduction, Volume 2 contains two major sections: The Illustrations, and The Catalogue. The 407 illustrations included here represent just part of the unbelievable output of Endrés. Preparatory sketches constitute the largest number of illustrations, followed by pencil tracings of individual species ready for printing, colored drawings of orchid flowers and illustrations apparently not meant for publication. The Catalogue, assembled by Pupulin, Ossenbach, Jenny and Vitek, provides a large amount of information on Endrés-collected orchids that should constitute a valuable resource for orchidologists. Arranged under the present valid names, the list includes notes on localities, dates, habitats and ecology that are cross-referenced to his many illustrations and descriptions. An appendix includes similar data for Endrés-collected specimens contained in the Oakes Ames Orchid Herbarium at Harvard University. Volume 2 concludes with an index to the orchid genera included in the volume.

This is a remarkable work devoted to the life and work of Auguste (Augustin, Augustus) R. Endrés, a talented and productive student and collector of orchids in tropical America. Although he died at a relatively young age, the extent of his accomplishments in orchidology deserve the effort expended here to make them better known. These volumes are a testament to the value of collaborative work by a group of like-minded persons. Their dedicated search for any scraps of biographical information available on Endrés as well as their assessment of his collections and his thousands of illustrations and descriptions of orchids is impressive. The physical beauty of the book and its hundreds of illustrations further enhance the effort. This is a major contribution, not only to the life and work of the heretofore elusive Auguste Endrés but to the history of orchidology in general..

Horace R. Burke
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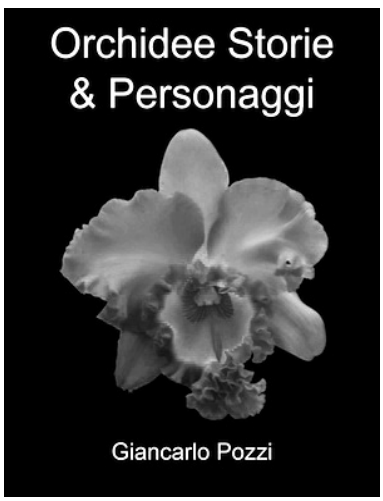
Orchidee Storie & Personaggi (Italian Edition)
Orquideas Historias & Personajes (Spanish Edition)

Giancarlo Pozzi. CreateSpace Independent Publishing Platform, 2013 (Italian); 2014 (Spanish, translation by Lucrezia Rendace). 234 pages, several color figures. Available at Amazon, $9.00.



The author of this small, and almost familiar book, Giancarlo Pozzi, is a dear friend of mine, and to find the right balance in reviewing the work of a friend is always a bit more difficult, on one side or the other.

Even though it presents itself as still another "how-to-grow-orchids" manual, Pozzi's booklet, available both in Italian (its original language) and in Spanish translation, hardly fits any of the classic orchid book genera. According to the author's own introductive words, it is "like a tale that guides the reader to explore the beautiful orchid world in any of its many aspects: what they are, where and how they live and reproduce [...] and how to grow them at home". It includes classic, discursive chapters on orchid fever and familial hyperdiversity, as well as an inevitable text on "What is an orchid", which precede the illustrated dictionary of the more commonly cultivated orchid genera and intergeneric hybrids.

What makes the book special, however, are the stories. The main text is interspersed with short portraits of a heterogenous group composed of past and present characters of the orchid world, always presented in a very personal way. Many of the stories are typically anecdotic, but some of the short portraits, dedicated to "orchid people" who the author met personally along his long career as an orchid grower and breeder, are true tales that delicately portray characters of modern orchidology, presented by a talented pen and with a gifted prose.

Many of the portrayed characters are Italians, but there are important exceptions (i.e., Sir Peter Smithers, who inspired Jan Fleming to create the mythical figure of the secret agent 007), and most are growers of any sort, from the level of aficionados to the contemporary representatives of great orchid dynasties like Marcel Lecoufle. All together the presented figures trace an interesting and fun picture that is more about Giancarlo's life and beliefs in orchids than about the people he interacted with. To be honest, I found that — at least for those pictured people who I also personally know —, Pozzi's short "portraits" are very accurate and close to capture the particularity of the individual characters and some spots of their orchidologic soul.

This is particularly noteworthy for those characters that are otherwise pretty unknown to the broadest orchid community and help creating a new fresco of the contemporary orchid world and all its variegated nuances. With an extraordinarily simple and direct prose, Pozzi brings the reader inside his world and quickly makes him share with the author a sentiment of sympathy and friendship for each of the portrayed people.

All in all, I doubt that the extension of the relationships and the space dedicated to each of the concerned characters would be enough to provide significant biographical information about them, and this someway detracts from the merits of the booklet as a source for orchid history. Nonetheless, the freshness of the writing, the original author's approach, and the first-hand information presented in several stories, make the reading of this work a grateful experience. I strongly recommend it to anybody interested in the human and epochal aspects of orchidology.

Franco Pupulin