

Revised typifications of *Isochilus pauciflorus* Cogn. (Orchidaceae, Laeliinae) and its synonyms

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Revised typifications of *Isochilus pauciflorus* Cogn. (Orchidaceae, Laeliinae) and its synonyms

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ABSTRACT

Faced with ambiguities in a previous typification of *Isochilus pauciflorus* Cogn., we present a revised typification of this name and comment on its synonyms. Our current study reviews the original materials in open databases of the 23 main herbaria that house orchids from A. Duss, A. Cogniaux or H. G. Reichenbach. Among specimens filed as types, a lectotype (BR0000013217891) is recognized and a presumed isotype (NY00059032) is rejected. However, the lectotype material is not sufficient for precise application of the name. Thus, we designate an epitype based on the specimen K000079638 which refers to the heterotypic synonym *Ponera punctulata* Rchb. f. to support the name *I. pauciflorus*. Furthermore, the holotype of *P. punctulata* commonly accepted and used in the literature is said to be in the Reichenbach Orchid Herbarium, at the Natural History Museum in Vienna (Austria). Unfortunately, this unique gathering is no longer extant or is missing there, but a photograph is available. From this picture, we show that this specimen was not original material, so it was not the holotype. We therefore designate a neotype of *P. punctulata* Rchb. f. supported by the specimen K000079638. In addition, we designate an epitype of *Tetragamestus isochiloides* Regel (LE00011188), heterotypic synonym of these above taxa. Finally, the type of *Hexadesmia dunstervillei* Garay, AMES00287200, is demonstrated to be a lectotype, not a holotype.

KEY WORDS

Orchids,
Scaphyglottis,
epitypification,
neotypification.

RÉSUMÉ

Révision des typifications d'Isochilus pauciflorus Cogn. (Orchidaceae, Laeliinae) et ses synonymes.

En raison d'une typification antérieure litigieuse du nom *Isochilus pauciflorus* Cogn., nous en proposons une révision et commentons ses synonymes. Notre étude examine les matériels originaux associés à ce nom dans les bases de données publiques des 23 principaux herbiers qui possèdent des orchidées d'A. Duss, A. Cogniaux ou H. G. Reichenbach. Parmi les récoltes antérieurement désignées pour servir de types, nous confirmons un lectotype (BR0000013217891) et rejetons un isotype (NY00059032). Cependant, ce lectotype ne permet pas une application précise du nom. Ainsi, nous désignons un épitype reposant sur le spécimen K000079638 qui fait référence au synonyme hétérotypique *Ponera punctulata* Rchb. f. pour représenter le nom *I. pauciflorus*. Par ailleurs, l'holotype de *P. punctulata* communément accepté et utilisé dans la littérature est dit être à l'herbier Reichenbach d'orchidées, au Muséum d'Histoire naturelle de Vienne (Autriche). Hélas, cette récolte unique n'y existe plus ou y est absente, mais une photographie est disponible. À partir de cette image, nous montrons que ce spécimen n'était pas un matériel original, aussi n'était-ce pas l'holotype. Nous désignons donc un néotype de *P. punctulata* supporté par le spécimen K000079638. De plus, nous désignons un épitype de *Tetragamestus isochiloides* Regel (LE00011188), synonyme hétérotypique de ces précédents taxons. Enfin, le type de *Hexadesmia dunstervillei* Garay, AMES00287200, est démontré être un lectotype, non un holotype.

MOTS CLÉS

Orchidées,
Scaphyglottis,
épitypification,
néotypification.

INTRODUCTION

Isochilus pauciflorus Cogn. (1910) was originally described based on a specimen collected by Father A. Duss in Guadeloupe (Lesser Antilles) in 1904, to which he assigned the number 4193. Morphological characters of this taxon match with those of the genus *Scaphyglottis* Poepp. & Endl., and *I. pauciflorus* is apparently related to, if not conspecific with, *S. punctulata* (Rchb. f.) C. Schweinf. (Adams 1993).

According to Garay & Sweet (1974), the type of *I. pauciflorus* is at the herbarium of the National Botanic Garden of Belgium (BR), but they did not indicate the type kind. Adams (1993) followed them and assumed that here was the holotype, even if he did not see it. Nonetheless, Nir (2000) located it at the National Museum of Natural History of Berlin (B) where many of the types for Cogniaux's species were housed in the Krug & Urban herbarium that included specimens collected by Duss (Stehlé 1939). Nir also cited an isotype at the New York Botanical Garden herbarium (NY00059032; Fig. 1), the label data of which agree with the protologue. However, this sheet bears a sterile fragment (a rhizome from which erect four stems with three leaved pseudobulbs and a separate detached leaf; Fig. 1) that B. R. Adams identified as *Scaphyglottis dunstervillei* (Garay) Foldats in 1987 (*ms. in sched.*) and that clearly does not agree with the protologue of *Isochilus pauciflorus* (Adams 1993; Maddi 2014). In view of these ambiguities, we undertook the revision of the typification of *I. pauciflorus* that follows and we discuss the synonymy of this taxon.

MATERIAL AND METHODS

Original materials were sought in open databases of the 23 following herbaria: A, AMES, B, BR, F, G, GH, HBG, IT, K, LE, LZ, MARS, MICH, MO, NY, P, PH, RB, S, US, W, WU (acronyms according to Thiers 2021). These herbaria are known to house vascular plant materials collected by Father Antoine Duss, Alfred Cogniaux or Henrich Gustav Reichenbach (Stafleu & Cowan 1983; Stafleu & Mennega 1997, 2000). Additional searches directly in the herbaria were also carried out by their respective staffs. Typifications proposed afterward follow the Shenzhen's International Code of Nomenclature (ICN) and cited articles refer to this code and its authors Turland *et al.* (2018).

RESULTS

Among the different herbaria consulted, only two specimens stored under *Isochilus pauciflorus* or labelled *Duss 4193* were found: a single sheet at NY collected by Duss (NY00059032; Fig. 1) under *Scaphyglottis dunstervillei*, and a drawing by Cogniaux at BR (BR0000013217891; Fig. 2) databased under *Isochilus linearis* (Jacq.) R. Br.

For *Ponera punctulata*, we found materials at K (K000079638; Fig. 3) and sketches at AMES (AMES00103500; Fig. 4; AMES00103501; Fig. 5), but nothing at W where a specimen annotated by H. G. Reichenbach supposedly to be the holotype was photographed in the late 1980s.

Other possible specimens found, proven and debated synonyms, are detailed hereafter.

NOMENCLATURAL NOTES

The synonymy of *Isochilus pauciflorus* differs among authors and is widely debated.

Although *I. pauciflorus* matches the characteristics of the genus *Scaphyglottis*, this species cannot be transferred to *S. pauciflora* because this name was published earlier by Schlechter (1906) and is a synonym of *S. behrii* (Rchb. f.) Benth. & Hook. f. ex Hemsl. 1884. The consequence is that all synonyms are heterotypic:

Ponera punctulata Rchb. f.

Bonplandia 3 (15-16): 220-221 (Reichenbach 1855); for typification, see citation below.

Scaphyglottis punctulata (Rchb. f.) C. Schweinf.

Botanical Museum Leaflets 17 (2): 47 (Schweinfurth 1955); *nomen usitum*.

Helleriella punctulata (Rchb. f.) Garay & Sweet

Flora of the Lesser Antilles: Leeward and Windward Islands 1: 167-169 (Garay & Sweet 1974).

REMARKS

The diagnosis of *I. pauciflorus* is in accordance with *S. punctulata* and many authors accept it in synonymy (Garay & Sweet 1974; Fournet 1978; Adams 1993; Feldmann & Barré 2001; Feldmann 2002, 2012; Maddi 2014).

Epidendrum dussii Cogn.

Symbolae Antillanae: seu fundamenta florum Indiae occidentalis 6 (3): 482-483 (Cogniaux 1910). — Types: **Guadeloupe**. “*supra arbores in sylvis Nez-Cassé*” (sic), s.d., *A. Duss 4170*; Grenada “*supra arbores locis elevatis*” (sic), s.d., *Broadway 1097*.

LECTOTYPE (designated by Garay & Sweet 1974: 169). — **Guadeloupe**. “*supra arbores in sylvis Nez-Cassé*” (sic), s.d., *A. Duss 4170* (lecto-, NY[NY00008795]).

REMARKS

The relationship between *I. pauciflorus* and *Epidendrum dussii* differs between authors too. Garay & Sweet (1974), Feldmann & Barré (2001) and Feldmann (2002) subscribed to the synonymy, but Stehlé (1939) and Adams (1993) did not. Of course, the diagnoses for these species differ on a few points regarding leaves, labellum, disc and column. Despite

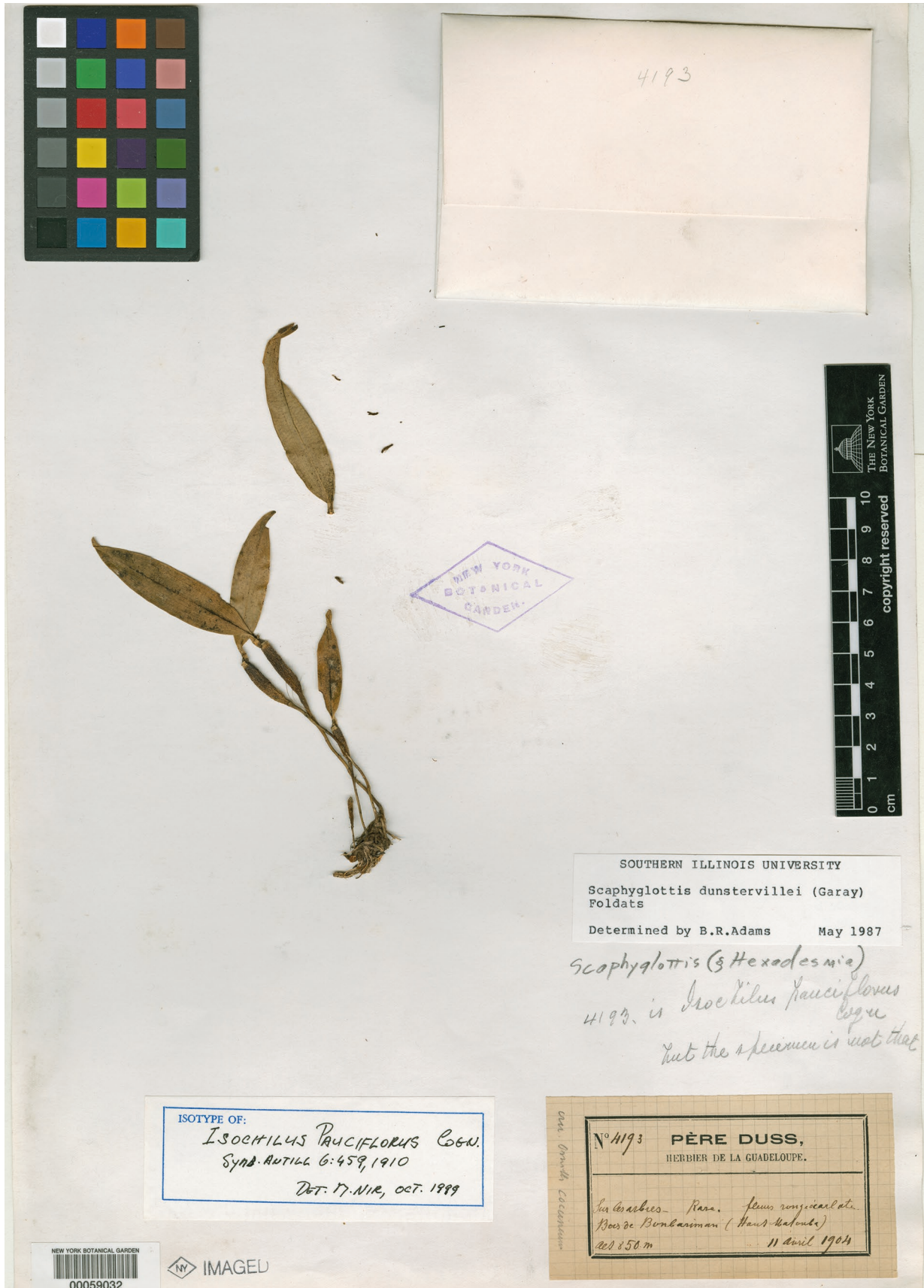


FIG. 1. — Specimen *Duss* 4193 kept at NY (NY00059032). It was regarded as an isotype of *Isochilus pauciflorus* Cogn. according to its original label handwritten by Duss, but the sample differs notably from this taxon and rather relates to *Scaphyglottis dunstervillei* (Garay) Foldats. The envelope on the herbarium sheet is empty; it is used for the storage of the specimen. Picture: courtesy of The C. V. Starr Virtual Herbarium, The New York Botanical Garden (retrieved from http://sweetgum.nybg.org/science/vh/specimen_details.php?im=277461, accessed 13 April 2021).

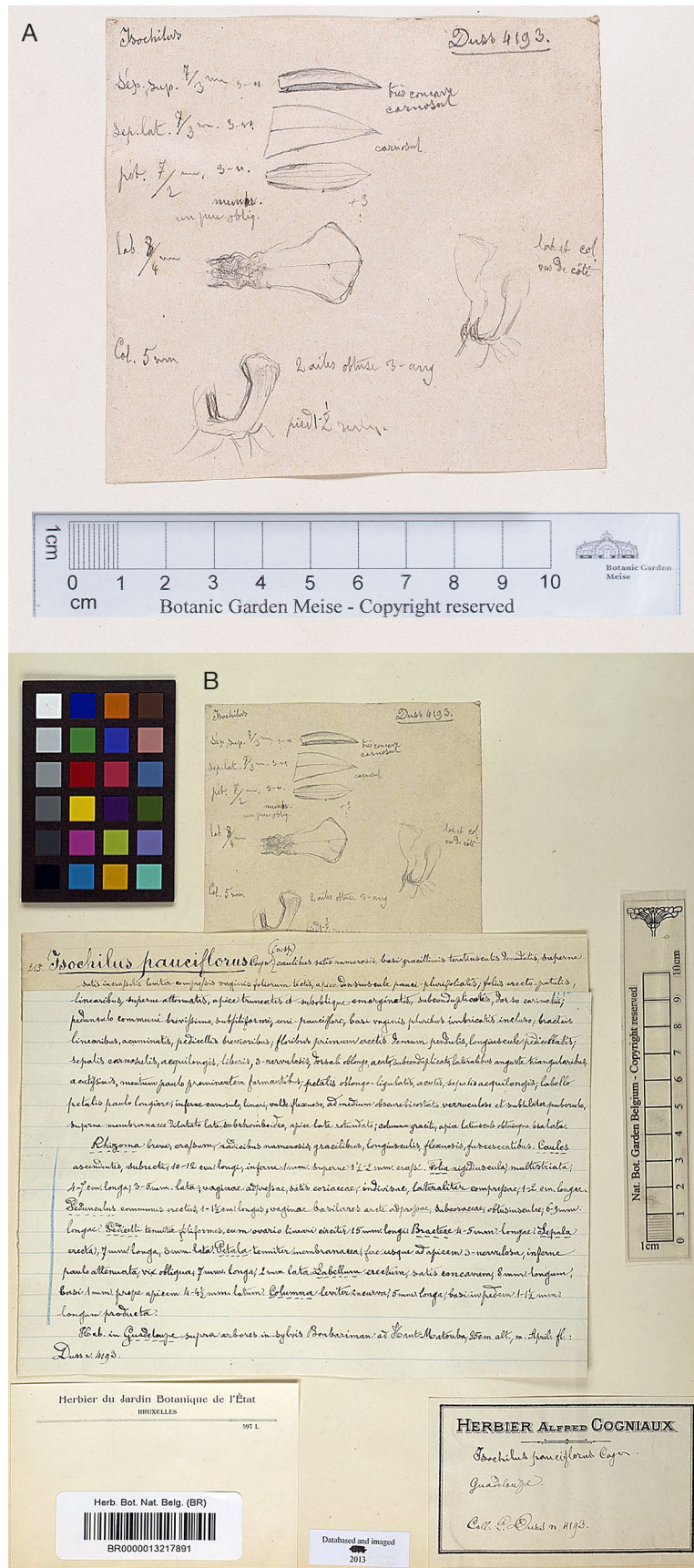


FIG. 2. — Specimen Duss 4193 kept at BR (BR0000013217891), *Isochilus pauciflorus* Cogn.: **A**, detail of the drawing chosen as lectotype of the name *Isochilus pauciflorus* Cogn.; **B**, the whole sheet with the diagnosis handwritten by Cogniaux. Pictures: courtesy of the National Botanic Garden of Belgium (retrieved from <http://www.botanicalcollections.be/specimen/BR0000013217891>, accessed 13 April 2021).



FIG. 3. — Specimen K000079638 designated to serve as neotype of *Ponera punctulata* Rchb. f. and as epitype of *Isochilus pauciflorus* Cogn. (label handwritten by H. G. Reichenbach). Picture: courtesy of the Royal Botanic Gardens, Kew, copyright of the Board of Trustees of the Royal Botanic Gardens, Kew (retrieved from <http://specimens.kew.org/herbarium/K000079638>, accessed 13 April 2021).

these noticeable differences pointed out by Cogniaux, the specimen of *E. dussii*, Duss 4170 (NY00008795), looks very similar to that of *P. punctulata* (K000079638) and does not match better other orchids occurring in Guadeloupe than *S. punctulata*, a rather variable species. The lectotypification by Garay & Sweet (1974: 169) is valid because the publication was effective (Turland *et al.* 2018: arts 7.10, 7.11, 9.22), so the lectotypification by Nir (2014: 473) is superfluous.

Other heterotypic synonyms listed hereafter are more subject to controversy:

Epidendrum lineare Jacq.

Enumeratio Systematica Plantarum: 29 (Jacquin 1760).

TYPE. — West Indies, without proper locality, Plumier tab. 182, fig. 1 as “*Serapias foliis linearibus*” (sic), in Plumier (1758). — *Isochilus linearis* (Jacq.) R. Br., *Hortus Kewensis*, ed. 2, 5: 209 (Aiton 1813).

REMARKS

Correll (1941), followed by Schultes (1960), Hamer (1974), Bellone & Chiron (2003), Vásquez *et al.* (2004) and Chiron & Bellone (2005), argued that *I. pauciflorus* was referable to a typical form of *I. linearis* (Jacq.) R. Br., but the diagnosis of the latter differs on several morphological points, among which is the auriculate-alate and briefly stipitate column in *I. pauciflorus*, a detail clearly shown in its lectotype.

Scaphyglottis arundinacea Hort. Petrop. ex Regel

Index seminum quae Hortus botanicus imperialis Petropolitani... offert: 20 (Regel 1856a); *Annales des Sciences naturelles, Botanique*, série 4, 6: 376 (Regel 1856b).

TYPE. — Samples cultivated at the Botanical Garden of St. Petersburg (Russia) from samples collected in Colombia by Reinhart Frans van Lansberge: “*Lansberg misit plantas vivas e Columbia*” (sic), *s.d.*, *s.coll.* (*legit* E. Regel), *s.n.* (holo-, LE[LE00011187]).

Tetragamestus isochiloides Regel

Index seminum quae Hortus botanicus imperialis Petropolitani... offert: 20 (Regel 1856a); *Annales des Sciences Naturelles, Botanique*, série 4, 6: 376 (Regel 1856b). — *Scaphyglottis isochiloides* (Regel) Foldats, *Acta Biologica Venezuelica* 2: 381 (Foldats 1959).

TYPE. — Samples cultivated at the Botanical Garden of St. Petersburg (Russia) from samples collected in Colombia by Reinhart Frans van Lansberge: “*Lansberg misit plantas vivas e Columbia*” (sic), *s.d.*, *s.coll.* (*legit* E. Regel), *s.n.* (holo-, LE[LE00011187]).

REMARKS

Regel’s original descriptions of *Tetragamestus isochiloides* and its synonym *S. arundinacea* (1856a, 1856b) are close enough to that of *S. punctulata* (Adams B. R., *adnot. in herb.* LE); Nir 2000, 2014; Bogarín *et al.* 2014) and by inference to that of *I. pauciflorus*, so these taxa are considered synonyms. For the description of *S. isochiloides*, Foldats reused the diagnosis of the basionym, although he did not see type material (Foldats 1970). Despite this, for

Szlachetko & Kolanowska (2014), *S. isochiloides* is a full species and is differently treated from *S. punctulata*. However, they made no statement about their key of identification for *S. isochiloides*, but from the photographs of voucher specimens (K000079638, LE00011187 and LE00011188), we see nothing in the appearance of the stems, leaves and the flower that can separate these two taxa, and we agree with Adams who identified the type of *T. isochiloides* as a *S. punctulata* (Adams B. R., *adnot. in herb.* LE).

Hexadesmia dunstervillei Garay

Botanical Museum Leaflets 18 (5): 203-206, plate 39 (Garay 1958). — *Scaphyglottis dunstervillei* (Garay) Foldats, *Acta Botanica Venezuelica* 3: 398 (Foldats 1968). — Type: Venezuela. Estado Miranda, Santa Teresa, Guatopo, 31.XII.1955, G. C. K. Dunsterville 336.

LECTOTYPE (designated by Garay 1958: 206). — Venezuela. Estado Miranda, Santa Teresa, Guatopo, 31.XII.1955, G. C. K. Dunsterville 336 (lecto-, AMES[AMES00287200]).

REMARKS

The synonymy with *S. dunstervillei* (Nir 2000) is an error to be corrected because it is based on the label Duss 4193 (NY00059032) erroneously associated to the plant specimen (Adams 1993; Maddi 2014; see remarks below).

The type of *Hexadesmia dunstervillei* (G. C. K. Dunsterville 336) was located at AMES (AMES00287200). A picture was joined to the protologue. Therefore, the original material (Turland *et al.* 2018: art. 9.4) comprises these two elements which are syntypes (Turland *et al.* 2018: art. 9.6), so the specimen designated by Garay is a lectotype (Turland *et al.* 2018: art. 9.3), not a holotype.

REVISED TYPIFICATIONS

Ponera punctulata Rchb. f.

Bonplandia 3 (15-16): 220-221 (Reichenbach 1855).

TYPE. — Venezuela, without proper locality, *s.d.*, G. A. Geitner *s.n.* (holo- [specim. ex culta], from Geitner’s botanical greenhouse in Planitz [district of Zwickau, Germany] supposedly deposited at W, not found, may not be still extant or is missing).

NEOTYPE (here designated). — *s.l.*, *s.d.*, *s.coll.* (specim. ex culta, H. G. Reichenbach *scripsit*), *s.n.* (neo-, K[K000079638]; Fig. 3).

Scaphyglottis arundinacea Hort. Petrop. ex Regel

Index seminum quae Hortus botanicus imperialis Petropolitani... offert: 20 (Regel 1856a); *Annales des Sciences naturelles, Botanique*, série 4, 6 : 376 (Regel 1856b).

TYPE. — Samples cultivated at the Botanical Garden of St. Petersburg (Russia) from samples collected in Colombia by Reinhart Frans van Lansberge: “*Lansberg misit plantas vivas e Columbia*” (sic), *s.d.*, *s.coll.* (*legit* E. Regel), *s.n.* (holo-, LE[LE00011187]).

EPITYPE (here designated). — Horto botanico Petropolitano [St Petersburg, Russia], V.1866, Regel *s.n.* (epi-, LE[LE00011188]).



FIG. 4. — Drawings AMES00103500 made from the sketches on the Reichenbach herbarium orchid sheet #51918. Picture: courtesy of The Harvard University Herbaria (retrieved from <https://ids.lib.harvard.edu/ids/view/5414011>, accessed 13 April 2021).

Tetragamestus isochiloides Regel

Index seminum quae Hortus botanicus imperialis Petropolitanus... offert: 20 (Regel 1856a); *Annales des Sciences naturelles, Botanique*, série 4, 6: 376 (Regel 1856b).

TYPE. — Samples cultivated at the Botanical Garden of St Petersburg (Russia) from samples collected in Colombia by Reinhart Frans van Lansberge: “Lansberg misit plantas vivas e Columbia” (sic), *s.d.*, *s.coll.* (*legit* E. Regel), *s.n.* (holo-, LE[LE00011187]).

EPITYPE (here designated). — Horto botanico Petropolitano [St Petersburg, Russia], V.1866, *Regel s.n.* (epi-, LE[LE00011188]).

Isochilus pauciflorus Cogn.

Symbolae Antillanae: seu fundamenta florum Indiae occidentalis 6 (3): 459 (Cogniaux 1910). — Type: **Guadeloupe**, Haut Matouba, “supra arbores in sylvis Bonbariman, 850 m. alt., m. April. fl.” (sic), *A. Duss 4193* (holo-, B[destroyed]).

LECTOTYPE (designated by Garay & Sweet 1974: 169). — Original drawing by A. Cogniaux (lecto-, BR[BR0000013217891]; Fig. 2A).

EPITYPE (here designated). — *s.l.*, *s.d.*, *s.coll.* (H. G. Reichenbach *scripsit*), *s.n.* (epi-, K[K000079638]; Fig. 3).

REMARKS

The holotype of *I. pauciflorus* seen by Stehlé (1939) in B was no doubt destroyed by the Allied bombings of Berlin during World War II (for references to the bombing, see Adams 1993; Garay & Sweet 1974; Hiepko 1987; Nir 2000). It was not listed by Butzin (1981) in his compendium of extant types at B and a more recent research in this herbarium was also unsuccessful (R. Vogt, pers. comm. 2013). Among the herbaria screened, the collect labelled *Duss 4193* was found at BR and NY only.

Nir (2000) located an isotype of *I. pauciflorus* Cogn. at NY (NY00059032; Fig. 1). On the label attached to this voucher specimen, Duss wrote “fleurs rouge écarlate” (flowers scarlet red), a color not encountered in the *Scaphyglottis* or *Isochilus* taxa from Guadeloupe, although flowers of *S. punctulata* may range from deep pink to crimson (commonly rose to pale purple-brown, but on developing fruits, the remnants of the perianth turns red to dark reddish-brown; Feldmann 2011; J. D. Ackerman pers. comm. 2016). According to Stehlé (*ibid.*), flowers of *I. pauciflorus* are rose. The color described by Duss may match the flower color of sepals and petals in *S. punctulata* (the lip is cream colored), but the NY’s specimen is sterile. Its main vegetative features are stems slender at the base and distally dilated into a fusiform pseudobulb bearing two coriaceous leaves. These characters suggest that it could belong to *S. dunstervillei* or *S. spathulata* C. Schweinf., two species significantly different from *I. pauciflorus*. A closer examination of the leaf venation revealed transverse streaks between the main veins, a unique feature within the genus *Scaphyglottis* Poepp. & Endl., typical of *S. dunstervillei* (Adams, *ms. in sched.* 1987, 1993). In addition, this specimen has an acute leaf tip like in *S. dunstervillei*, not obliquely emarginated as

reported by Cogniaux in the protologue of *I. pauciflorus*. The strong difference between the specimen *Duss 4193* at NY and the plant described in the protologue leads us to propose this specimen as an unsuitable choice for the typification of *I. pauciflorus*, in accordance to articles 9.4 and 9.10 (Turland *et al.* 2018). A reasonable explanation for this erroneous association between specimen and label may have been provided by Stehlé (1939); he pointed out that Duss distributed material with different names for the same species and different species under the same name. Nonetheless, does *S. dunstervillei* really exist in Guadeloupe? Although Feldmann (2012) did not admitted this taxon from Guadeloupe in his catalogue of orchids from the Lesser Antilles, it was re-discovered in June 2012 and April 2013 in two stations close to the collection site cited by Duss (Maddi 2014). These new records suggest that, under number 4193, Duss might have collected and distributed specimens of *S. dunstervillei*.

At BR, a specimen labelled *Duss 4193* (BR0000013217891) was found. It is a drawing of a flower accompanied by a label from “HERBIER ALFRED COGNIAUX” and a full handwritten description by Cogniaux identical to the protologue; no plant material is present (Fig. 2B). This material is the only reference to *I. pauciflorus* at BR, so we can reasonably accept it as the type cited by Garay & Sweet (1974: 169). It can be inferred that Cogniaux drew this flower after an original specimen not in his own herbarium currently housed at BR, prior to the publication of the protologue. We know that such a material was sent to Krug & Urban at B (Stehlé 1939), but explaining why it is missing in BR is a conjecture. However, this drawing may be regarded as original uncited material (Turland *et al.* 2018: art. 9.4). In this sense, the type designated by Garay & Sweet is a lectotype (Turland *et al.* 2018: arts 9.3, 9.11 and 9.12). If it is not this drawing, then it is no longer extant. Thus, the drawing may support a new lectotype as original material, otherwise a neotype. But actually, it cannot be demonstrated that it is not an original material in the sense of the article 9.4. This lectotype is rather an outline sketch than an accurate drawing of the flower and can lead to misinterpretation. Furthermore, it lacks vegetative features that can help to distinguish among the five species of *Scaphyglottis* occurring in the Lesser Antilles (*S. dunstervillei*, *S. modesta*, *S. prolifera*, *S. punctulata* and *S. reflexa*; Feldmann 2012). This cannot allow a precise application of the name and is in conflict with the recommendation 8A.1. An epitype must be designated (Turland *et al.* 2018: art. 9.9), what we do above. The type of *S. punctulata* which is the type of *Ponera punctulata* can be used as an epitype of *I. pauciflorus*.

The holotype of *P. punctulata* was cited in the Herbarium at the Naturhistorisches Museum in Vienna (W) and is supposedly in the orchids collection of H. G. Reichenbach (Garay & Sweet 1974; Nir 2000, 2014). According to Nir (2000, 2014, pers. comm. 2016), a *Geitner 1175* specimen was still at W during the 1990s and recognized to be the holotype of *P. punctulata*. Moreover, drawings after the type exist in the AMES herbarium: AMES00103500 from sketches of the

HERBARIUM OF OAKES AMES

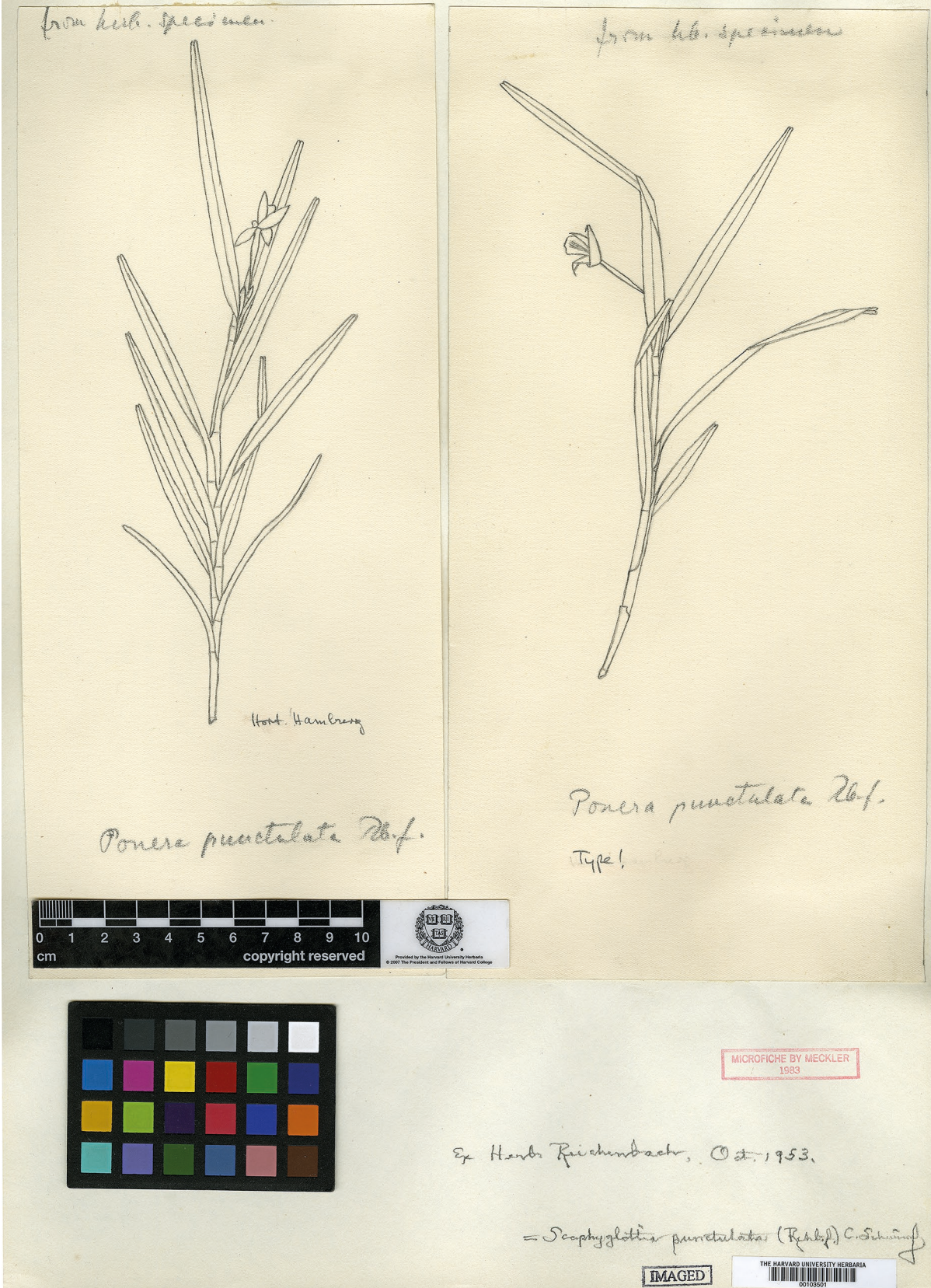


FIG. 5. — Drawings AMES00103501 made from the original material on the Reichenbach herbarium orchid #51918. Picture: courtesy of The Harvard University Herbaria (retrieved from <https://ids.lib.harvard.edu/ids/view/5414015>, accessed 13 April 2021).

type (Fig. 4) and AMES00103501 from the type specimen (Fig. 5); these refer to a specimen (Reichenbach Herbarium sheet #51918) photographed by the Inter Documentation Company (IDC) and published under the microform number 88/10 (Burns-Balogh 1988). Unfortunately, we are not allowed to reproduce this microfiche, but hereafter we give a short description of it: on the top right of the original sheet was stamped “HERB. MUS. PALAT. VINDOB.”, “Reichenbach: Herb. Orchid. Nr. 51918” a unique accession number for the voucher specimen. Two samples, each with a leafy stem and a flower, were attached to this sheet; they are figured by AMES00103501. In addition to these samples, there were several drawings: on the left upper side of the original sheet, there were sketches as those reproduced on the left sheet of AMES00103500, but with “*Tetrag. Isochiloides Rgl*” (H. G. Reichenbach *scripsit*) legended above. On the upper right corner, there were sketches like on the right sheet of AMES00103500; but near the drawing of the colored label were written two initial letters “HH” for *Hortus Hamburgensis*, then a sample number “1175” (not reproduced on the AMES sketch) and a collecting date “Juni 88” (H. G. Reichenbach *scripsit*). In the lower right corner, three labels were attached to the sheet: at the bottom, one mentioned “Herb. Musei Palat. Vindob.” and “*Ponera punctulata Rb*”, one over by H. G. Reichenbach himself saying “*Tetrag. isochiloides Regel*” and above, the third was an additional label that gathered previous information: “*Ponera punctulata Rchb. f. ?*”, “*Tetragamestus isochiloides Rgl.*”, “*ex hort. Bot. Hamburg.*”. According to this sheet, the sampling location was the Botanical Garden of Hamburg (“HH” and “*ex hort. Bot. Hamburg.*”) and the date was June 1888 which is sufficient to be sure that it was not an original material (Turland *et al.* 2018: art. 9.4). Furthermore, these samples were identified as *Tetragamestus isochiloides* Regel (by H. G. Reichenbach himself), then renamed *Ponera punctulata*. It was cultivated at least since 1858 by the Botanical Garden of Hamburg, from a sample given by its homologous in St. Petersburg (Otto 1858). We can also conclude that Gustav A. Geitner was not the collector, first, because he died in 1866, second, because its nursery was established in Planitz (district of Zwickau, Germany), not in Hamburg, and ceased operations in 1882 (Peschke 1998), finally, because there is no reference to him on the sheet. Since no other Geitner collection applies to this taxon, should we still accept *Geitner 1175* as the legitimate type? Geitner was not the collector, then *Geitner 1175* should no longer be used as sample identifier, and it is not an original material, so definitely it is not the holotype. But it may serve for a neotypification of the name *Ponera punctulata*. With the assistance of the staff of the orchid herbarium at W, we carried out investigations in search for material under the name *Ponera punctulata* and its synonyms (*Epidendrum dussii*, *E. lineare*, *Helleriella punctulata*, *Isochilus linearis*, *Pseudoponera dussii*, and *Ps. punctulata*), and even some related species (*Hexadesmia bolivienensis*, *Scaphyglottis arundinacea*, *S. isochiloides*, *S. summersii*, and *Tetragamestus isochiloides*). In spite of our efforts, the holotype and the specimen numbered 1175 were not found there, nor at AMES where Garay had the last on loan during the 1970s (G. A. Romero, pers. comm.

2015). Since they are missing or may be considered lost, a neotypification is needed (Turland *et al.* 2018: arts 9.8 and 9.16). We found at K a specimen of *Ponera punctulata* from H. G. Reichenbach himself after the handwriting on the label (K000079638). This specimen (Fig. 3) shows features that allow the application of the name and looks very similar to the holotype photograph and drawings. Yet, we do not know for certain that it is a Geitner’s original material because there is no indication about this. Consequently, this specimen is appropriate to serve for a new typification as the neotype of the taxon, what we have done above.

Regarding the name *Tetragamestus isochiloides* Regel, its holotype is stored at LE (Christenson 1995). Only one specimen was dated before the publication of the protologue in December 1856: LE00011187. It consists in two samples collected by E. Regel in April 1856 at the Botanical Garden of St. Petersburg. These samples were probably grown from those sent alive from Colombia by R. Lansberg (formally Reinhart Frans van Lansberge) to Regel, then cultivated under the name *Scaphyglottis arundinacea* Hort. Petrop. (Otto 1857: 202; Regel 1857: 18), before being renamed and described by Regel under *Tetragamestus isochiloides* (Regel 1856a, 1856b). But this holotype lacks flowers, so it does not permit a precise application of the name and an epitype is needed (Turland *et al.* 2018: art. 9.9). The specimen LE00011188 is chosen in the above designation because it shows a flower. This flower is detached from the sample attached on the left of the sheet. The specimen was collected in May 1866 by E. Regel at the Botanical Garden of St. Petersburg and probably shares the same origin than LE00011187.

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