Key Largo in the northern Keys, which is quite distant from the No Name Key location in the middle Keys. The orchid has also become more abundant and wide spread in Palm Beach County. During the summer of 2012, E. graminea was discovered in Port St. Lucie in St. Lucie County north of Martin County on the east coast of Florida. This is the most northern known locality for the orchid in Florida and ca. 185 km north of Miami where it was first detected in 2007. By March, 2013, the orchid had been discovered in Charlotte, Hernando, Okeechobee, Polk, and Orange counties in central Florida (Roger Hammer, personal communication).

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New Combinations and Synonyms in the Maxillariinae (Orchidaceae)

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Abstract. Twelve orchid species previously described in the genus *Maxillaria* are transferred to *Camaridium*, *Heterotaxis*, *Inti*, *Pityphyllum*, and *Sauvetrea*. In addition, 19 new heterotypic synonyms in the subtribe Maxillariinae are presented; these and a few others are discussed and/or typified.

Resumen. Doce especies de orquídeas previamente descritas en el género *Maxillaria* son transferidas a *Camaridium*, *Heterotaxis*, *Inti*, *Pityphyllum* y *Sauvetrea*. Además, se presentan 19 sinónimos heterotípicos nuevos para la subtribu Maxillariinae; éstos y algunos otros son comentados y/o tipificados.

Key words: *Camaridium*, *Heterotaxis*, *Inti*, *Maxillaria*, *Pityphyllum*, *Rhetinantha*, *Sauvetrea*, Typification

Introduction

A comprehensive study of the phylogenetic relationships of the orchid subtribe Maxillariinae (Whitten et al. 2007) demonstrated that the taxonomically complex genus *Maxillaria* was grossly polyphyletic as circumscribed traditionally. Thus, a new generic classification (Blanco et al. 2007) and detailed descriptions of each genus (Whitten et al. 2009) were published soon after. Since then, several species were described using the traditional circumscription of *Maxillaria*, and thus it is necessary to transfer these to the appropriate genera to bring them into line with the new classification system. Several of these and other older names have recently been transferred by other authors; e.g., *Camaridium darienense* (J.T. Atwood) Szlach. & Sitko, *Christensonella huntii* (Christenson) S. Koehler, *C. paranaensis* (Barb. Rodr.) S. Koehler, *C. subulifolia* (Schltr.) S. Koehler, *Maxillariella dichaeoides* (D.E. Benn. & Christenson) Szlach. & Sitko, *Mormolyca calimaniana* (V.P. Castro) F. Barros & L.R.S. Guim., and *Mormolyca vanillosma* (Christenson) J.M.H. Shaw. In the present contribution, new combinations are provided for the reminder.

In addition, new synonyms in the Maxillariinae are presented with commentary. Data included in brackets in the type citations below (mostly country and/or current major political divisions) have been inferred from the available locality information in the protologue and/or the type specimen labels.

A list of accepted species that belong to each of the newly circumscribed genera was presented in Blanco et al. (2007). According to their morphology, the following recently described taxa or recently published new names belong in *Maxillaria sensu stricto* (in the restricted circumscription of Blanco et al. 2007, and Whitten et al. 2009): *Maxillaria bettymooreana* Christenson, *M. calendulina* Christenson, *M. canarina* D.E. Benn. & Christenson, *M. cesarfernandezii* Christenson, *M. colombiana* Christenson (although this is doubtfully different from *M. grandiflora* (Kunth) Lindl.), *M. coniformis* D.E. Benn. & Christenson (synonymized below under *M. longissima* Lindl.), *M. crispiloba* Sauvêtre & McIllmurray, *M.* × *doucetteana* Christenson, *M. erecta* Christenson, *M. farinosa* Arévalo & Christenson, *M. flabellata* D.E. Benn. & Christenson, *M. hajekii* D.E. Benn. & Christenson, *M. leucopurpurea* D.E. Benn. & Christenson, *M. ortizii* Christenson, *M. roseola* Christenson, *M. saueri* Christenson, *M. striolata* D.E. Benn. & Christenson, *M. tectasepala* Christenson, *M. tenebrifolia* Arévalo & Christenson, *M. vallisnerioides* Christenson, *M. vasquezii* Christenson, and *M. visseri* D.E. Benn. & Christenson. *Maxillaria pachyacron* Schltr. also belongs in *Maxillaria sensu stricto*; it was accidentally omitted from the list of species that belong in that genus in Blanco et al. (2007).

Soto Arenas (in Hágsater & Soto Arenas 2008) put *Maxillariella tuerckheimii* (Schltr.) M.A. Blanco & Carnevali in the synonymy of *Maxillaria anceps* Ames & C. Schweinf. (=*Maxillariella anceps* (Ames & C. Schweinf.) M.A. Blanco & Carnevali).

Szlachetko et al. (2012) recently published an alternative classification system for the subtribe Maxillariinae. The recognized genera in that classification are too numerous, and many of them are polyphyletic or paraphyletic as circumscribed by the authors. A detailed critique to that system will be published separately (Whitten et al., in preparation).

New Combinations

Camaridium atrovinaceum (Christenson) M.A. Blanco, **comb. nov.**

Basionym: *Maxillaria atrovinacea* Christenson, Richardiana 9: 143–144, 150–151. 2009; based in "*Maxillaria ramosa*" sensu Misas-Urreta (2005: 380–381), non Ruiz & Pav.

Maxillaria vinacea Christenson, Richardiana 9: 147–148, 154–155. 2009; based on "*Maxillaria* sp." in Misas-Urreta (2005: 400–401). **Synon. nov.**

Christenson described both *Maxillaria atrovinacea* and *M. vinacea* based on drawings and photographs previously published by Misas Urreta (2005). Both belong in *Camaridium*, but I am unable to detect any significant differences between the illustrations of the two plants and thus consider them conspecific.

Camaridium baudoense (Christenson) M.A. Blanco, **comb. nov.**

Basionym: *Maxillaria baudoensis* Christenson, Richardiana 9: 144–145, 151–152. 2009; based in "*Maxillaria* sp." in Misas-Urreta (2005: 406–407).

Camaridium ferrugineum (Christenson) M.A. Blanco, **comb. nov.**

Basionym: *Maxillaria ferruginea* Christenson, Richardiana 9: 34–38. 2009 [publ. 24 December 2008].

Maxillaria bomboizensis Dodson, Orquideología 19(3): 54. 1994; *Camaridium bomboizense* (Dodson) M.A. Blanco, Lankesteriana 7: 519. 2007, *nom. inval.*; *Sauvetrea bomboizensis* (Dodson) M.A. Blanco, Lankesteriana 7: 535. 2007; *nom. inval.* **Synon. nov.**

The accidental simultaneous transfer of *Maxillaria bomboizensis* to both *Camaridium* and *Sauvetrea* by Blanco et al. (2007) rendered those combinations invalid. Christenson (2009a) described *Maxillaria ferruginea* without comparing it to *M. bomboizensis*, which appears to be the same species. The new combination above can be used for this taxon when treated as a species of *Camaridium*.

In a previous publication (Blanco 2008) I considered *Maxillaria bomboizensis* as a synonym of *Camaridium carinatum* (Barb. Rodr.) Hoehne, but I have revised that view after Christenson's (2009b) discussion of this species complex (treated by him as *Maxillaria* section *Basitrilobatae* Christenson, in a widely delimited genus *Maxillaria*). *Camaridium atrovinaceum*, *C. baudoense*, and *C. kelloffianum* (all of which are also transferred to *Camaridium* in the present paper) also belong in this group. I still consider *C. imbricatum* (Barb. Rodr.) Hoehne (≡*Maxillaria imbricata* Barb. Rodr.), *M. imbricata var. major* Cogn., and *C. iguapense* (Hoehne & Schltr.) Hoehne (≡*M. iguapensis* Hoehne & Schltr.) synonymous with *C. carinatum* (see Blanco 2008 for a complete homotypic synonymy of these names). Christenson (2009b) recognized all of them as separate species, but their putative differences were based almost exclusively on characters listed or illustrated in their respective protologues, which can be attributed almost certainly to artifacts caused by pressing and drying of specimens and/or natural variation within a single species.

Camaridium hematoglossum (A. Rich. & Galeotti) M.A. Blanco, **comb. nov.**

Basionym: *Maxillaria hematoglossa* A. Rich. & Galeotti, Ann. Sci. Nat., Bot., sér. 3, 3: 24. 1845.

Maxillaria punctostriata Rchb. f., Linnaea 41(1): 28. 1876. *Camaridium punctostriatum* (Rchb. f.) Soto Arenas, Icon. Orchid. 10: xx [Roman numerals]. 2008. **Synon. nov.**

Camaridium kelloffianum (Christenson) M.A. Blanco, **comb. nov.**

Basionym: *Maxillaria kelloffiana* Christenson, Richardiana 9: 145–147, 152–154. 2009.

Camaridium misasii (Christenson) M.A. Blanco, **comb. nov.**

Basionym: *Maxillaria misasii* Christenson, Richardiana 9: 51–52, 58–59. 2009; based on "*Maxillaria densa*" sensu Misas-Urreta (2005: 350–351), non Lindl.

In the protologue of *Maxillaria misasii*, Christenson suggested that this species belongs in *Maxillaria* section *Ornithidium* Christenson (=*Ornithidium* Salisb. ex R.Br.). However, this species has several morphological traits that place it in the genus *Camaridium* (e.g., retuse or emarginate leaf apices, and floral bract longer than the pedicel and ovary). It is most similar to *C. pygmaeum* M.A. Blanco.

Heterotaxis angelae (Christenson) M.A. Blanco & Carnevali, **comb. nov.**

Basionym: *Maxillaria angelae* Christenson, Richardiana 9: 50–51, 57–58. 2009; based in "*Maxillaria* sp." in Misas-Urreta (2005: 394–395).

Inti foetida (D.E. Benn. & Christenson) M.A. Blanco, **comb. nov.**

Basionym: *Maxillaria foetida* D.E. Benn. & Christenson, Richardiana 9: 54–55, 61. 2009.

Inti janiceae (Christenson) M.A. Blanco, **comb. nov.**

Basionym: *Maxillaria janiceae* Christenson, Richardiana 9: 53, 60–61. 2009; based in "*Maxillaria* sp." in Misas-Urreta (2005: 390–391).

Inti nigrolabia (Christenson) M.A. Blanco, **comb. nov.**

Basionym: *Maxillaria nigrolabia* Christenson, Orchid Rev. 119: 94–95. 2011.

Pityphyllum deniseae (Collantes & Christenson) M.A. Blanco, **comb. nov.**

Basionym: *Maxillaria deniseae* Collantes & Christenson, Phytotaxa 1: 25–26. 2009. *Maxillaria huancabambae* (Kraenzl.) C. Schweinf. var. *cuzcoensis* C. Schweinf., Bot. Mus. Leafl. 11: 278. 1945. *Pityphyllum huancabambae* (Kraenzl.) Whitten var. *cuzcoense* (C. Schweinf.) Whitten, Orchids (West Palm Beach) 75: 456. 2006.

Sauvetrea chlorochila (F. Lehm. & Kraenzl.) M.A. Blanco, **comb. nov.**

Basionym: *Maxillaria chlorochila* F. Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 482. 1899.

New Synonyms and Comments on Previously Synonymized Names

Camaridium aurantiacum (Schltr.) M.A. Blanco, Lankesteriana 7: 519. 2007.

Basionym: *Ornithidium aurantiacum* Schltr., Repert. Spec. November Regni Veg. Beih. 19: 241. 1923; *Chaseopsis aurantiaca* (Schltr.) Szlach. & Sitko, Biodivers. Res. Conservation 25: 25. 2012, as '*aurantiacum*'. Type: Costa Rica [—Prov. Alajuela], Arbres des paturages à San Pedro de San Ramon, alt. 1100 m, IX 1921, *A.M. Brenes 129* (Holotype: B, destroyed; lectotype selected by Barringer [1986: 12]: drawings at AMES!).

Synonym: *Maxillaria lankesteri* Ames, Sched. Orch. 7: 11–12. 1924. Type: Costa Rica [Prov. Cartago], Cachí, 1923, *C.H. Lankester 508* (Holotype: AMES!).

Non *Maxillaria calendulina* Christenson, Phytotaxa 1: 21. 2009. *Maxillaria aurantiaca* Schltr., Repert. Spec. November Regni Veg. Beih. 27: 87–88. 1924, *nom. illeg.* (*non M. aurantiaca* A. Rich. & Galeotti, *nec M. aurantiaca* (Lindl.) Rchb. f.) Type: Colombia [—Nariño]: In der Nähe der Westküste bei Barbacoas, 750 m, July 1921, *W. Hopp 93* (Holotype: B, destroyed).

Non *Maxillaria aurantiaca* A. Rich. & Galeotti, Ann. Sci. Nat., Bot., sér. 3. 3: 25. 1845.

Non *Maxillaria aurantiaca* (Lindl.) Rchb. f., Ann. Bot. Syst. 6: 511. 1863.

Bennett and Christenson (2009) erroneously assumed that *Camaridium aurantiacum* M.A. Blanco was published as a new combination for the illegitimate *Maxillaria aurantiaca* Schltr., and listed it (as "*Camaridium aurantiacum* Blanco") as a synonym of their new name *M. calendulina*. However, *C. aurantiacum* was explicitly based on *Ornithidium aurantiacum* Schltr. (=*Maxillaria lankesteri* Ames), not on *M. aurantiaca*. As Barringer (1986) pointed out, Allen (1949) made the same mistake, probably because of the shared specific epithet. Note that *Maxillaria calendulina* is synonymized under *M. porrecta* Lindl. below.

Camaridium densum (Lindl.) M.A. Blanco, Lankesteriana 7: 520. 2007.

Basionym: *Maxillaria densa* Lindl., Edwards's Bot. Reg. 21: t. 1804. 1835; *Chelyella densa* (Lindl.) Szlach. & Sitko, Biodivers. Res. Conservation 25: 26. 2012. Type: Mexico, *ex Hort. Loddiges s.n.* (Holotype: K-Lindl. 463093!).

"*Maxillaria glomerata* Galeotti", Cact. & Orch. Brux. 6., *nom. inval.*; "*Maxillaria glomerata* Lindl.", *in sched.* Type: Mexico, *Galeotti 5121* (Holotype: BR; Isotypes: P, 2 sheets!).

The type specimen of *Maxillaria densa* (=*Camaridium densum*) consists of flowers in a capsule without any vegetative parts, and a watercolor of the plant in life painted directly on the same sheet. There is no indication of the provenance of this plant, but it can be safely assumed that it must have been the one supplied by Loddiges, as no other sheet of this species is found in the Lindley herbarium at Kew.

The invalid name *Maxillaria glomerata* was put in the synonymy of *Camaridium densum* (as *Maxillaria densa*) by Soto Arenas (1990), who cited the specimen on which it was apparently based as "*Galeotti 1840*". However, the correct specimen is *Galeotti 5121*. The number "1840", printed on the label, is the year of collection; the collecting number (*5121*) is hand-written next to the species name. Henri G. Galeotti collected in Mexico from 1835 to 1840 (McVaugh 1978).

Maxillaria argyrophylla Poepp. & Endl., November Gen. Sp. Pl. 1: 36. 1836. Type: Peru [—Huánuco]: Cuchero, January 1830, *Poeppig 1672* (Holotype: W; Isotype: G!; photo of holotype: AMES!, photo and drawing of isotype: AMES!).

Maxillaria edwardsii D.E. Benn. & Christenson, Lindleyana 13: 68–69, f. 19. 1998. Type: Peru—Junín: Chanchamayo, exact locality not given, leg. O. del Castillo, March 1995, cultivated by E. Edwards, *Bennett 7050* (Holotype: originally deposited in USM, now in MOL-spirit!). **Synon. nov.**

The photograph and drawings of the type collection of *M. argyrophylla* at AMES unfortunately do not show floral details, but the isotype has a flower in a paper capsule. My understanding of *Maxillaria edwardsii* is based on the detailed

description and illustration in the protologue, which seems identical to *M. argyrophylla*.

Maxillaria virguncula Rchb. f., Bonplandia 2: 16. 1854. TYPE: Venezuela, Caracas, 6000 ft., February, *H. Wagener s.n.* (Holotype: W).

Maxillaria guadalupensis Cogn., Symb. Antill. 6: 604. 1910. Lectotype (designated by Garay and Sweet in Fl. Lesser Antilles 1: 189. 1974): [—France] Guadeloupe: near Polygone Militaire, *Duss 4143* (BR; Isolectotype: NY!).

Maxillaria attenuata Ames & C. Schweinf., Sched. Orch. 10: 89–90. 1930. TYPE: Costa Rica [—Alajuela]: La Palma, 1250 m, 19 December 1922, *A. M. Brenes 512* (Holotype: AMES!; Isotype: NY!).

Dunsterville and Garay (1976) synonymized *M. attenuata* with *M. guadalupensis* Cogn., and Atwood (1999) acknowledged the possibility of both names being conspecific. Both are certainly very similar (and seemingly conspecific with *M. virguncula*), but recent molecular evidence suggests a more complicated scenario: the specimen *Whitten 2638* (FLAS) —from Bocas del Toro, Panama, initially identified in Whitten et al. (2007) as *Maxillaria* cf. *confusa* Ames & C. Schweinf.— was later determined as *M. attenuata*, and is placed in a clade (with good bootstrap support) separate from that of plants identified as *M. guadalupensis* from Napo, Ecuador (*Whitten 1593*, *2704* and *2714*, FLAS).

Collections identified as either *M. attenuata*, *M. guadalupensis*, and *M. virguncula* are known from Costa Rica, Panama, Colombia, Ecuador, Peru, Bolivia and Venezuela. Interestingly, no collections of these taxa are known from any other of the Lesser Antilles or Trinidad and Tobago. This suggests that *M. guadalupensis* might be endemic to Guadeloupe, while plants from the continent might represent a polyphyletic complex of species with convergent morphologies. It is necessary to compare the morphology and DNA sequences of these plants throughout their geographic range in order to circumscribe discrete taxa.

Maxillaria colorata Rchb.f., Ann. Bot. Syst. 6: 523–524. 1863. TYPE: Peru, *Warscewicz s.n.* (Holotype: W; Isotype: G!).

Maxillaria portillae Christenson & McIllm., Orchids (West Palm Beach) 71: 1112–1114. 2002. TYPE: Ecuador, without precise locality, *ex Hort.* M. McIllmurray, *McIllmurray A-40* (Holotype: K, not deposited yet; see below). **Synon. nov.**

The orchid types of Michael McIllmurray remain in his personal herbarium and will eventually be transferred to Kew (M. McIllmurray, pers. comm. 2006). My understanding of *M. portillae* is based on the detailed description and color photo in the protologue; it seems identical to the Peruvian *M. colorata*.

Maxillaria fletcheriana Rolfe, Gard. Chron. 53: 258. 1913. TYPE: Peru, *ex Hort.* Messrs. F. Sanders & Co., *L. Forget s.n.* (Holotype: K!).

Maxillaria insignis Rolfe, Bull. Misc. Inform. Kew 1922: 25. 1922. TYPE: Peru, *ex Hort.* Messrs. F. Sanders & Co., *L. Forget s.n.* (Holotype: K!). **Synon. nov.**

Maxillaria insignis is simply a minor color variation of *M. fletcheriana*; the sepals and petals of the former show some degree of purple stripping, while those of the latter are pure white. It is strange that Rolfe did not even compare *M. insignis* with *M. fletcheriana*, described by him a few years earlier. Both plants were apparently collected by L. Forget for the firm F. Sanders & Co. of St. Albans, Hertfordshire, UK.

Maxillaria longissima Lindl., Orchid. Linden. 20. 1846. TYPE: Nouvelle Grenade [Venezuela—Mérida]: Mérida, 6000 ft. [1820 m], July 1842, *J. Linden 2215* (Holotype: K-Lindl!).

Maxillaria langlassei Schltr., Repert. Spec. November Regni Veg. Beih. 27: 174. 1924. TYPE: [Colombia—] Cauca: Cordillera Occidentale, versant occidental, 1800 m, 10 February 1899, *E. Langlassé 102* (Holotype: B, destroyed; Isotype: P! [LECTOTYPE **designated here**]). **Synon. nov.**

Maxillaria coniformis D.E. Benn. & Christenson, Phytotaxa 1: 23–24. 2009. TYPE: Peru. Amazonas, Bongara, Venceremos Nuevo, 1700 m, 12 June 2005, *D. Bennett & A. Bennett 9159* (Holotype: HAO, destroyed; LECTOTYPE **designated here:** Figure 2 in Bennett and Christenson, Phytotaxa 1: 24. 2009). **Synon. nov.**

Bennett and Christenson did not compare their *M. coniformis* with *M. longissima*, which is clearly the same species. The leaves that subtend the pseudobulbs in some plants (or populations?) of *M. longissima* are reduced to scarious bracts, while in others they bear well developed, green blades (so called "foliaceous bracts" in the orchidological literature).

Maxillaria meridensis Lindl., Orchid. Linden. 19. 1846; *Calawaya meridensis* (Lindl.) Szlach. & Sitko, Biodivers. Res. Conservation 25: 24. 2012. TYPE: Venezuela [—Mérida]: near Mérida, 6000 ft., *Linden s.n.* (Holotype: K-Lindl!).

Maxillaria longicaulis Schltr., Repert. Spec. November Regni Veg. 27: 72. 1929; *Calawaya longicaulis* (Schltr.) Szlach. & Sitko, Biodivers. Res. Conservation 25: 24. 2012.

TYPE: Bolivia, Hacienda Simaco sobre el camino a Tipuani, 1400 m, March 1920, *O. Buchtien 5019* **(Lectotype designated by Christenson in Lindleyana 11: 20. 1996, here clarified:** AMES No. 101441; Isolectotypes: AMES No. 101442, G, US).

Christenson designated a lectotype at AMES for *M. longicaulis*, but there are two different sheets (duplicates) in that herbarium. One of them is designated here as the second-step lectotype (see Article 9.15 of the Code in McNeill et al. 2005).

Maxillaria parkeri Hook., Bot. Mag. 54: pl. 2729. 1827. TYPE: [Guyana—] Demerara: collected live by Charles S. Parker, *ex Hort.* Liverpool Botanic Garden, *Shepherd s.n.* (Holotype: K!).

Maxillaria hirtilabia Lindl., J. Hort. Soc. London 8: 132. 1853. TYPE: [Colombia—Norte de Santander]: Nve. Grenade, prov. de Ocaña near San Pedro, 1600 [4800 feet *fide* Lindley in protologue], February 1851, *Schlim 402* (**LECTOTYPE designated here:** K-Lindl.!, excluding two loose inflorescences on the same sheet, labeled "Bp. of Winchester" and "H.B. Kew"). **Synon. nov.**

Maxillaria multiflora Barb. Rodr., Gen. Sp. Orchid. 1: 117. 1877. TYPE: [—Brazil,] dans les forêts du Baixo Amazonas, floraison en Février, *Barbosa Rodrigues s.n.* (Holotype: not located and probably destroyed; **LECTOTYPE designated here:** Barb. Rodr., Iconogr. Orchid. Brésil, original illustration at the library of AMES, cited as tab. 287 (unpublished) in Barb. Rodr., *loc. cit.* Digitally restored image of the original reproduced in Sprunger et al. (eds.), Iconogr. Orchid. Brésil (Barb. Rodr.) 1: 403, tab. 275. 1996; black and white copy reproduced in Cogn., Fl. Bras. (Martius) 3(6), tab. 1. 1904. **Synon. nov.**

In the protologue of *Maxillaria hirtilabia*, Lindley mentioned a herbarium collection by Schlim and one plant cultivated at Farnham Castle by the Lord Bishop of Winchester. The type sheet at Lindley's herbarium with Schlim's collection also has two additional inflorescences, one from a plant apparently cultivated at Kew (from which the accompanying watercolor was likely prepared) and another from the plant cultivated by the Bishop of Winchester. Schlim's collection is designated as the lectotype. *Maxillaria multiflora*, based on a plant from the "Lower Amazon", is also conspecific with *M. parkeri*.

Maxillaria pauciflora Barb. Rodr., Gen. Sp. Orchid. 1: 116. 1877. TYPE: [Brazil—Amazonas:] dans les forêts qui environnent la rivière Tarumá, affluent du Rio Negro, dans la province d'Amazonas, fleurit en Mars, *Barbosa Rodrigues s.n.* (Holotype: not located and probably destroyed; **LECTOTYPE designated here**: Barb. Rodr., Iconogr. Orchid. Brésil, original illustration at the library of AMES, cited as tab. 300 (unpublished) in Barb. Rodr., *loc. cit.* Digitally restored image of the original reproduced in Sprunger et al. (eds.), Iconogr. Orchid. Brésil (Barb. Rodr.) 1: 400, tab. 272. 1996; black and white copy reproduced in Cogn., Fl. Bras. (Martius) 3(6), tab. 2. 1904.

Maxillaria klugii C. Schweinf., Amer. Orchid Soc. Bull. 13: 130. 1944. TYPE: Peru—San Martín: Zepelacio, near Moyobamba, 1200–1600 m, December 1933, *Klug 3413* (Holotype: AMES No. 61908!; Isotypes: AMES No. 87548!, MO!). **Synon. nov.**

Maxillaria ringens Rchb.f., Ann. Bot. Syst. 6: 523. 1863. Lectotype (designated by Atwood in Fieldiana, Bot. n.s. 40: 74. 1999): Costa Rica, *Endres 8* (W).

Maxillaria shepheardii Rolfe, Bull. Misc. Inform. Kew 1917: 83. 1917. TYPE: Colombia—Chocó: Rio Condoto, 1914, *ex Hort.* Kew, July [August in holotype sheet label] 1916, *S. Shepheard s.n.* [or *440-14* in label] (Holotype: K!). **Synon. nov.**

Maxillaria tristis Schltr., Repert. Spec. November Regni Veg. Beih. 27: 95. 1924. TYPE: Colombia [—Nariño]: Auf Bäumen bei Daza, 10 km nordwestlich von Pasto, 2700 m, Januar 1922, *W. Hopp 137* (Holotype: B, destroyed). **NEOTYPE designated here:** Iconografía Mutisiana 442, painted by Francisco Escobar (MA), published as Lám. LIII in Fl. Real Exped. Bot. Nuevo Reino Granada 10 (Orchidaceas, IV). 1995, based on a Colombian plant of unknown locality.

Maxillaria steyermarkii Foldats, Acta Bot. Venez. 3: 361. 1968; *Brasiliorchis steyermarkii* (Foldats) Szlach. & Sitko, Biodivers. Res. Conservation 25: 23. 2012. TYPE: Venezuela—Táchira: faldas debajo del Páramo de Tamá, 2475–2550 m, *Steyermark, Dunsterville & Dunsterville 98384* (Holotype: VEN). **Synon. nov.**

The holotype of *Maxillaria tristis* was destroyed in World War II and there are no known isotypes. A painting by Francisco Escobar, one of the illustrators of the Mutis expedition, is designated as neotype. Apparently there is no voucher in MA for that painting. The illustrated plant agrees well with the description of *M. tristis* and was identified as such by Charles Schweinfurth.

Maxillaria steyermarkii is clearly conspecific with *M. tristis*. The only apparent difference,

which is likely an artifact, is that the peduncular bracts in the neotype painting of *M. tristis* have their apices pointing outward, a condition not known to occur in any species of *Maxillaria*. In *M. steyermarkii* the same bracts are appressed to the peduncle, the usual condition in the genus. When painting the plant, Escobar probably focused on the flowers first, and then drew the vegetative parts from memory or from the dry or decomposing plant, which could be an explanation for this artifact. In fact, Schlechter mentioned in the protologue of *M. tristis* that the inflorescence bracts embrace the peduncle ("pedunculo vaginis arcte amplectentibus").

Szlachetko et al. (2012) transferred *M. steyermarkii* to *Brasiliorchis*, probably misled by the bifoliate pseudobulbs. The floral morphology of this species, however, is very different from that of other species of *Brasiliorchis* (as circumscribed by Blanco et al. 2007, Singer et al. 2007, and Whitten et al. 2007, 2009), and shows greater affinity to that of some species of *Maxillaria sensu stricto* (i.e., *M. macrura Rchb.f.*, *M. mejiae Carnevali & G.A. Romero* and *M. pulla Linden & Rchb.f.*).

Maxillaria xylobiiflora Schltr., Repert. Spec. November Regni Veg. 27: 76. 1929. TYPE: Bolivia, Hacienda Simaco sobre el camino a Tipuani, 1400 m, February 1920, *Buchtien 5054* (Holotype: US!).

Maxillaria liparophylla Summerh., Bull. Misc. Inform. Kew 1938: 377. 1938. TYPE: [Trinidad and Tobago—] Tobago: Roxborough-Parlatuvier road, 7th–8th mileposts, in forest reserve summit of Main Ridge, ca. 1400 ft., 25 October 1937, *Sandwith 1925* (Holotype: K!). **Synon. nov.**

Maxillaria porrecta Lindl., Edwards's Bot. Reg. 24: misc. 92. 1838. TYPE: Brazil—Rio de Janeiro: *ex Hort. Loddiges s.n.* (Holotype: K-Lindl!).

Maxillaria calendulina Christenson, Phytotaxa 1: 21. 2009. *Maxillaria aurantiaca* Schltr., Repert. Spec. November Regni Veg. Beih. 27: 87–88. 1924, *nom. illeg.* [*non M. aurantiaca* A. Rich. & Galeotti (Ann. Sci. Nat., Bot., sér. 3. 3: 25. 1845), *nec M. aurantiaca* (Lindl.) Rchb. f. (Ann. Bot. Syst. 6: 511. 1863)]. TYPE: Colombia [—Nariño]: In der Nähe der Westküste bei Barbacoas, 750 m, July 1921, *W. Hopp 93* (Holotype: B, destroyed). **Synon. nov.**

The type of *M. aurantiaca* Schltr. (a later homonym of *M. aurantiaca* A. Rich. & Galeotti) was destroyed and there are no known isotypes, but the description in the protologue matches the widespread *M. porrecta*. For further commentary, see discussion under *Camaridium aurantiacum* (Schltr.) M.A. Blanco, above.

Mormolyca schlimii (Linden & Rchb.f.) M.A. Blanco, Lankesteriana 7: 531. 2007. Basionym: *Chrysocycnis schlimii* Linden & Rchb.f., Bonplandia (Hanover) 2: 280. 1854. TYPE: [Colombia—Norte de Santander]: Nlle. Grenade, prov. de Ocaña, Pamplona, 8000' [2650 m fide isotype at K-Lindl], August 1851, *Schlim 26* (Holotype: W; Isotype: K-Lindl!).

Chrysocycnis ecuadorense Dodson & Garay, Icon. Pl. Trop. 4: pl. 364. 1980. TYPE: Ecuador—Cañar: km 94 Duran-Tambo, on old road, 1000 m, 2 July 1960, *Dodson 123* (Holotype: SEL!). **Synon. nov.**

Dodson and Luer (2005) expressed that *Chrysocycnis ecuadorense* "is doubtfully distinct from *Ch. Schlimii*". The only apparent difference between both is the orientation of the lateral lobes of the labellum, which rather seems like an artifact in either one of the type collections. Flowers of the *Chrysocycnis* group of *Mormolyca* do not preserve well when pressed and dried.

Ornithidium giganteum Lindl., Pl. Hartw. 153. 1845; *Maxillaria gigantea* (Lindl.) Dodson, Monogr. Syst. Bot. Missouri Bot. Gard. 45: 1257. 1993; *Neourbania gigantea* (Lindl.) Szlach. & Sitko, Biodivers. Res. Conservation 25: 31. 2012. TYPE: Ecuador—Loxa [—Loja]: *Hartweg 846* (Holotype: K-Lindl!).

Ornithidium cordyline Rchb.f., Linnaea 41: 34. 1877; *Maxillaria cordyline* (Rchb.f.) Dodson, Orquideología 19(3): 95. 1994; *Neourbania cordyline* (Rchb.f.) Szlach. & Sitko, Biodivers. Res. Conservation 25: 31. 2012. TYPE: Ecuador[—Pichincha]: Andes Quitenses, *Spruce 6242* (Holotype: W; Isotypes: BM!, K!, W; photo: RPSC; drawing of holotype: AMES!). **Synon. nov.**

Ornithidium miniatum Lindl., Edwards's Bot. Reg. 31(Misc.): 62. 1845. TYPE: Colombia [probably Venezuela]: *ex Hort.* Messrs. Rollissons (Holotype: K-Lindl!).

Ornithidium bicolor Rolfe, Bull. Misc. Inform. Kew 1909: 64. 1909, *nom. illeg.* (*non Ornithidium bicolor* Lindl. ex Rchb.f., Ann. Bot. Syst. 6: 489. 1863); *Maxillaria rolfei* P. Ortiz, Orquideología 18: 99. 1991; *Maxillaria rubropunctata* Christenson, Richardiana 2: 53. 2002. TYPE: Colombia, *ex Hort.* L'Horticulture Coloniale, Brussels, June 1901, *Messrs. Linden s.n.* (Holotype: K!). **Synon. nov.**

The type specimen of *O. bicolor* only has flowers in two capsules and no vegetative parts.

However, Rolfe (1901) had previously described in detail the peculiar growth habit of the plant, which consisted of cespitose pseudobulbs that later produced tall, erect, monopodial shoots with axillary groups of flowers. The floral and vegetative morphology clearly correspond to that of *Ornithidium miniatum*, a species that can have red or yellow flowers, in the latter case often with a red spot in the midlobe of the labellum.

It is strange that Rolfe did not notice the similarity of *O. bicolor* with *O. miniatum*, whose type in the Lindley orchid herbarium (which has been at Kew since 1865) has a nice portion of the plant with a pseudobulb and a flowering leafy shoot.

Ornithidium multicaule (Poepp. & Endl.) Rchb.f., Bonplandia (Hanover) 2: 18. 1854. Basionym: *Siagonanthus multicaulis* Poepp. & Endl., November Gen. Sp. Pl. 1: 40, t. 69. 1836. TYPE: Peru, *Poeppig* (Holotype: W).

Ornithidium fragrans Rolfe, Bull. Misc. Inform. Kew 1894: 157. 1894. SYNTYPES: 1) Original country unknown, *ex Hort.* Glasnevin [Dublin, Ireland], 22 March 1893, *Mr. F.W. Moore, A.L.S. s.n.* (**LECTOTYPE designated here:** K!; excluding pseudobulb and leaf mounted on the right side of the same sheet, sent from the Royal Botanic Gardens, Glasnevin, on February 1895, apparently from the same plant in cultivation); and 2) Original country unknown, Imported by Messrs. Sander & Co. of St. Albans, *ex Hort.* Bart., Burford, Dorking, January 1894, *Sir Trevor Lawrence s.n.* (K?, not found). **Synon. nov.**

Ornithidium fragrans is clearly conspecific with *O. multicaule*, a species widespread on the eastern slopes of the tropical Andes. In the protologue of *O. fragrans*, Rolfe mentioned two plants, which must be considered syntypes. Only the one sent from Glasnevin by Moore has been found at K, which is thus designated as lectotype. The same sheet has elements, apparently from the same plant, mounted at a later date; these are not part of the same gathering and thus are not part of the lectotype.

Vásquez and Dodson (1982) and Jørgensen et al. (2010) erroneously included *Ornithidium fragrans* Rolfe in the synonymy of *Camaridium ochroleucum* Lindl. (as *Maxillaria camaridii* Rchb.f.). The latter is vegetatively similar, but has very different flowers.

Rhetinantha friedrichsthalii (Rchb.f.) M.A. Blanco, Lankesteriana 7: 534. 2007. Basionym: *Maxillaria friedrichsthalii* Rchb.f., Bot. Zeitung (Berlin) 10(49): 858. 1852. TYPE: Guatemala [actually Nicaragua]—Chontales: Monte Aragua, *Friedrichsthal 828* (Holotype: W; Isotype: AMES!)

Maxillaria turialbae Schltr., Beih. Bot. Centralbl. 36(2): 414–415. 1918. TYPE: Costa Rica [—Cartago]: im Turrialba-Tal, 800 m, 15 January 1882, *F.C. Lehmann 1098* (Holotype: B, destroyed; drawing of holotype: AMES!; **LECTOTYPE designated here:** G!).

The type of *Maxillaria friedrichsthalii* was collected in modern-day Nicaragua, not Guatemala. There are no localities named Chontales in Guatemala, but there is a department with that name in Nicaragua. Friedrichsthal used the name "Guatemala" for his Nicaraguan and Costa Rican collections, because of the entire region was at the time formally known as "Capitanía General de Guatemala" (Ossenbach 2009: 80–85). The locality "Monte Aragua" is clearly spelled as such in the isotype label; however, there are no localities with that name in either Guatemala or Nicaragua, and it could simply be a corruption of "Nicaragua".

Schlechter (1923) realized that his *Maxillaria turialbae* is a synonym of Reichenbach's *M. friedrichsthalii* (now in the genus *Rhetinantha*). The holotype at B was destroyed during World War II; the isotype at G is designated as lectotype.

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A New Species of *Guzmania* Ruiz & Pav. (Bromeliaceae) from Venezuela

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Abstract. A new species of Bromeliaceae, *Guzmania loeflingiana*, is described and illustrated. It appears to be related to *G. cylindrica*.

Key words: *Guzmania*, Bromeliaceae, new species, Venezuela

Introduction

The genus *Guzmania* (Bromeliaceae: Tillandsioideae), comprises 212 species (Luther 2012) distributed in the Americas, in the southern USA (Florida), Mexico and the Antilles south to Brazil and Peru (Smith & Downs 1977; Utley 1994; Smith 1998). It includes approximately 6% of the species in the family.

In the last full treatment of the genus for the country, 27 species were included in the Flora de Venezuela (Smith 1971). Subsequently in other formats, Holst (1994, 1997) and Holst and Vivas (2008) reported 28 species.The number rises to 29 with the description of this new species.

Guzmania species are distributed throughout the country, but predominately occurs in the Andes and Coastal Cordillera. The genus is less well represented in the Llanos and Guayana Shield. Species of *Guzmania* can be found from sea level to approximately 3500 m elevation, with many species being cloud forest specialists (Vivas 2006). Species of the genus may be epiphytic, terrestrial, or rupicolous, and are important in the ecology of forested ecosystems due to their diversity and abundance (Laessle 1961; Blanchado et al. 1986). Some species also form part of the diet of the Spectacled Bear and all Venezuelan species are tank plants with the capacity of accumulating water in the base of the rosette, which may harbor a rich fauna (Till 2000; Paz 1977, 1980).

Most of species of the genus grow in cloud forests or evergreen forests, except ones that reach the subparamo such as *Guzmania lychnis* and *G. confinis*, this last one reaches a higher elevation (ca. 3500 m). *Guzmania lingulata* and *G. monostachia* have the widest distribution in Venezuela. Four species of the genus are terrestrial, *G. confinis, G. nubicola, G. steyermarkii,* and *G. terrestris*. Twelve species are epiphytes and 14 are facultative, growing on the ground, on trees, or on rocks.

Nine species of *Guzmania* are endemic to Venezuela, six of which are restricted to the Cordillera de la Costa.

Taxonomic Treatment

Guzmania loeflingiana Y. Vivas & B. Holst, **sp. nov.** Type: Venezuela. Aragua: Parque Nacional Henri Pittier, camino hacia Guacamaya, desde la estación Biológica Rancho Grande, 10°21′N, 67°41′O, 1230–1400 m, 14 abr. 2006, *Y. Vivas, B. Holst, B. Manara, L. Peña y* O. *Vivas 1427* (HT: VEN). Figures 1, 2.

Herba epiphytica, 32–40 cm alta; folia, saltem interiora, suberecta. Scapus inclusus, ca. 10 cm longus, bracteis inferioribus ovatis, superioribus late ovatis, omnibus conspicue internodos excedentibus. Inflorescentia simplex, ellipsoides, 6–10 cm longa. Bracteae florales obovatae, apice ex obtuso subacutae, sepala conspicue excedentes, margine late membranaceae. Flores 8,5–9 cm longi. Sepala lanceolata vel oblanceolata, apice acuta, 3–3,5 cm longa, 8–9 mm connata. Petala ex albo albo-viridia.

Epiphytic or lithophytic herb 35–40 cm tall in flower. ***Leaves*** 20–35 cm long; ***sheaths*** conspicuous, obovate to elliptic, 9–12 × 5–7 cm, densely brown punctate-lepidote above and below; ***blades*** suberect, ligulate to slightly lanceolate, 16–20 cm long, 2–4 cm wide, apex obtuse, mucronate, brown punctate-lepidote above and below; ***scape*** erect, included, 17–25 cm long, 3–4 mm diameter; ***scape bracts*** erect, densely imbricate, the lower ones ovate, apex obtuse, mucronate, the upper broadly ovate, apex subacute, mucronate, all conspicuously