NOTES ON SOME MALESIAN ORCHIDACEAE IV

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Abstract. Continuing literature and herbarium studies of the Malesian orchid flora reveal the need for four transfers, viz. *Aeridostachya bancana, Bryobium consanguineum, Phreatia microscopica,* and *Zeuxine zollingeri*. Two taxa, *Dendrobium lancifolium* and *Eria stellata* are reinstated. Furthermore, aside from lectotypifications, nine new synonyms are proposed in the genera *Bulbophyllum, Dendrobium, Eria, Gastrochilus,* and *Habenaria*.

Keywords: Malesia, Orchids, *Aeridostachya, Bryobium, Phreatia, Zeuxine*.

This paper is a continuation of our studies (e.g. Ormerod and Juswara, 2021) that are intended as an effort to update the knowledge of Malesian orchids. Most of the taxa dealt with here occur in Indonesia, but two, *Dendrobium papilio* Loher and *Eria cochleata* Lindl., are so far only found in the Philippines.

Aeridostachya (J.D. Hook.) Brieger, in Schltr., Die Orchideen ed. 3, 1 (11–12): 714. 1981.
Basionym: *Eria* Lindl. section *Aeridostachya* J.D. Hook., Fl. Brit. Ind. 5: 786, 809. 1890 as *Acridostachya*.
Type species: *Eria aeridostachya* Rchb.f. ex Lindl.
Homotypic synonym: *Pinalia* Lindl. section *Aeridostachya* (J.D. Hook.) O. Kuntze, in Post & Kuntze, Lex. Gen. Phan.: 439. 1904 as *Acridostachya*.
Heterotypic synonym: *Dendrolirium* Blume section *Brachystomium* Blume, Bijdr.: 346. 1825; Bijdr.: Clav. Gen. Orch. Jav. 1825.
Lectotype species: [designated here]: *Dendrolirium robustum* Blume

A genus of Subtribe Eriinae with about 20 species distributed from Thailand to Fiji. Most of the species (14) are to be found in Indonesia. The plants are pseudobulbous epiphytic herbs with dense, pubescent racemes of small (sepals 2–3 mm long) flowers. The flowers have a mentum formed by the lateral sepals and column foot, a simple labellum, and a short column bearing eight pollinia. The different taxa are difficult to identify due to the great similarity of their flowers.

Aeridostachya bancana (J.J. Sm.) Ormerod & Juswara, *comb. nov.*
Basionym: *Eria bancana* J.J. Sm., Bull. Jard. Bot. Buitenz. s. 3, 2: 53. 1920.
TYPE: INDONESIA. Bangka, without locality, *leg. H.A.B. Bunnemeijer 69, cult. Hort. Bogor. XIB, IX, 104* (Holotype: BO [0064934]).

Distribution: Malaysia (Sabah); Indonesia (Bangka).

Wood (2011) first proposed this combination but, unfortunately, omitted the year of publication for the basionym, making the new binomial invalid. The transfer of *Eria bancana* to *Aeridostachya* is validated here. The holotype consists of a single dried inflorescence.

Bryobium Lindl., Intr. Nat. Syst. Bot. ed. 2: 446. 1836.
Type species: *Bryobium pubescens* Lindl.

A genus of Subtribe Eriinae with about 25 species distributed from Thailand to the Solomon Islands. It is a cryptic genus that is especially difficult to distinguish from *Pinalia* Lindl. using floral morphology. The molecular studies of Ng et al. (2018) show that *Bryobium* is more closely related to *Ceratostylis* Blume than to *Pinalia*.

Bryobium consanguineum (J.J. Sm.) Ormerod & Juswara, *comb. nov.*
Basionym: *Eria consanguinea* J.J. Sm., Bull. Jard. Bot. Buitenz. ser. 3, 11: 131. 1932.
TYPE: INDONESIA. Kalimantan, West Koetei, Gunung Kemoel, 1600 m, 18 October 1925, *F. H. Endert 4315* (Holotype: L [0058745] [image seen]).
Homotypic synonym: *Pinalia consanguinea* (J.J. Sm.) Schuit., Y.P. Ng & H.A. Pedersen, Bot. J. Linn. Soc. 186: 197. 2018.

Distribution: Indonesia (Kalimantan).

In the protologue, Smith compared this taxon to the species now known as *Bryobium bicristatum* (Blume) Schuit., Y.P. Ng & H.A. Pedersen and *B. hyacinthoides* (Blume) Y.P. Ng & Cribb. We believe Smith's observations are correct on the relationships of *Eria consanguinea* and accordingly transfer it to *Bryobium*.

Bulbophyllum Thouars, Hist. Part. Orch. Iles Austral. Afr.: Trois. Tabl. Esp., tt. 93–110. 1822 *nom. cons.*
Lectotype: *Bulbophyllum nutans* Thouars

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A genus of over 2000 species distributed throughout the warm tropics of the world, but also extending to mildly temperate regions such as part of Japan and New Zealand. They may be recognized by their one to two (rarely more) apically-leaved pseudobulbs, basal inflorescences, and flowers quite often bearing a hinged, usually motile labellum.

Bulbophyllum gibbosum (Blume) Lindl., Gen. Sp. Orch. Pl.: 54. 1830.

TYPE: INDONESIA. Java, high altitudes of Mt. Salak, fl. June, *C. L. Blume 1873* (Lectotype: [J. J. Verm. 1992: 57, as holotype]: L [0058196] [image seen]).

Basionym: *Diphyes gibbosa* Blume, Bijdr.: 312. 1825.

Homotypic synonym: *Phyllorkis gibbosa* (Blume) O. Kuntze, Rev. Gen. Pl. 2: 677. 1891.

Heterotypic synonyms: *Dendrobium javanicum* Swartz, Kongl. Vetensk. Acad. Nya Handl. 21, 3: 247. 1800 *syn. nov.* TYPE: INDONESIA. Java, *C. P. Thunberg s.n.* (Neotype: [designated here]: UPS-Thunb. [21478] [image seen]).

Eria javanica (Swartz) Blume, Rumphia 2: 23. 1839.

Not *Bulbophyllum javanicum* Miquel 1859

Not *Bulbophyllum javanicum* (Blume) J.J. Sm. 1918.

Distribution: Malaysia; Brunei; Indonesia.

Select specimens examined: INDONESIA. West Java Prov., Preanger, Cadas Malang, Cidadap, Cibeber, 1000 m, 21 October 1916, *R. C. Bakhuizen van den Brink 942* (BO); same area, Cibeber, July 1917, *W. F. Winckel 589B* (BO); Mt. Cikuray, E of Mt. Gede, 1450 m, 30 March 1914, *C. A. Backer 12868* (BO).

Lindley (1825) questionably treated *Dendrobium javanicum* as a synonym of his *Eria stellata*. Blume later transferred the former to *Eria*. However, this tentative synonymy wasn't accepted until Ames (1908) formally united the two taxa. Since then the identity of *Dendrobium javanicum* has not been questioned even though the type has not been located. The protologue of *D. javanicum* reads "caule radicante, foliis petiolatis erectis lato-lanceolatis obtusis, scapis e basi vaginarum petiolorum multifloris. E Java. Thunberg". *Eria stellata* has acute (not obtuse) leaves, and its inflorescence is axillary (not basal). Furthermore, Swartz does not mention any pubescence on the scape or flowers such as is found in *Eria stellata*.

No specimens annotated with the name *Dendrobium javanicum* by Swartz have been found. However, in UPS we found in Thunberg's herbarium a collection from Java annotated with the names *"Orchis monophylla*" and *"Dendrobium monophylla*". Both annotations are by Thunberg (Hjertson, pers. comm.). This specimen fits very well with the diagnosis of Swartz, for it has a rooting stem (actually the rhizome, but the minute pseudobulbs wouldn't have been recognised at the time), petiolate, erect, obtuse leaves, and a scape and leaf petiole enveloped by a basal sheath. We believe this collection is the actual holotype of *Dendrobium javanicum*, but since it is not annotated with the specific epithet we have chosen it as the neotype.

The consequences of this discovery are that *Dendrobium javanicum* becomes a synonym of *Bulbophyllum gibbosum* (see Vermeulen,1992, for further synonymy) and that *Eria stellata* (see below) must be reinstated.

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

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

A genus of 1520–1530 species distributed from India and Sri Lanka to Tahiti. The plants are primarily epiphytes, though a few terrestrial taxa are known, especially from New Caledonia. Many species and artificial hybrids are popular horticultural subjects. Some of the artificial hybrids are commercially used in the cut-flower market. *Dendrobium* is the largest orchid genus in Indonesia, comprising about 690 species. With the exception of *D. papilio,* all of the species discussed here occur in Indonesia.

Dendrobium lancifolium A. Rich., Sert. Astrol., Atlas: t.8. 1833; Sert. Astrol.: 20. 1834.

TYPE: INDONESIA. Maluku Prov., Buru Island, June to July 1828, *A. Lesson s.n.* (Holotype: [not found]).

Homotypic synonym: *Callista lancifolia* (A. Rich.) O. Kuntze, Rev. Gen. Pl. 2: 655. 1891.

Heterotypic synonyms: *Dendrobium lanceolatum* Gaud., Voy. Uranie: 423. 1829 *nom. illeg., non* Pers. 1807. TYPE: INDONESIA. Papua Prov., Waigeo [as Rawak] Island, *C. Gaudichaud s.n.* (Holotype: P [00328856] [image seen]).

Dendrobium lilacinum Teijsm. & Binn., Natuurk. Tijdschr. Ned. Ind. 27: 18. 1864. TYPE: INDONESIA. "Java, Mt. Salak" [prob. ex Maluku Prov.], *J. E. Teijsmann s.n.* (Holotype: L [0059502] [image seen]).

Dendrobium huttonii Rchb.f., Gard. Chron.: 686. 1869. TYPE: "MALAYAN ARCHIPELAGO". Without locality, *leg. H. Hutton, cult. Messrs. Veitch s.n.* (Holotype: W-R [21007] [image seen]).

Callista huttonii (Rchb.f.) O. Kuntze, Rev. Gen. Pl. 2: 654. 1891.

Eurycaulis huttonii (Rchb.f.) M.A. Clem., Telopea 10, 1: 286. 2003.

Dendrobium vulcanicum Schltr., Bull. Herb. Boiss. s. 2, 6: 459. 1906. TYPE: INDONESIA. Maluku Prov., Banda Islands, Pulau Gunung Api, upper half of active peak, October 1901, *R. Schlechter 13660* (Holotype: B [destroyed]).

Dendrobium lancifolium A. Rich. var. *papuanum* J.J. Sm., Nova Guin. 12, 4: 325. 1916. TYPE: INDONESIA. Papua Prov., Arfak Range, 1900 m, 26 April 1912, *K. Gjellerup 1065* (Holotype: BO [0062961]).

Distribution: Indonesia (Sulawesi, N Maluku, Maluku, Papua).

Select specimens examined: INDONESIA. Sulawesi, without precise locality, *cult. Hort. Bogor. s.n.* (AMES); without precise locality, *leg. L. van Vuuren 92, cult. Hort.*

Bogor. s.n. (BO). South Sulawesi Prov., Enrekang, *leg. L. van Vuuren 285, cult. Hort. Bogor. s.n.* (BO; L [1502235] [image seen]); Kalosi, 600 m, 16 May 1929, *G. Kjellberg 1434* (BO). North Sulawesi Prov., Talaud Islands, Karakelong Island, E slope Mt. Piapi, 350 m, 31 May 1926, *H. J. Lam 3242* (BO; L [1502211] [image seen]). North Maluku Prov., Ternate, W Sulamadaha, 25 m, 8 October 1920, *V. M. A. Beguin 880* (BO; L [1502224] [image seen]). Papua Prov., Biak Island, 20 m, 30 June 1961, *W. Vink BW 12027* (A); Cyclop Mountains, 350 m, 29 June 1938, *E. Meijer Drees 130* (BO).

The name *Dendrobium lanceolatum* Gaud. was used by the first author (Ormerod, 2017) for this species, but, unfortunately, further literature research has shown there is an earlier *D. lanceolatum* (= *Specklinia lanceola* (Sw.) Lindl.). We have, therefore, adopted the next available binomial, viz. *D. lancifolium*.

Dendrobium macfarlanei F. Muell., Descr. Notes Papuan Pl. 1: 29. 1876. TYPE: PAPUA NEW GUINEA. Baxter River, *Rev. S. Macfarlane s.n.* (Holotype: MEL [0544736]).

Homotypic synonyms: *Aporum macfarlanei* (F. Muell.) Rauschert, Rep. Sp. Nov. Regni Veg. 94, 7-8: 440. 1983.

Aporopsis macfarlanei (F. Muell.) M.A. Clem. & D.L. Jones, Orchadian 13, 11: 485. 2002.

Ceraia macfarlanei (F. Muell.) M.A. Clem., Telopea 10, 1: 292. 2003.

Heterotypic synonyms: *Dendrobium litorale* Schltr., Rep. Sp. Nov. Regni Veg., Beih. 1: 567. 1912, *syn. nov.* TYPE: PAPUA NEW GUINEA [as KAISER WILHELMS-LAND]. Morowe (Adolfhafen), 10 m, April 1909, *R. Schlechter 19214* (Syntype: B [destroyed]); Waria River mouth, 15 m, July 1909, *R. Schlechter 19958* (Syntype: B [destroyed]; Isosyntypes: NSW [926674]; AD [96608145]; G [00165429]; S [1937] [images seen]).

Aporum litorale (Schltr.) Rauschert, Rep. Sp. Nov. Regni Veg. 94, 7–8: 440. 1983.

Aporopsis litoralis (Schltr.) M.A. Clem. & D.L. Jones, Orchadian 13, 11: 485. 2002.

Ceraia litoralis (Schltr.) M.A. Clem., Telopea 10, 1: 292. 2003.

Dendrobium platybasis Ridl., Trans. Linn. Soc. ser. 2, Bot. 9: 168. 1916 *syn. nov.* TYPE: INDONESIA. Papua Prov., Launch Camp, 0 m, 13 March 1913, *C. B. Kloss s.n.* (Holotype: BM [000017528]).

Ceraia platybasis (Ridl.) M.A. Clem., Telopea 10, 1: 293. 2003.

Distribution: Indonesia (Papua); Papua New Guinea; Australia (Torres Strait).

Select specimens examined: INDONESIA. Papua Prov., Idenburg River, Bernhard Camp, 50 m, April 1939, *L. J. Brass 13783* (BRI). PAPUA NEW GUINEA. Western Prov., Oriomo River, Dagwa, February to March 1934, *L. J. Brass 5924* (AMES); Oriomo River, Dagwa, February to March 1934, *L. J. Brass 5981* (AMES).

The type of *D. macfarlanei* was collected by the Reverend Samuel Macfarlane somewhere on the Baxter (now Mai-Kassa) River on 31 May 1875 (van Steenis-Kruseman, 1950). The Mai-Kassa River is a lowland waterway that empties into the Torres Strait, not too far from Dauan Island from where *D. macfarlanei* was recorded for the first time in Australian territory under the later synonym *D. litorale* (Jones, in Lavarack, 1989).

Study of type material of *D. macfarlanei* and *D. litorale* showed these two taxa to be conspecific. Both entities agree in having an 8–10 mm long mentum, and a cuneate, apically trilobulate to quadrilobulate labellum bearing three low keels. *Dendrobium platybasis*, based on material collected in coastal West New Guinea, proved to have the same features, and it is also reduced to synonymy.

The reason that *D. macfarlanei* and *D. litorale* have not been previously considered conspecific is due to Schlechter's (1912) influential account of *D. macfarlanei* and its allies. Schlechter's concept of *D. macfarlanei* differs in having a very low median, narrowly sulcate thickening (vs. three distinct keels) on the labellum. It is probably an undescribed taxon, but we have not been able to obtain any material of it.

Dendrobium papilio Loher, Gard. Chron. ser. 3, 21: 416. 1897. TYPE: NOT CITED. (Holotype: [not found]). Neotype: [designated here]: Philippines, Luzon, Tonglon, and Benguet, Galou, *A. Loher 477* (Neotype: K [001085101] [image seen]).

Homotypic synonym: *Aporum papilio* (Loher) Rauschert, Rep. Sp. Nov. Regni Veg. 94, 7–8: 441. 1983.

Heterotypic synonym: *Dendrobium greatrixianum* Hort. Sander ex H. J. Veitch, Gard. Chron. ser. 3, 22: 222. 1897, *syn. nov.* TYPE: "NEW GUINEA". Exhibited at the R.H.S. 21 September 1897, *cult. Messrs. F. Sander & Co. s.n.* (Holotype: [lost]).

Dendrobium vanoverberghii Ames, Philipp. J. Sci. 8, C: 425. 1914. TYPE: PHILIPPINES. Luzon, Bontoc Subprov., 19 July 1911, *M. Vanoverbergh 1345* (Holotype: AMES [00090243] [image seen]; Isotypes: GH [02336763], K [001085076], K [001085077], L [0059396] [images seen]).

Distribution: Philippines.

The description of *D. greatrixianum* mentions that it is a pretty, slender species, bearing white flowers with a large ovate labellum, which has a purple blotch at the base and apex. No such *Dendrobium* has been found in New Guinea, but the sparse details given indicate that *D. greatrixianum* is a synonym of *D. papilio*. It is likely that Sander saw the description given by Loher of his *Dendrobium* with butterfly-like flowers and ordered his collectors to bring it back from the Philippines for commercial sale in Europe and Britain. Thus, the locality, New Guinea, is likely a deliberate error to throw off commercial rivals.

Loher cited no type in the protologue of *D. papilio*, so we have chosen a collection of his in Kew as the neotype.

Dendrobium pseudocalceolum J.J. Sm., Bull. Dep. Agr. Ind. Neerl. 5: 34. 1907. TYPE: INDONESIA. Papua Prov., between Geelvink Bay and MacCleur Gulf, 1906, *leg. W. den Berger, cult. Hort. Bogor. s.n.* (Lectotype: BO [0061600]) [designated here]; same data, *leg. W. den Berger, cult. Hort. Bogor. s.n.* (Syntype: BO [0061425])

Homotypic synonyms: *Aporum pseudocalceolum* (J.J. Sm.) Rauschert, Rep. Sp. Nov. Regni Veg. 94, 7-8: 441. 1983.

Ceraia pseudocalceola (J.J. Sm.) M.A. Clem., Telopea 10, 1: 293. 2003.

Heterotypic synonyms: *Dendrobium ferdinandii* Kraenzl., in Engl., Pflanzenr. IV. 50, II, B. 21, 45: 209. 1910 *syn. nov.* TYPE: PAPUA NEW GUINEA. Southeast part, *leg. F. M. Bailey, cult. Bot. Gard. Melbourne s.n.* (Holotype: [not found]). Neotype: [designated here]: *Sine loc. et coll. s.n.* (Neotype: HBG [501569] [image seen], as *"Aporum muellerianum"*).

Ceraia ferdinandii (Kraenzl.) M.A. Clem., Telopea 10, 1: 295. 2003.

Distribution: Indonesia (Papua); Papua New Guinea.

This species is a common and widespread plant in lowland regions of New Guinea. It has the smallest flowers of section *Aporum* in New Guinea. The dorsal sepal is about 4 mm long, and the mentum formed by the lateral sepals is slightly shorter. All other species with ensiform leaves in New Guinea have a mentum at least twice as long as the dorsal sepal.

Kraenzlin's description of *D. ferdinandii* is rather lacking in precise floral measurements, mentioning that the flowers are about one cm long, the lip the same length and three mm wide. These details fit with the single flower remaining on the specimen in Hamburg. We believe this specimen is the actual type (or part of it) of *D. ferdinandii*, but, unfortunately, it lacks any collecting details, so we have chosen it as the neotype. The specimen is representative of *D. pseudocalceolum*, and we have reduced *D. ferdinandii* to its synonymy.

Two sheets in BO are treated as type material of *D. pseudocalceolum*. One (BO 0061600) is annotated in the year 1906 in J. J. Smith's hand. We have chosen this as the lectotype. The other sheet (BO 0061425) is annotated in a different, neater hand as *"det. J.J. Smith 1906,"* with the collector's name misspelled as "den Bergher". We have treated the latter as a syntype.

Dendrobium recurvatum (Blume) J.J. Sm., Nova Guin. 8, 1: 52. 1909. TYPE: NEW GUINEA. Collector not cited (Holotype: [not found]). Neotype: [designated here]: Indonesia, Papua Prov., without locality, *A. Zippel 22* (Neotype: L [1495643] [image seen]).

Basionym: *Cadetia recurvata* Blume, Mus. Bot. Lugd.-Bat. 1, 2: 30. 1849.

Heterotypic synonyms: *Dendrobium transversilobum* J.J. Sm., Bull. Dep. Agr. Ind. Neerl. 39: 11. 1910, *syn. nov.* TYPE: INDONESIA. Papua Prov., upper Digul River, 1909, *leg. B. Branderhorst, cult. Hort. Bogor. 203B* (Syntype: BO [not found]; Isosyntype: K [000943769] [image seen]); Noord River, October 1909, *L. S. A. M. von Roemer 661* (Syntype: BO [not found]).

Cadetia transversiloba (J.J. Sm.) Schltr., Rep. Sp. Nov. Regni Veg., Beih. 1: 424. 1912.

Cadetia heterochroma Schltr., Rep. Sp. Nov. Regni Veg., Beih. 1: 437. 1912. TYPE: PAPUA NEW GUINEA. Eitape District, Garup River, 50 m, September 1909, *R. Schlechter 20014* (Holotype: B [destroyed]; Isotype: L [0064680] [image seen]).

Dendrobium heterochromum (Schltr.) J.J. Sm., Bull. Jard. Bot. Buitenz. ser. 2, 8: 18. 1912.

Distribution: Indonesia (Papua Prov.); Papua New Guinea.

This species may be recognised by its broadly oblong leaves, colorful red and yellow flowers, recurved, medially bent mentum, and trilobed labellum with a broadly ovate epichile. The short diagnosis of *Cadetia recurvata* mentions all of these features (except the flower color) leading us to believe that a matching specimen in L, collected by Alexander Zippel from New Guinea, represents the long lost type of this taxon. It is, however, not annotated with the name *Cadetia recurvata,* so we have chosen the collection as the neotype.

Among the unidentified *Cadetia* Gaud. in Leiden is another Zippel collection (L [1495598] [image seen]) with lanceolate leaves 8–10 cm long. We believe this specimen could be the lost type of *Cadetia biloba* Blume (= *Dendrobium cadetia* J.J. Sm. 1909). This taxon may prove to be the earlier name for *Dendrobium versteegii* J.J. Sm., or at least closely allied to it.

Eria Lindl., Bot. Reg. 11: t. 904. 1825.

Type species: *Eria stellata* Lindl.

A genus of about 20 species in the sense of Ng et al. (2018), distributed from India to the Solomon Islands. From the other genera of Eriinae, it may be distinguished by having convolute (versus conduplicate) leaves in the developing state. The second species discussed here is widespread and has been known for about the last hundred years as *E. javanica* (Swartz) Blume, but, as shown above, the latter name must be treated as a synonym of *Bulbophyllum gibbosum*.

Eria cochleata Lindl., Edwards's Bot. Reg. 30: misc. 14, no. 23. 1844. TYPE: PHILIPPINES. Luzon, Manila, *imp. & cult. Messrs. Loddiges s.n.* (Holotype: K-L [not seen]). Fig. 1C–D

Heterotypic synonym: *Eria merrillii* Ames, Philipp. J. Sci. 2, C: 331. 1907, *syn. nov.* TYPE: PHILIPPINES. Mindoro, Alag River, 380 m, 12 November 1906, *E. D. Merrill 5519* (Holotype: PNH [destroyed]; Isotypes: AMES [9643]; K [000827458] [image seen]).

Distribution: Philippines.

Additional specimens examined: PHILIPPINES. Luzon, Rizal Prov., without precise locality, cult. in Manila, December 1908, *W. S. Lyon BS 5625* (AMES); Rizal Prov., without precise locality, September 1909, *A. Loher 14742*

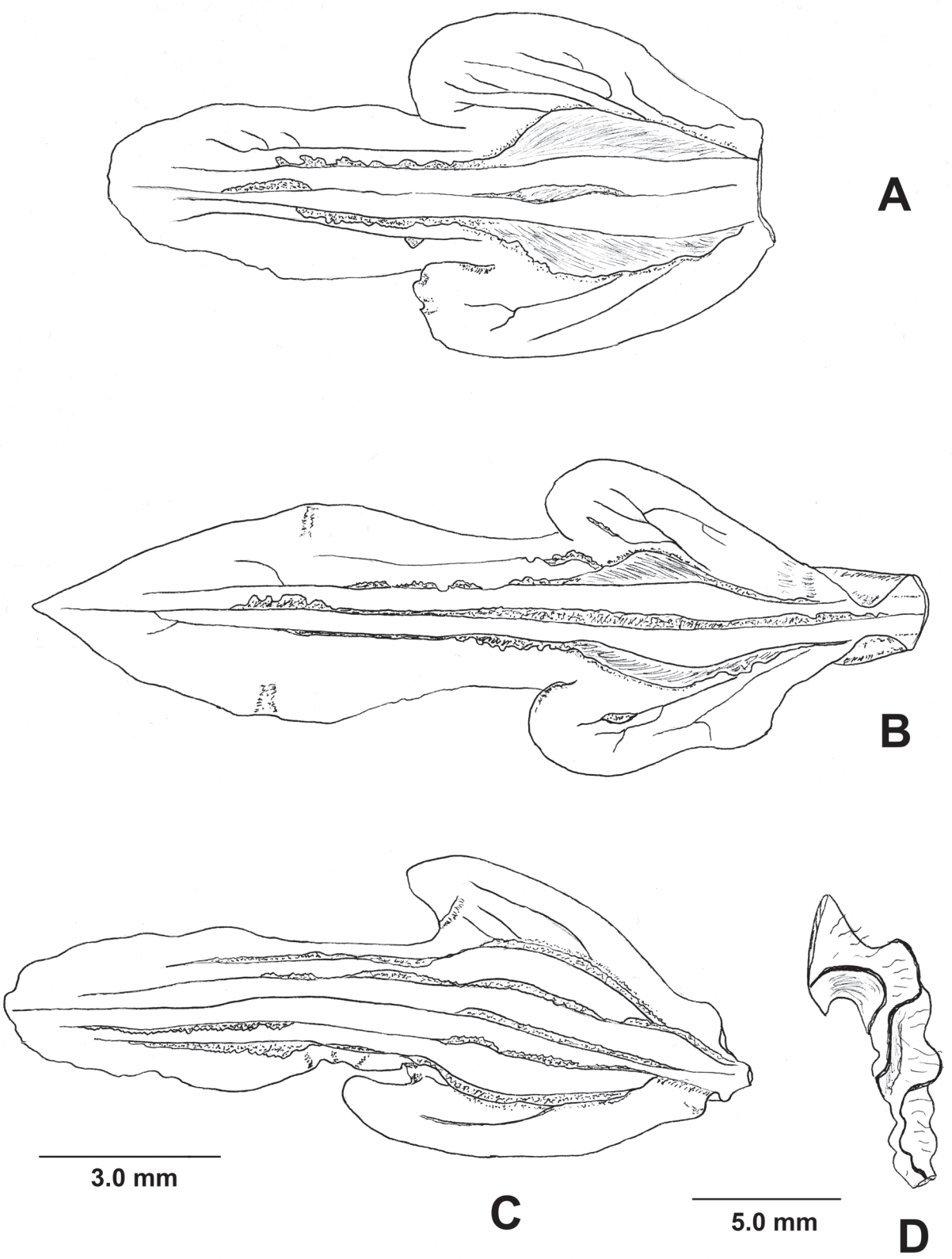

FIGURE 1. *Eria stellata* Lindl. **A–B**, labellum variation. *Eria cochleata* Lindl. **C**, labellum; **D**, pedicel plus ovary. A from *Hort. Bogor. s.n.* (AMES). B from *C. A. Wenzel 100* (AMES). C–D from AMES, isotype of *Eria merrillii* Ames.

(AMES); same data, *A. Loher 14615* (AMES); Rizal Prov., Montalban, January 1914, *A. Loher 13771* (AMES); Rizal Prov., Mt. Irid, 610 m, November 1926, *M. Ramos & G. E. Edano BS 48446* (AMES); Sorsogon Prov., Irosin, Mt. Bulusan, December 1915, *A. D. E. Elmer 15552* (AMES); same data, April 1916, *A. D. E. Elmer 15552* (AMES). Mindoro, S slopes of Mt. Yagaw, 660 m, 5 August 1953, *H. C. Conklin 317 (= PNH18621)* (AMES). Samar, Catubig River, Mt. Capotoan, 120 m, 20 February 1916, *M. Ramos BS 24395* (AMES). Leyte, Jaro, Canpagal, 800 m, 24 November 1914, *C. A. Wenzel 0717* (AMES). Mindanao, Surigao, no date, *W. S. Lyon 116* (AMES, 4 sheets).

This species has been listed in the synonymy of *E. javanica* (i.e., *E. stellata*) in some online databases (e.g., World Checklist of Selected Plant Families = WCSP), but differs from that taxon in having spiral laminate (vs. straight, low rounded) ribs on the pedicellate ovary. In the WCSP, *Eria merrillii* is listed as a synonym of *Pinalia ovata* (Lindl.) W. Suarez & Cootes. This is an error arising from a mistake in Garay and Sweet (1974), where *E. merrillii* was cited in synonymy with *Eria ovata* Lindl. var. *retroflexa* (Lindl.) Garay & Sweet, instead of citing the similar and simultaneously proposed name *E. merrittii* Ames.

Another species that shares the spiral laminate ribs on the ovary is *E. sessilifolia* (J. Fraser) D.L. Roberts & Sayers from Sulawesi, Indonesia. This Indonesian taxon also has a very similarly shaped lip but differs in the pseudobulbs that bear only two almost sessile leaves. In *E. cochleata*, the pseudobulbs usually bear four distinctly petiolate leaves. There is a Philippine specimen from Bohol Island (*M. Ramos s.n.* [AMES]) called *E. merrillii* that has bifoliate pseudobulbs. Further study may show it to be *E. sessilifolia*.

Eria stellata Lindl., Bot. Reg. 11: t. 904. 1825. TYPE: INDONESIA. Java, fl. in cult. February, *W. Cattley s.n.* (Holotype: K-L [not seen]). Fig. 1A–B

Homotypic synonyms: *Octomeria stellata* (Lindl.) Spreng., Syst. Veg. ed. 16, 4 (2, Cur. Post): 310. 1827.

Tainia stellata (Lindl.) Pfitz., in Engl., Nat. Pflanzenfam. 2, 6: 153. 1888.

Pinalia stellata (Lindl.) O. Kuntze, Rev. Gen. Pl. 2: 679. 1891.

Heterotypic synonyms: *Dendrolirium rugosum* Blume, Bijdr. Fl. Ned. Ind. 7: 345. 1825. TYPE: INDONESIA. Java, Mt. Salak, fl. September to October, *C. L. Blume 313* (Syntypes: L [0063890], L [0063891], L [0063892] [images seen]).

Eria rugosa (Blume) Lindl., Gen. Sp. Orch. Pl.: 66. 1830.

Pinalia rugosa (Blume) O. Kuntze, Rev. Gen. Pl. 2: 679. 1891.

Octomeria vaginata Breda, Gen. Sp. Orch. Asclep. [fasc. 1]: [t.5]. 1828. TYPE: INDONESIA. Java, Tjiminjak, fl. October, *H. Kuhl & J. C. van Hasselt 2* (Lectotype: L [1511129] [designated here] [image seen]); Bantam, *H. Kuhl & J. C. van Hasselt 16* (possible Syntype: L [1511128] [image seen]).

Eria vaginata (Breda) Benth. ex B.D. Jackson, Index Kew. Suppl. 1: 864. 1893.

Eria fragrans Rchb.f., Bot. Zeitung (Berlin) 22: 415. 1864. TYPE: MYANMAR. Moulmein, *Messrs. Low's coll. s.n.* (Holotype: W-R [19965], [43705] [not seen]).

Pinalia fragrans (Rchb.f.) O. Kuntze, Rev. Gen. Pl. 2: 679. 1891.

Eria striolata Rchb.f., Gard. Chron. ser. 3, 3: 554. 1888. TYPE: NEW GUINEA? Without precise locality, *imp. Messrs. Linden s.n.* (Holotype: W-R [not seen]).

Dendrobium perakense J.D. Hook., Fl. Brit. Ind. 5: 712. 1890. TYPE: MALAYSIA. Perak, without specific locality, *B. Scortechini 1969* (Holotype: K [000827356] [image seen]; Isotype: CAL [0000000128] [image seen]).

Callista perakensis (J.D. Hook.) O. Kuntze, Rev. Gen. Pl. 2: 655. 1891.

Sarcopodium perakense (J.D. Hook.) Kraenzl., in Engl., Pflanzenr. IV. 50, II, B. 21, 45: 328. 1910.

Katherinea perakensis (J.D. Hook.) A.D. Hawkes, Lloydia 19: 97. 1956.

Eria micholitzii Kraenzl., Oesterr. Bot. Zeitschr. 44: 459. 1894. TYPE: PAPUA NEW GUINEA [as KAISER WILHELMS-LAND]. Friedrich-Wilhelmshafen [= Madang], September 1893, *W. Micholitz s.n.* (Lectotype [Christenson, 1994: 349 as Holotype]): HBG [501670] [image seen]; possible Isolectotype: HBG [501669], dated September 1895 [image seen], both as *E. papuana*).

Eria papuana Kraenzl., in Engl., Pflanzenr. IV. 50, II, B. 21, 50: 25. 1911 *nom. illeg.* (non J.J. Sm. 1908).

Eria pseudostellata Schltr., in Schum. & Laut., Fl. Deutsch. Schutzgeb. Sudsee, Nachtr. 2: 182. 1905. TYPE: PAPUA NEW GUINEA [as KAISER WILHELMS-LAND]. New Ireland, near Karu, 0 m, June 1902, *R. Schlechter 14625* (Holotype: B [destroyed]).

Eria inamoena Schltr., Bot. Jahrb. Syst. 45, Beibl. 104: 32. 1911. TYPE: INDONESIA. Sumatra, near Padang Pandjang, *J. H. G. Wichers s.n.* (Syntype: B [destroyed]); Gunung Merapi, 1200 m, 24 January 1907, *R. Schlechter 15941* (Syntype: B [destroyed]; Isosyntypes: AMES [11914]; K [000827325], P [00360311] [images seen]).

Eria javanica (Swartz) Blume var. *philippinensis* Kraenzl., in Engl., Pflanzenr. IV. 50, II, B. 21, 50: 26, f. 15E-F. 1911 *nom. inval.* [no description].

Basis for name: PHILIPPINES. Luzon, Albay Prov., fl. in Manila 6 June 1905, *A. Loher 6003* (AMES); Rizal Prov., without precise locality, 31 July 1907, *M. Ramos 3036* (AMES). Mindanao, Lake Lanao, Camp Keithley, September to October 1907, *M. S. Clemens s.n.* (AMES, 2 sheets).

Distribution: Myanmar; Thailand; Malaysia; Philippines; Indonesia; Papua New Guinea.

Select specimens examined: PHILIPPINES. Luzon. Laguna Prov., Mt. Maquiling, May 1913, *W. H. Brown BS 17905* (AMES). Leyte, Dagami, Panda, 20 May 1913, *C. A. Wenzel 100* (AMES). INDONESIA. Java, without precise locality, *cult. Hort. Bogor. s.n.* (AMES). Papua Prov., Waigeo Island, Warmaserim Creek, E of Kabare, 7 m, 2 February 1955, *P. van Royen 5434* (A). PAPUA NEW GUINEA. New Britain, Talasea Subdistr., Wasissi Village, 25 April 1959, *K. J. White NGF 10924* (AMES, BRI, LAE, spirit).

This widespread taxon is well-represented in herbaria, so we have just cited a few specimens of it. Our illustration depicts a labellum of a Philippine plant and a labellum of a plant from the type locality of Java. Despite the differences between the two (hypochile and epichile ratios), we found that intermediates exist and varieties cannot, so far, be justified in *E. stellata*.

Gastrochilus D. Don, Prodr. Fl. Nepal.: 32. 1825.
Type species: *Aerides calceolaris* Buch.-Ham. ex J.E. Sm.

An Aeridinae genus of about 65–70 species distributed from Sri Lanka and India to Sulawesi in Indonesia, north to Japan. There are four recorded species in Indonesia, one of which we believe is based on wrongly localised material.

Gastrochilus obliquus (Lindl.) O. Kuntze, Rev. Gen. Pl. 2: 661. 1891. TYPE: MYANMAR [as "India Orientalis"]. Toong Dong, November 1826, *N. Wallich Catal. No. 7304* (Lectotype: [Tsi, 1996: 140 as type]: K-L [not seen]; Isolectotypes: CAL [0000075019] [image seen]; K-W [not seen]); *icon N. Wallich 1314* (Syntype: K [not seen]).

Basionym: *Saccolabium obliquum* Lindl., Gen. Sp. Orch. Pl.: 223. 1833.

Heterotypic synonyms: *Saccolabium bigibbum* Rchb.f. ex J.D. Hook., Curtis's Bot. Mag. 95: t. 5767. 1869. TYPE: MYANMAR. Rangoon or Arrakan, *leg. R. Benson,* fl. in cult. November 1868, *Messrs. Veitch 40* (Lectotype: [Seidenf. 1988: 298 as type]: W-R [42844] [not seen]; drawings W-R [42843] [not seen]).

Gastrochilus bigibbus (Rchb.f. ex J.D. Hook.) O. Kuntze, Rev. Gen. Pl. 2: 661. 1891.

Gastrochilus suavis Seidenf., Opera Bot. 95: 298. 1988. TYPE: THAILAND. NW of Pang Mapha, 600–820 m, 27 February 1968, fl. in cult. 19 October 1968, *G. Seidenfaden & T. Smitinand GT 7162* (Holotype: C [10024087], spirit [image seen]).

Gastrochilus obliquus (Lindl.) O. Kuntze var. *suavis* (Seidenf.) Z.H. Tsi, Guihaia 16, 2: 141. 1996.

Gastrochilus puncticulatus Cavestro, Orchidophile (Asnieres) 141: 53. 2000, *syn. nov.* TYPE: INDONESIA. Sulawesi. Pays Toraja (Tanatoraja), near Rantepao, 400 m, July 1992, fl. in cult. November 1999, *J. L. Martin 120* (Holotype: P [00546578] [image seen]).

Distribution: India; Bhutan; China; Myanmar; Laos; Thailand.

Careful examination of the protologue, as well as images of the type of *G. puncticulatus*, convinces us that it is a synonym of *G. obliquus*, in particular, the variety with rich spotting on the sepals and petals known as var. *suavis*. We believe that some kind of mix-up happened, and that a plant thought to be from Sulawesi probably came from Thailand. *Gastrochilus obliquus,* in our opinion, does not occur in Indonesia.

Habenaria Willd., Sp. Pl. ed. 4, 4: 5, 44. 1805.
Type species: *Habenaria macroceratitis* Willd. (= *Orchis habenaria* L.).

A worldwide genus of about 900 species. The plants are generally terrestrial herbs, growing in a variety of habitats such as grassland, open forest, and rainforest. Kolanowksa et al. (2021) provided a review of the genus in New Guinea and nearby islands. They found 27 species in the study region, but, as noted below, one of these must be relegated to synonymy.

Habenaria trichaete Schltr., Rep. Sp. Nov. Regni Veg., Beih. 1: 14. 1911. TYPE: PAPUA NEW GUINEA. Umbili District, Djamu River, 400 m, August 1907, *R. Schlechter 16383* (Holotype: B [destroyed]). Neotype: (Kolan. et al. 2021: 65): Papua New Guinea, Morobe Prov., Wampit, Buru Village, 1310 m, 13 July 1967, *A. N. Millar NGF 22945* (Neotype: LAE [image seen]; Isoneotypes: L [1516332], RENZ [12256.1], RENZ [14488.1] [images seen]).

Heterotypic synonym: *Habenaria devogeliana* Kolan., Szlach., Kras. & S. Nowak, Peer J. 9 (e 12011): 60. 2021, *syn. nov.* TYPE: PAPUA NEW GUINEA. Eastern Highlands Prov., Crater Mountain Wildlife Management Area, near "wara oh" base camp, 600 m, 6 July 1996, *G. D. Weiblin 807* (Holotype: A).

Distribution: Indonesia (Papua); Papua New Guinea.

Habenaria devogeliana seems at first easily distinguished from *H. trichaete* in a number of characters, such as untailed sepals and deeply bilobed petals. However, these differentiating features have arisen through a mix-up in the descriptive process, whereby a mislabelled flower of another species has been mistakenly identified as belonging to *Weiblin 807*. The authors' own image of the type of *H. devogeliana* shows the distinctive tailed sepals in contrast to the description and analytical drawing. Furthermore, we have studied the type of *H. devogeliana*, and all of its features are identical to *H. trichaete*.

Phreatia Lindl., Gen. Sp. Orch. Pl.: 63. 1830.
Type species: *Phreatia elegans* Lindl.

A member of subtribe Thelasinae with about 215 species distributed from Sri Lanka and India to Tahiti. In general, the plants are small epiphytic herbs with racemes of small (sepals 1.00–2.75 mm long), often white, flowers. The taxon transferred here comes from Indonesia, where 75 species have so far been recorded.

Phreatia microscopica (Kraenzl.) Ormerod & Juswara, *comb. nov.*

Basionym: *Sarcochilus microscopicus* Kraenzl., Bot. Jahrb. Syst. 17: 487. 1893.

TYPE: INDONESIA. Sumatra, near Padang, 610–915 m, February 1892, *W. Micholitz s.n.* (Holotype: B [destroyed]).

Distribution: Indonesia (Sumatra).

No later collections of this species have been identified, but due to its small size, the plants are probably easily overlooked in the field. It belongs to section *Rhizophyllum* (Blume) J.J. Sm., a group characterised by having very short stems on which the leaf sheaths closely overlap.

Zeuxine Lindl., Coll. Bot. (Lindley): Append. [no. 18]. 1826 (as *Zeuxina*) *orth. cons.*

Type species: *Pterygodium sulcatum* Roxb.

A Goodyerinae genus of about 90 species distributed from India and Sri Lanka to Samoa in the Pacific. The taxonomy of species in the genus is hampered by the superficial similarity of a number of taxa, thus leading to misidentifications (Ormerod, 2018).

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

Basionym: *Monochilus zollingeri* Rchb.f., Xenia Orch. 1: 215. 1856.

TYPE: INDONESIA. Java, near the waterfall between Tjudruk and Tjigalin, 4 September 1842, *H. Zollinger 592* (Lectotype: [designated here] P [1802230] [image seen]; drawing W-R [1199] [image seen]).

Distribution: Indonesia (Java).

Smith (1927) reduced this species to *Z. gracilis* (Breda) Blume based on Reichenbach's simplified floral sketches in Wien, but it differs in habit (stem slender, leaves persistent with broad white median zone at the time of capsule formation vs. stem swelling, leaves wilted and plain at the time of capsule formation) and in having a denser inflorescence. It may well prove to be an earlier name for *Z. tjiampeana* J.J. Sm., or at least closely related to it.

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