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TEN NEW ORCHID RECORDS FROM THE INDONESIAN ARCHIPELAGO

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Abstract. Orchidaceae is one of the most diverse plant families in Indonesia, yet many species remain poorly documented across the archipelago. Here we report ten orchid species as new national records for Indonesia: *Bulbophyllum nematocaulon*, *Bulbophyllum sanguineomaculatum, Cleisomeria lanatum*, *Corybas calopeplos,* and *Corybas holttumii* from Sumatra; *Acanthophippium bicolor* and *Anoectochilus papuanus* from Java; *Dendrobium teretifolium* from the Lesser Sunda Islands, *Bulbophyllum thiurum* from Kalimantan; and *Aerides agustiana* from Sulawesi. For each species, we provide taxonomic notes, distributional data, type information, phenology, ecological observations, line drawings, and photographs. These new records extend the known geographic ranges of the species and confirm the importance of field exploration and herbarium study for documenting Indonesia's remarkable orchid diversity.

Keywords / Palabras clave: epiphyte, epífita, terrestre, terrestrial, Sundaland, Sondalandia, Islas Menores de la Sonda, Lesser Sunda, Orchidaceae

Introduction. The Indonesian Archipelago is one of the world's major biodiversity hotspots, characterized by exceptionally rich and highly endemic biota (Lohman *et al*., 2011; von Rintelen *et al*., 2017). Based on its biogeographical history, Indonesia formed from a complex collision of Australian Plate margin with Eurasia (Sundaland) and the Philippine Sea Plate (Michaux, 2010). This dynamic evolution of the Indonesian archipelago's geological composition continues to shape its modern landscape and affect the species distribution (Turner *et al*., 2001; Vollering *et al*., 2016). Hence, Indonesia has diverse ecosystems which are natural habitats to 40,000 plant species (Myers, 2000; Sun *et al*., 2024) including 5000 orchid species (Comber, 1990). Despite this recognized importance, the precise number of species in this region remains poorly known. Large parts of the archipelago are still underexplored, and many taxa await formal description and documentation (Middleton *et al.*, 2019).

Recent assessments identify Borneo, Sumatra, and New Guinea as "dark spots" of vascular plant diversity, areas predicted to contain the highest number of undescribed or undiscovered species, making them critical targets for future collection efforts (Ondo *et al.*, 2024). Extensive initiatives to survey Indonesia's inaccessible regions have been undertaken. However, much of the country's botanical diversity remains insufficiently documented (Sun *et al.*, 2024). A series of classical and modern taxonomic investigations on Orchidaceae family have consistently been prioritized in botanical research on five main islands of Indonesia (Sumatra, Java, Borneo, Sulawesi, and Papua) (Comber, 1990, 2001; de Vogel *et al*., 2024; O'Byrne, 1994; Schlechter, 1914; Schuiteman, 2013; Smith, 1905;

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Thomas & Schuiteman, 2002, Tkatchenko & Kami, 2006; Wood, 1997) . However, the species richness in Java and Sumatra is well represented in the literature due to the legacy of continuous floristic assessments that originated during the colonial period and have persisted into the modern era (Sun *et al.*, 2024). Unlike those two regions, Borneo, Sulawesi, Lesser Sunda, Maluku, and Indonesian Papua remain underexplored in contrast with significant number of species new to science that have been published (Vermeulen *et al.*, 2011; Schuiteman & Wanma., 2017).

In addition to these foundational works, several studies have expanded geographic records to include smaller island groups such as the Lesser Sunda and Buru Islands (Atmaja & Tirta, 2019; Margońska *et al.,* 2022; Metusala, 2011; Mustaqim & Astuti, 2019). Here, we report ten new records of Orchidaceae from the Indonesian Archipelago to enhance understanding of the country's orchid diversity. These include the first record for the Lesser Sunda Islands, Kalimantan, and Sulawesi, while two species are recorded as new to Java—one of which was found in Bromo Tengger Semeru National Park—and the remaining five are newly documented for Sumatra.

Materials and methods. Specimens were collected during fieldwork conducted between 2020 and 2024 in Java, the Lesser Sunda Islands, Sumatra, Borneo, and Sulawesi. Whole plants, including roots, pseudobulbs, stems, leaves, flowers, and fruits, were photographed, dissected, and prepared as standard dried herbarium specimens following Forman & Bridson (2000). Spirit collections were prepared using Copenhagen solution (70% alcohol, 29% water, and 1% glycerol) to preserve floral morphology (Forman & Bridson 2000). Coordinate data were recorded during field surveys using a Garmin GPSMap 65s, and map layout creation as well as spatial data processing were carried out with R (version 2026.01.2) using the packages *ggplot*, *sf* and *rnaturalearth*. The final figure layout, minor positional adjustments, and panel arrangement were prepared using Adobe® Photoshop CS 2026. Microphotography was performed using a Nikon D5600 camera equipped with AF-P 18–55 mm VR and Micro AF-S 60 mm f/2.8G ED Nano lenses, and images were processed using Adobe® Photoshop CS6. Dried and spirit specimens were deposited primarily at Herbarium Bogoriense (BO), with duplicates housed at the Herbarium of Andalas University (ANDA) and Herbarium Bandungense (FIPIA). Additional material from major herbaria (BO, ANDA, FIPIA, L, K) was examined for comparative study and species identification. Morphological terminology followed Beentje (2016), and morphological assessments and measurements were based on the original protologues and subsequent taxonomic treatments by Brown (1810), Linden (1889), Dransfield, Comber and Smith (1986), Cribb *et al*. (1988), Vermeulen (1991a, 1991b), Comber (1990, 2001), Wood (2000), and Vermeulen & O'Byrne (2005). Phenology data were collected during fieldwork.

Taxonomic treatment

Acanthophippium bicolor Lindl., Edwards's Bot. Reg. 20: t. 1730. 1835. Fig. 1.

TYPE*:* Ceylon, *Watson, s.n. ex Royal Hort. Society* (holotype, likely at K-L, not seen).

Examined materials: INDONESIA. **Java**: East Java, Lumajang, Pronojiwo, Bromo Tengger Semeru National Park, 800–1200 m 31 January 2023, *T. Artaka 004* (BO!). Unknown locality, without collecting data, 1893 (MNHN! -image P02115508). SRI LANKA. Unknown locality, without collecting data, 09 May 1846 (MNHN! -image P02115507). Unknown locality, 1839 *Martens M, s.n.* (BR! -image BR0000032790801). **Nillaba**: 22 December 1959, *D.M.A. Jayaweera 11* (AMES! -image 88544).

Distribution: India to Sri Lanka; extended distribution includes East Java.

Habitat and ecology: In Java, plants grow as clustered terrestrials in mid-montane forest dominated by Dipterocarpaceae, in shaded conditions.

Phenology: Flowering in the wild from June to September.

Notes: *Acanthophippium bicolor* was previously known only from India and Sri Lanka. In addition to documenting its natural occurrence in East Java, we identified an undated herbarium specimen labelled "cultivated from Java" and accompanied by brief notes

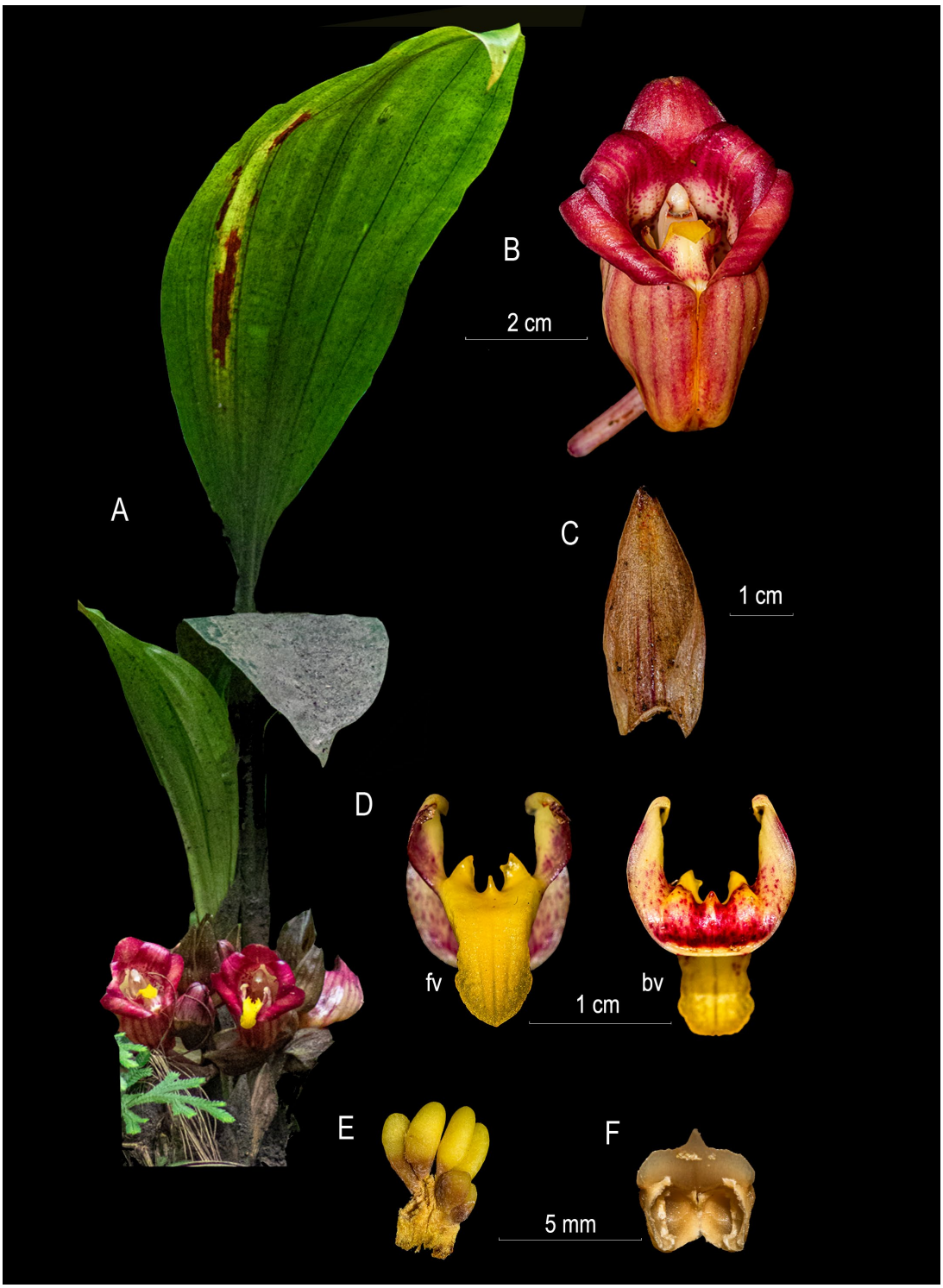

FIGURE 1. *Acanthophippium bicolor* Lindl. **A**. Plant habit. **B**. Flower. **C**. Bracts. **D**. Labellum, front and back views. **E**. Pollinarium. **F**. Anther cap. Photographed by Y.R. Yudistira based on *T. Artaka 004* (BO).

from 1893, but lacking locality, collector, and number (MNHN, P02115508). The species is easily distinguished by its unguiculate, trilobed labellum, with a callus forming three ridges, the two lateral ridges being larger than the median one. These callus ridges may cause confusion with the common Javan species *A. javanicum* Blume; however, in *A. bicolor,* the lateral callus ridges are slimmer and produce only two spikes, whereas in *A. javanicum,* the lateral callus ridges form four forked spikes (Comber, 1990; Prasad, 2022).

Aerides augustiana Rolfe, Gard. Chron. 9(1): 9. 1890; *ibid*., 232; fig., *ibid.* p. 233. Fig. 2.

TYPE: Philippines. *M.A. Linden, s.n.* (holotype, not located).

Examined materials: INDONESIA. **Central Sulawesi**: Toli-Toli, Baolan, Dadakitan, 500–1000 m. 2 April 2022. *Y.R. Yudistira et al. YRY02042022* (CEB!).

Distribution: Philippines; extended distribution includes Central Sulawesi.

Habitat and ecology: In Central Sulawesi, plants grow as epiphytes higher on tree trunks in lower montane forest, typically in open areas.

Phenology: Flowering in the wild from February to April.

Notes: *Aerides augustiana* is newly recorded from Sulawesi. The species is easily distinguished from the widespread species *Aerides odorata* Lour. by its spur 1.9 cm long, straight and stout *vs.* 1.0—1.2 cm with bending apex almost 90° *in A. odorata*. The Sulawesi specimen bears purple flowers, differing from the protologue, which describes the flowers as pink (Linden *et al*., 1889; Comber, 1990).

Anoectochilus papuanus (Schltr.) W.Kittr., Bot. Mus. Leafl. 30(2): 95. 1985. *Eucosia papuana* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 1: 76. 1911. Fig. 3.

TYPE: Papua New Guinea. Kani Mountains, Feb 1908, *ca*. 1000 m, *R. Schlechter 17361* (holotype, B destroyed; isotype, BO! L! -image L0058586).

Examined materials: INDONESIA. **East Java**: Malang, Pronojiwo, Ranudarungan, 800–1200 m, 14 February 2021, *Y.R. Yudistira et al. ARTAKA0125* (dried and spirit: FIPIA! BO!); Lumajang, South slope of Mount Semeru, *ca*. 1000 m, 5 July 2022, *Y.R. Yudistira et al. ARTAKA0126* (spirit collection: FIPIA!). **Southwest Papua**: Kebar valley, *ca*. 100 km west from Manokwari, southern slope of Mount Nettoti along path from Andjai to Saokorem, *ca*. 1500 m, 28 October 1954, *van Royen, P. 3852* (L! -image L0260519). PAPUA NEW GUINEA. **Southern Highlands**: Kagua district, Aga, near Sumbara market, *ca.* 1500 m, 14 May 1983, *T.M. Reeve 6352* (photo: K001652001). **Eastern Highlands**: Kainantu, Kassam Pass, upper slopes of southeast crest, *ca*. 1700 m, 21 June 1977, *Lae 63413 N.M.U. Clunie et al*. (L! -image L0260520). **Morobe**: Menyamya, Piwi'anga, Menmya-Kaintiba road, *ca*. 1828 m, 11 May 1968, *H. Streiman & A. Kairo NGF35902* (L! -image L0260517).

Distribution: New Guinea, Solomon Islands (Guadalcanal and Santa Isabel); extended distribution includes East Java.

Habitat and ecology: In East Java, terrestrial on the montane forest, in shaded conditions.

Phenology: Flowering in the wild from February to April.

Notes: *Anoectochilus papuanus* is newly recorded for Java. With this addition, the genus now comprises four species in Java (*A. flavescens* Blume, *A. reinwardtii* Blume, *A. papuanus*, and *A. setaceus* Blume). *Anoectochilus papuanus* is distinguished by its shorter inflorescences (8–11 cm) compared with *A. flavescens* (30–32 cm), *A. setaceous* (15–20 cm), and *A. reinwardtii* (15–20 cm), and by having fewer flowers (2–3) *vs. A. flavescens* (5–12)*, A. setaceus* (3–7)*,* and *A. reinwardtii* (2–4). It also differs in labellum morphology: the labellum is lanceolate–elliptic and lacks the hair-like flanges present in the other species (about five short filiform segments in *A. flavescens*; ~7–8 mm long projections in *A. setaceus*; and 10 short segments on each side in *A. reinwardtii*). The flowers of *A. papuanus* do not open widely. Nevertheless, the pink reticulate venation and overall leaf shape may be confused with *A. reinwardtii*, so flowering material is essential for confident identification.

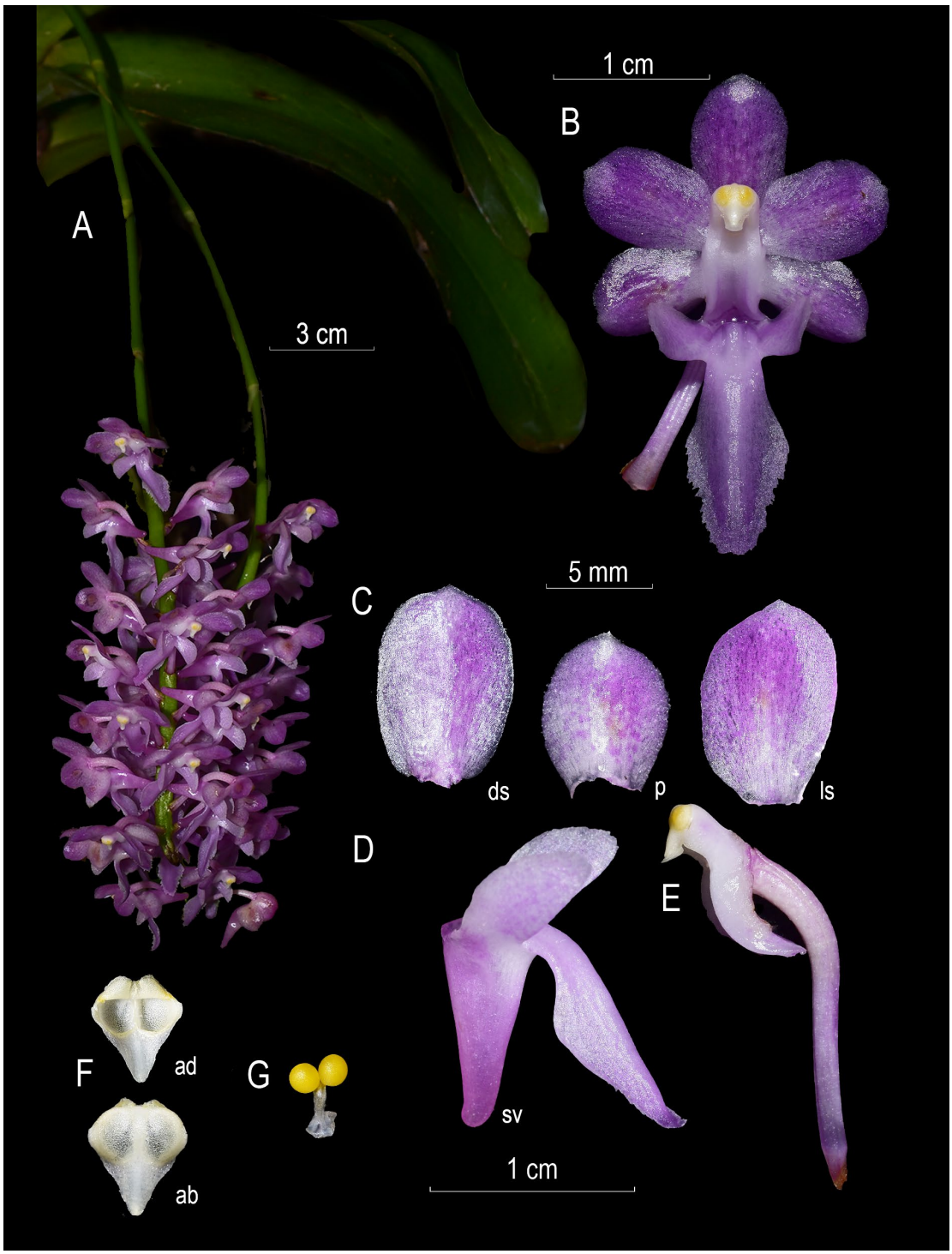

FIGURE 2. *Aerides augustiana* Rolfe. **A**. Plant habit and inflorescences. **B**. Flower, front view. **C**. Dorsal sepal, petal, and lateral sepals. **D**. Labellum with spur, side view. **E**. Column and ovary, side view. **F**. Anther cap. **G**. Pollinarium. Photographed by Y.R. Yudistira based on *YRY0204022* (CEB).

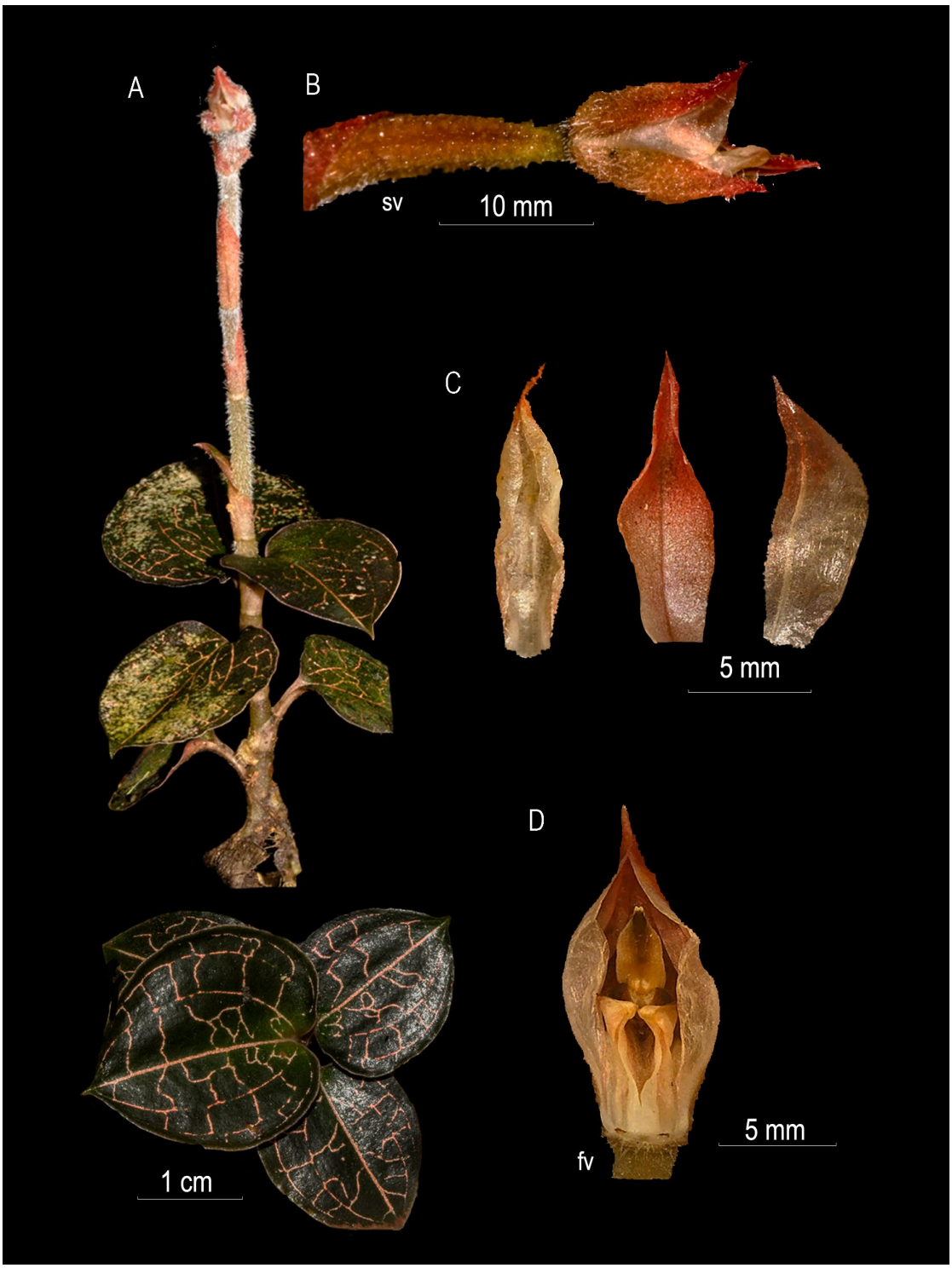

FIGURE 3. *Anoectochilus papuanus* (Schltr.) W.Kittr. **A**. Plant habit. **B**. Flower, side view. **C**. Bract, dorsal sepal and petal. **D**. Column with petals, front view. Photographed by Toni Artaka based on *ARTAKA0125* (BO).

Bulbophyllum nematocaulon Ridl., J. Straits Branch Roy. Asiat. Soc. 82: 197. 1920. Fig. 4–5.

TYPE: Malaysia. Perak, *Scortechini 614*, 16 August 1888 (holotype, K! -image K000829265).

= *Bulbophyllum johannis-winkleri* J.J.Sm., Mitt. Inst. Allg. Bot. Hamburg 7: 59. 1927. TYPE: Indonesia, West-Borneo, auf dem Bukit Raja, 17 December 1924, *H. Winkler 899*, *HBG501375* (holotype, HBG). *Bulbophyllum oreas* Ridl., *Fl. Malay Penins.* 4: 63. 1924. TYPE: Malaysia, Pahang, Gunung Tahan, *Haniff s.n.* (holotype, not seen).

EXAMINED MATERIALS: INDONESIA. **West Sumatra**: Lima Puluh Kota, Payakumbuh, Harau, 800–1400 m, 15 September 2020, *Y.R. Yudistira et al. YRY01372023* (spirit: ANDA!); Padang, Mount Talang, *ca.* 1200 m, 23 July 2023, *Y.R. Yudistira et al. YRY02372023* (ANDA!).

DISTRIBUTION: Vietnam, Peninsular Malaysia, Borneo, the Sumatran record extends the known range to West Sumatra.

HABITAT AND ECOLOGY: In Sumatra, occurring in dipterocarp forest; epiphytic on lower tree trunks in shaded conditions.

PHENOLOGY: Flowering in the wild from June to October.

NOTES: *Bulbophyllum nematocaulon* is placed in sect. *Minutissima* Pfitzer (Engler & Prantl, 1888) based on its creeping, thin rhizome; minute, unifoliate pseudobulbs; persistent leaves; solitary inflorescence; single-flowered, glabrous flowers; free sepals with 1—3 veins; mobile, undivided labellum and minute stelidia (Pfitzer, 1889b; Vermeulen, 1991b; Vermeulen, O'Byrne, & Lamb, 2015). Within section *Minutissima*, *B. nematocaulon* is vegetatively similar to *B. mucronatum* (Blume) Lindl. but differs in having more widely spaced pseudobulbs. Its leaves are elliptic with an acuminate apex, whereas in *B. mucronatum* they are elliptic-ovate, with a cuspidate apex. Differences in the labellum are also clear: in *B. nematocaulon,* the labellum is lanceolate, glabrous, with entire margins and an acuminate apex *vs*. labellum elliptic—ovate—oblong, carinate, curved halfway, margin papillose distally, convex towards apex in *B. mucronatum*. With this new record, *B. nematocaulon* becomes the only member of the sect. *Minutissima* known from Sumatra. In contrast, *B. mucronatum* is recorded from Peninsular Malaysia, Borneo, and Java (Seidenfaden, 1979; Vermeulen, 1991b; Vermeulen *et al.*, 2015).

Bulbophyllum sanguineomaculatum Ridl., J. Linn. Soc. Bot. 32: 265. 1896. Fig. 6.

TYPE: Malaysia. Selangor, Kuala Lumpur, 20 February 1890, *Curtis s.n*., (holotype, K! -image K001368849).

EXAMINED MATERIALS: INDONESIA. **Aceh**: Aceh Tengah Regency, Jagong Jeget, Jagong village watering area, 4°20'42.6"N 96°46'32.9"E, *ca*. 2150 m, 11 January 2023, *Mustaqim 2586* (LGS.120220135).

DISTRIBUTION: Peninsular Malaysia, Borneo, the Philippines, and Sulawesi; extended distribution includes Sumatra.

HABITAT AND ECOLOGY: In Sumatra, plants grow as epiphytes on tree trunks in upper montane forest.

PHENOLOGY: Flowering in the wild observed in January.

NOTES: This species belongs to section *Beccariana* Pfitz.(Engler & Prantl, 1888), recognized by its creeping rhizome with closely spaced, ovoid pseudobulbs, each bearing a single, elliptic to obovate, acuminate leaf. The inflorescence is solitary, arising from the base of the pseudobulb, up to 6.5 cm long, single-flowered, with spreading sepals and petals. The floral segments are conspicuously marked with irregular reddish to purplish blotches (Ridley, 1896; Vermeulen, 1991b; Vermeulen *et al.*, 2015). *Bulbophyllum sanguineomaculatum* is most similar to *B. membranifolium* Hook.f., which also occurs in Sumatra and belongs to sect. *Beccariana*. *Bulbophyllum sanguineomaculatum* differs from *B. membranifolium* in its irregular and darker blotches on sepals and petals, the free and spreading lateral sepals, and the labellum margins that are erose to denticulate except the base. In contrast, *B. membranifolium* usually shows uniform coloration or lighter spotting, with sepals that are less widely spread and sometimes partially fused at the base, and an entire labellum or slightly erose at the proximal half.

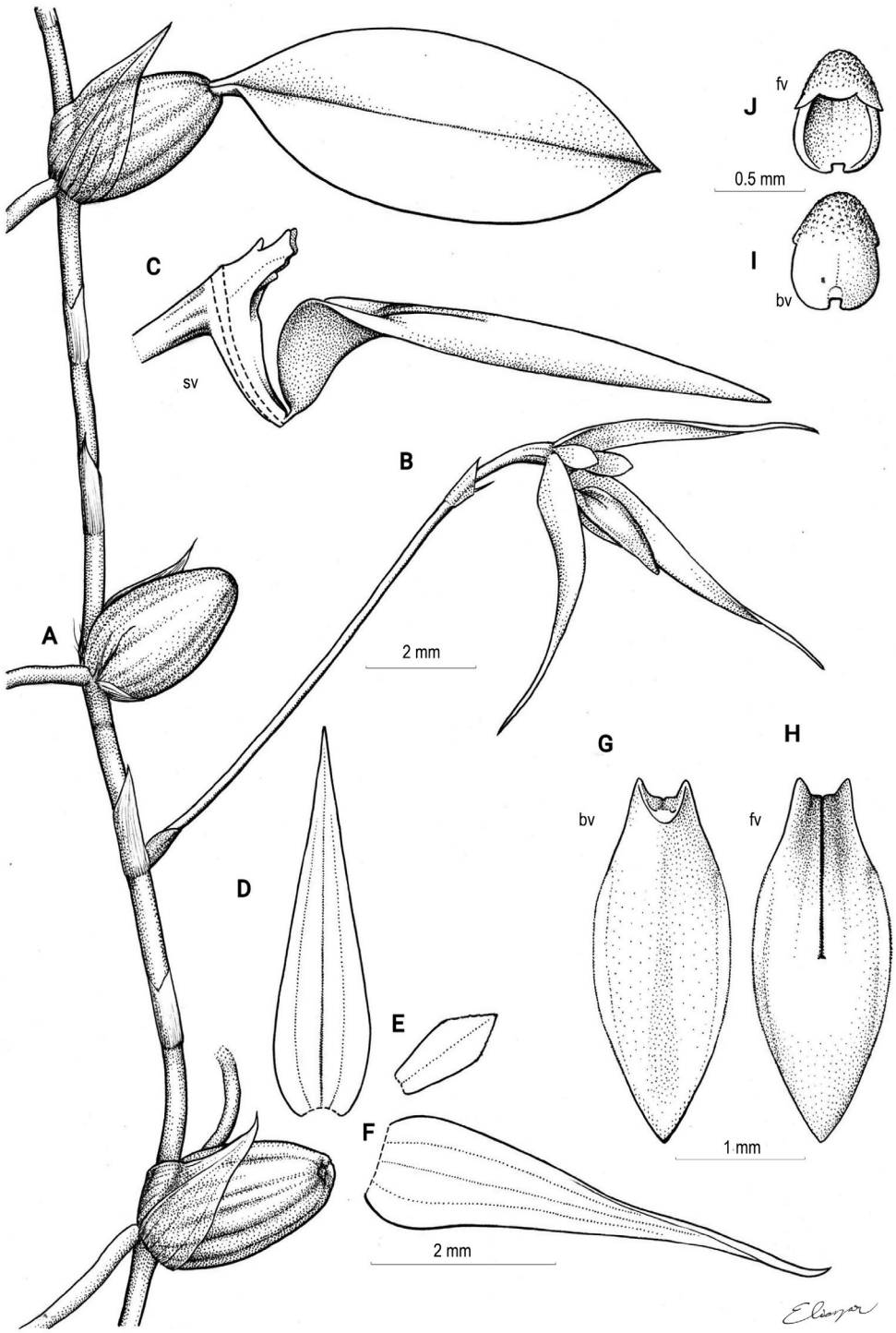

FIGURE 4. Line drawing of *Bulbophyllum nematocaulon* Ridl. **A**. Plant habit. **B**. Flower. **C**. Column and labellum, side view. **D**. Dorsal sepal. **E**. Petal. **F**. Lateral sepal. **G**. Labellum, back view. **H**. Labellum, front view. **I**. Anther cap, back view. **J**. Anther cap, front view. Illustrated by Yuanito Eliazar based on *YRY01372023* (ANDA).

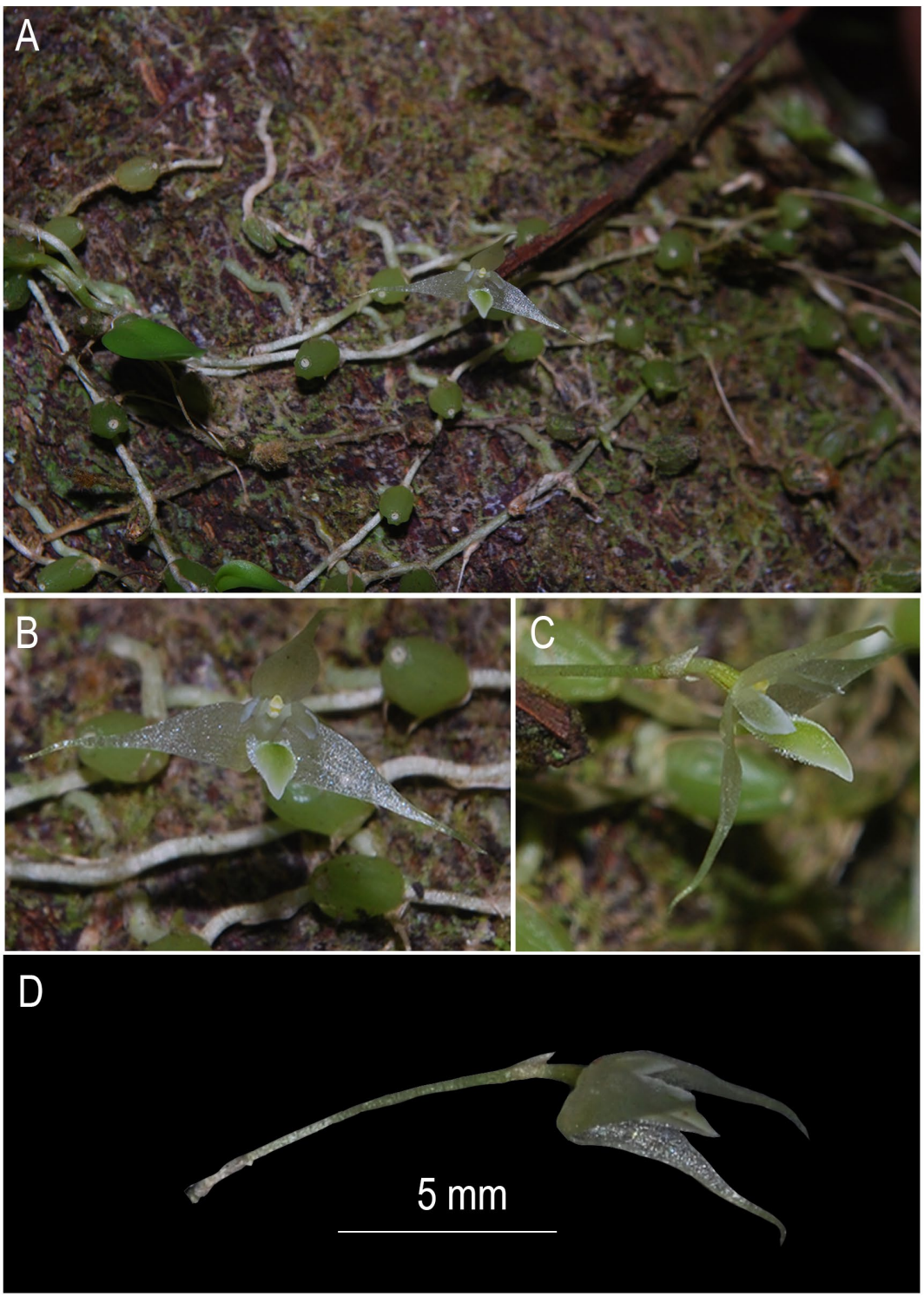

FIGURE 5. *Bulbophyllum nematocaulon* Ridl. **A**. Plant habit *in situ*. **B**. Flower, front view. **C**. Flower, side view. **D**. Flower with pedicel, side view. Photographed by Y.R. Yudistira based on *YRY01372023* (ANDA).

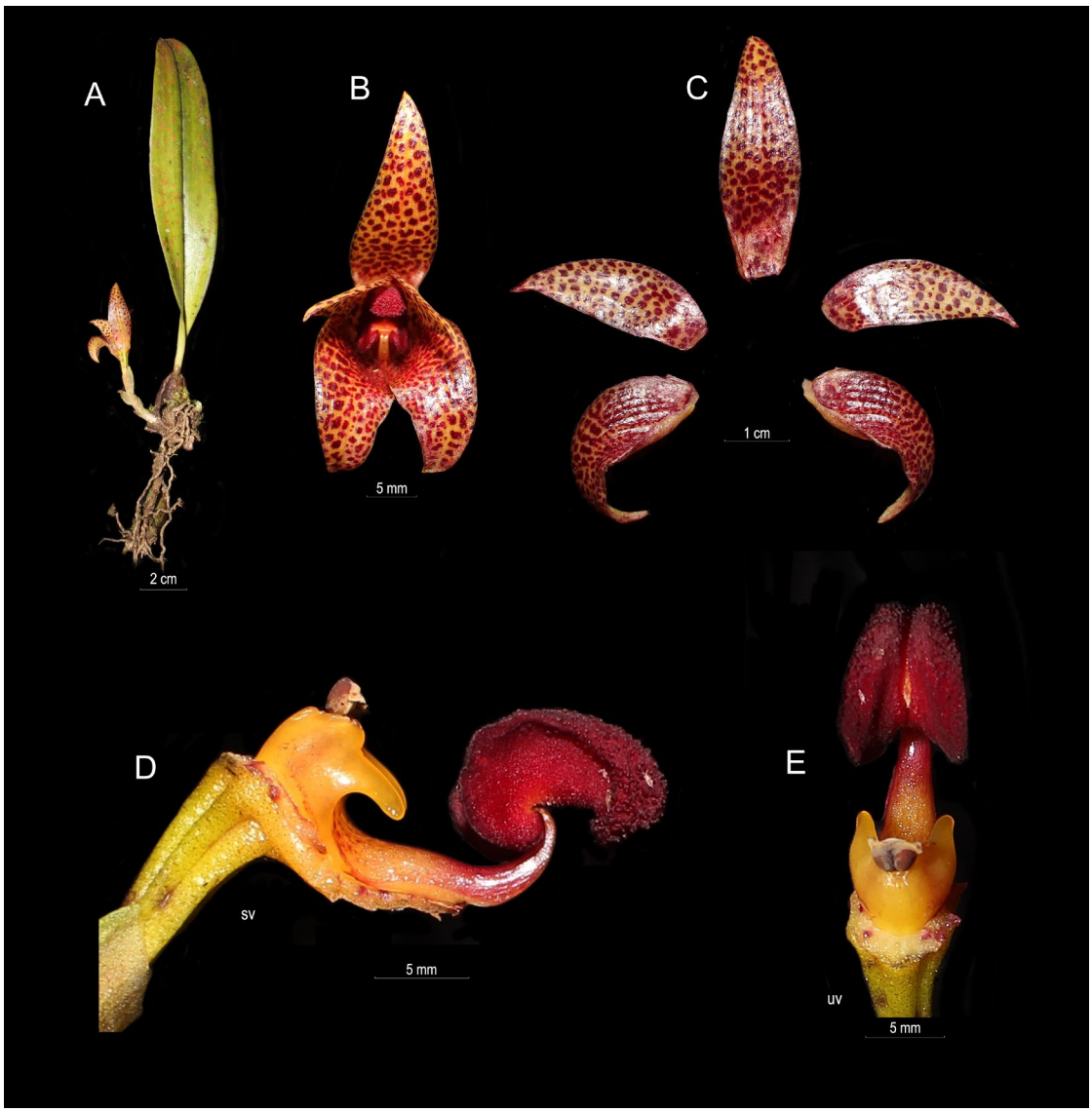

FIGURE 6. *Bulbophyllum sanguineomaculatum* Ridl. **A**. Plant habit. **B**. Flower. **C**. Perianth, dissected. **D**. Ovary, column, and labellum, side view. **E**. Column and labellum, upper view. Photographed by W. Mustaqim based on *Mustaqim 2586* (LGS).

Bulbophyllum thiurum J.J.Verm. & P.O'Byrne, Gard. Bull. Singapore 57: 136. 2005. Fig. 7.

TYPE: Malaysia. Johore, *SBG-O* 5395 (holotype, SING!).

EXAMINED MATERIALS: INDONESIA. **Central Kalimantan:** Murung Raya, Puruk Cahu, 0–100 m asl. 4 October 2023. *Y.R. Yudistira et al. H-SOLEMAN0032023* (ANDA!).

DISTRIBUTION: Peninsular Malaysia, with an extended distribution that includes Central Kalimantan.

HABITAT AND ECOLOGY: In Central Kalimantan, plants grow as epiphytes in lowland shaded swamp forests.

PHENOLOGY: Flowering in the wild all year round.

NOTES: Our report expands the known range of *B. thiurum*

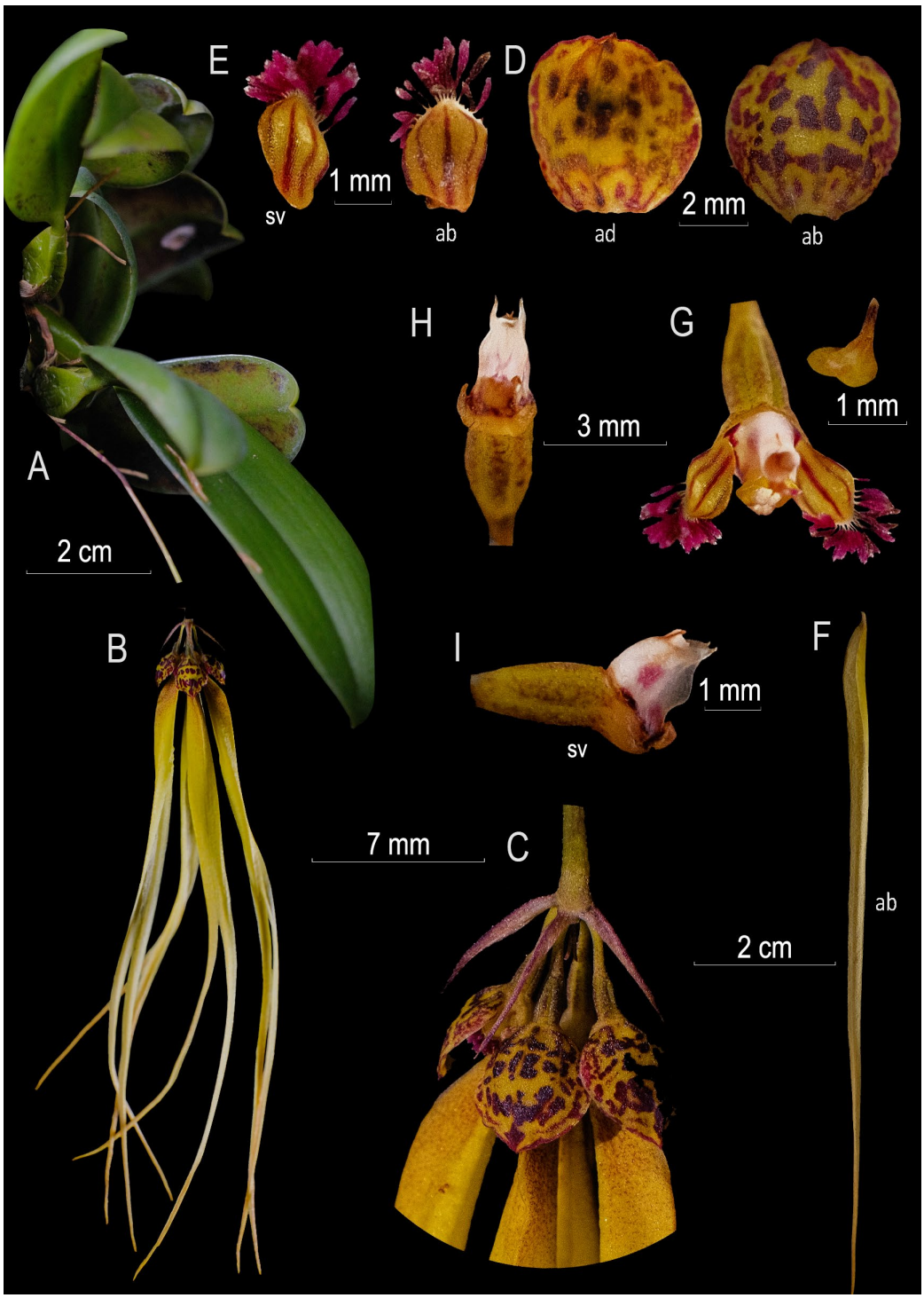

FIGURE 7. *Bulbophyllum thiurum* J.J.Verm. & P.O'Byrne. **A**. Plant habit. **B**. Inflorescence. **C**. Bracts. **D**. Dorsal sepal, adaxial and abaxial. **E**. Petal, side and abaxial views. **F**. Lateral sepal. **G**. Column with petals and labellum. **H**. Column, adaxial view. **I**. Column, side view. Photographed by H. Soleman based on *H-SOLEMAN0032023* (ANDA).

FIGURE 8. *Cleisomeria lanatum* Lindl. ex G.Don. Photographed by Y.R. Yudistira based on *YRY07112022* (ANDA).

from Johor, Peninsular Malaysia (Vermeulen & O'Byrne, 2005) to Central Kalimantan. Unlike previous reports suggesting it occurs only in primary forests, we found that the species is adapted to lowland swamp forests. *Bulbophyllum thiurum* closely resembles *B. plumatum* Ames and *B. mirum* J.J.Sm in its section placement and its hanging, few-flowered inflorescences. In Kalimantan, prior records of sect. *Plumata* J.J.Verm., Schuit, & de Vogel include only *B. mirum*. *Bulbophyllum thiurum* differs from *B. plumatum* and *B. mirum* by having lateral sepals fused only near the base along both the upper and lower margins, whereas in *B. plumatum* and *B. mirum*, most of the lateral sepals are fused along just the upper margin. The petal appendages are hair-like near the apex, compared to rounded in *B. plumatum* and elliptic and unequal in *B. mirum* (Ames, 1915; Vermeulen & O'Byrne, 2005; Vermeulen *et al*., 2015).

Cleisomeria lanatum Lindl. ex G.Don, J.C. Loudon, Encycl. Pl., new ed., Suppl. 2: 1472. 1855. Fig. 8.

TYPE: East Indies. Without collecting data, 1845 (not seen).

EXAMINED MATERIALS: INDONESIA. **West Sumatra**: Bukit Tinggi, Harau 750 m, 07 November 2022, *YR. Yudistira et al. YRY07112022* (ANDA!). *G.H. Pring s.n.* (MO! -image 101306244). THAILAND. **Southeastern**: between Chanthaburi and Trat, *ca*. 3.9 m, 4th Expedition 03 September 1972, Kai Larsen, *Supee S. Larsen, I. Nielsen & T. Santisuk 32415* (L! -image L0267032). **Southwestern**: Kwae Noi basin, Brangkasi, *ca*. 150 m, 19 June 1946, *Hoed, G den, Kostermans, A.J.G.H. Khwae Noi 648* (L! -image L0267033). VIETNAM. **Annam**: Dalat, 1960, *Tixier 6/60* (MNHN! -image P00392647); Dalat, 1953, *C.R.S.T 288* (MNHN! -image P00392648); Lang Nanh, *ca*. 900 m, 05 August 1955, *C.R.S.T 246* (MNHN! -image P00392649).

DISTRIBUTION: India, Bangladesh, Myanmar, Cambodia, Laos, Thailand, Vietnam, Peninsular Malaysia, and Borneo; extended distribution includes West Sumatra.

HABITAT AND ECOLOGY: In West Sumatra, plants grow as epiphytes in lower montane forest, in shaded conditions.

PHENOLOGY: Flowering in the wild from November to December, mean flowering time was recorded in January for specimens maintained in cultivation.

NOTES: *Cleisomeria* includes only two species: *C. lanatum* and *C. pilosulum* (Gagnep.) Seidenf. & Garay. *Cleisomeria lanatum* is easily distinguished from *C. pilosulum* by its labellum, which has a 2-lobed apex, each lobe acuminate.

Corybas calopeplos J.Dransf. & Gord.Sm., Kew Bull. 41(3): 584. 1986. Fig. 9–10.

TYPE: Malaysia. Malay Peninsula, Pahang, Cameron Highland, near Tanah Rata, *J. Dransfield 5246* (holotype, K!).

EXAMINED MATERIALS: INDONESIA. **North Sumatra**: Padang Lawas, Barumun, Hutarimbaru, Mount Dolok Malea, 1500–2000 m, 17 September 2020, *Y.R. Yudistira et al. YRY17092020* (ANDA!); **Aceh**: Aceh Tengah Regency, Pegasing subdistrict, Berawang Baro village, 4°24'42.8"N 96°39'45.1"E, *ca.* 1420 m, 01 October 2024, *W.A. Mustaqim s.n*. (UIDEP!).

DISTRIBUTION: Peninsular Malaysia; extended distribution includes North Sumatra.

HABITAT AND ECOLOGY: In Sumatra, plants grow as terrestrials in upper montane rainforest on steep, well-drained, moss-covered banks and flat montane bogs. In North Sumatra Utara, plants grow alongside *C. carinatus* (J.J.Sm.) Schltr., whereas in Central Aceh it is found together with *C. geminigibbus* J.J.Sm.

PHENOLOGY: Flowering in the wild from September to October.

NOTES: This species is easily distinguished by its translucent green labellum bearing a rounded, eye-like callus. It is morphologically similar to *C. roseus* (Janch.) Janch. ex J.J.Sm., but differs in the coloration and shape of the labellum, which is pale translucent, green to greenish white with radiating crimson blotches line (*vs*. pinkish white with dark purple blotches line in *C. roseus*). Also, the callus in *C. calopeplos* is 1.5 mm wide, white with dark crimson on the center (*vs*. 4 mm wide, light pink in *C. roseus*) (Janchen, 1930; Dransfield *et al*., 1986).

Corybas holttumii J.Dransf. & Gord.Sm., Kew Bull. 41(3): 590. 1986. Fig. 11–12.

TYPE: Malaysia. Selangor/Pahang, Genting Highlands, *Dransfield* 4952 (holotype, K, not seen).

EXAMINED MATERIALS: INDONESIA. **West Sumatra**: Payakumbuh, Kelok Sembilan, *ca*. 1400 m asl. 20 June 2022, *Y.R. Yudistira et al. YRY01352023* (ANDA!).

NOTES: *Corybas holttumii* is newly recorded from Sumatra and differs markedly from the other *Corybas* native to the island. *Corybas holttumii* resembles *C. taiwanensis* T.P.Lin & S.Y.Leu from Taiwan but differs in the rounded labellum, 10 × 15 mm, flattened papillose with deep crimson color at the middle part *vs*. elliptic-rounded labellum, 1.7 × 1.0 cm, white with dark-red striate dots-line at the middle part (Lin, 1975; Dransfield *et al*., 1986).

DISTRIBUTION: Peninsular Malaysia, with an extended distribution that includes West Sumatra.

HABITAT IN INDONESIA: In Sumatra, plants grow as terrestrials on moss banks within shaded mossy forests.

PHENOLOGY: Flowering in the wild from May to June.

Dendrobium teretifolium R.Br., Prodr. Fl. Nov. Holland.: 333. 1810. Fig. 13.

TYPE: Australia. New South Wales *Brown, R.* 5508 (lectotype, BM! -image BM000990504).

EXAMINED MATERIALS: INDONESIA. **East Nusa Tenggara**: Kupang Regency, Leloboko, 500–1500 m, 12 April 2023, *Y.R. Yudistira et al. YRY12042023* (FIPIA!).

DISTRIBUTION: Australia (New South Wales, Queensland), with extended distribution including East Nusa Tenggara, Indonesia.

HABITAT AND ECOLOGY: In East Nusa Tenggara, plants grow as epiphytes on *Mangifera indica* L. in mid-montane forests on limestone substrates, usually in semi-open areas.

PHENOLOGY: Flowering in the wild from August to October.

NOTES: The record from East Nusa Tenggara considerably extends the known distribution range of the species. This finding is plausible given the biogeological history of the Lesser Sunda Islands, including East Nusa Tenggara, which is the result of the complex interaction between subduction along the Banda arc and the flora-mobilism of the Timor-Banda Collision (Michaux, 2010). This species is easily distinguished from other members of the *Dendrobi-*

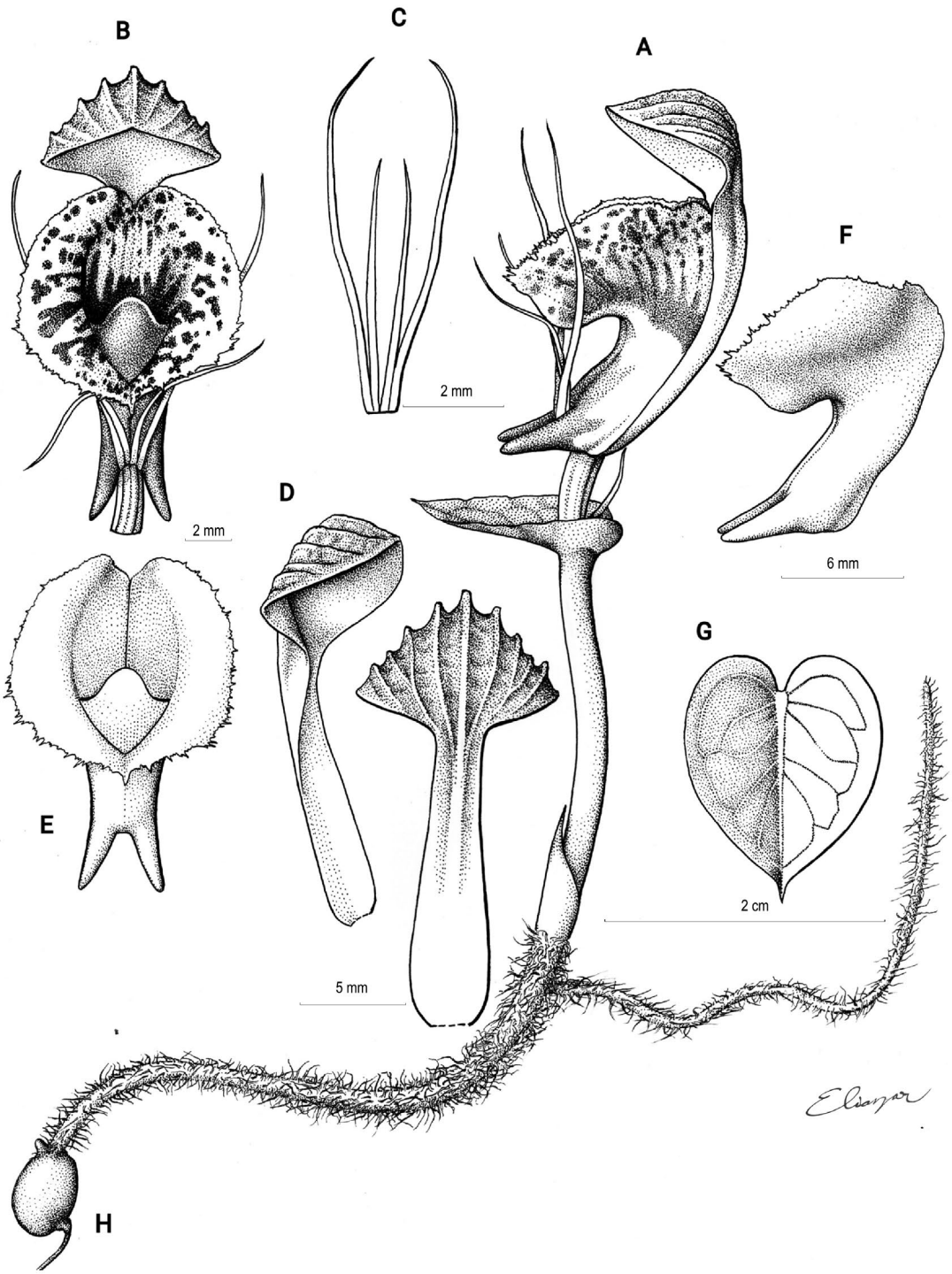

FIGURE 9. Line drawing of *Corybas calopeplos* J.Dransf. & Gord.Sm. **A**. Plant habit, side view. **B**. Flower, front view. **C**. Lateral sepals and petals. **D**. Dorsal sepal. **E**. Labellum, front view. **F**. Labellum, side view. **G**. Leaves. **H**. Tuber. Illustrated by Yuanito Eliazar based on *YRY17092020* (ANDA).

FIGURE 10. *Corybas calopeplos* J.Dransf. & Gord.Sm. **A**. Plant habit front view. **B**. Plant habit side view. **C**. Plant with tuber and roots. Photographed *in situ* by Y.R. Yudistira based on *YRY17092020* (ANDA).

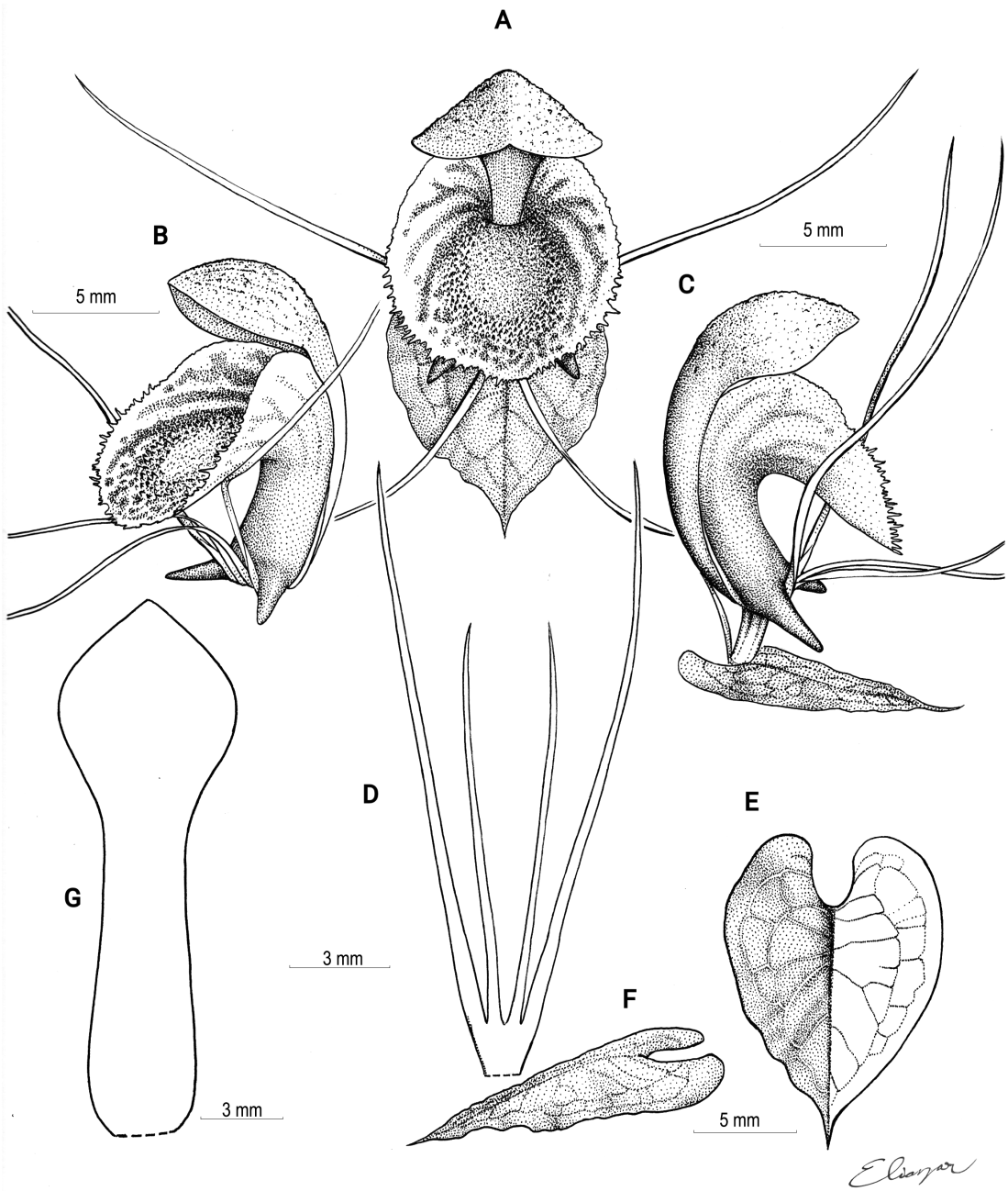

FIGURE 11. Line drawing and photograph of *Corybas holttumii* J.Dransf. & Gord.Sm. **A**. Plant habit. **B**. Flower, side view. **C**. Flower with leaf, side view. **D**. Lateral sepals and petals. **E**. Leaf venation. **F**. Leaf, side view. **G**. Dorsal sepal. Illustrated by Yuanito Eliazar based on *YRY01352023* (ANDA).

um in section *Rhizobium* Lindl. (Lindley, 1853) by its long, terete leaves. This species is similar to *D. linguiforme* Sw., but differs in its terete leaves *vs.* ovate in *D. linguiforme*. However, the distribution of *D. linguiforme* is restricted to Australia. *Dendrobium teretifolium* is also distinguished by its many-flowered inflorescences, tricarinate labellum, and pleasant floral fragrance.

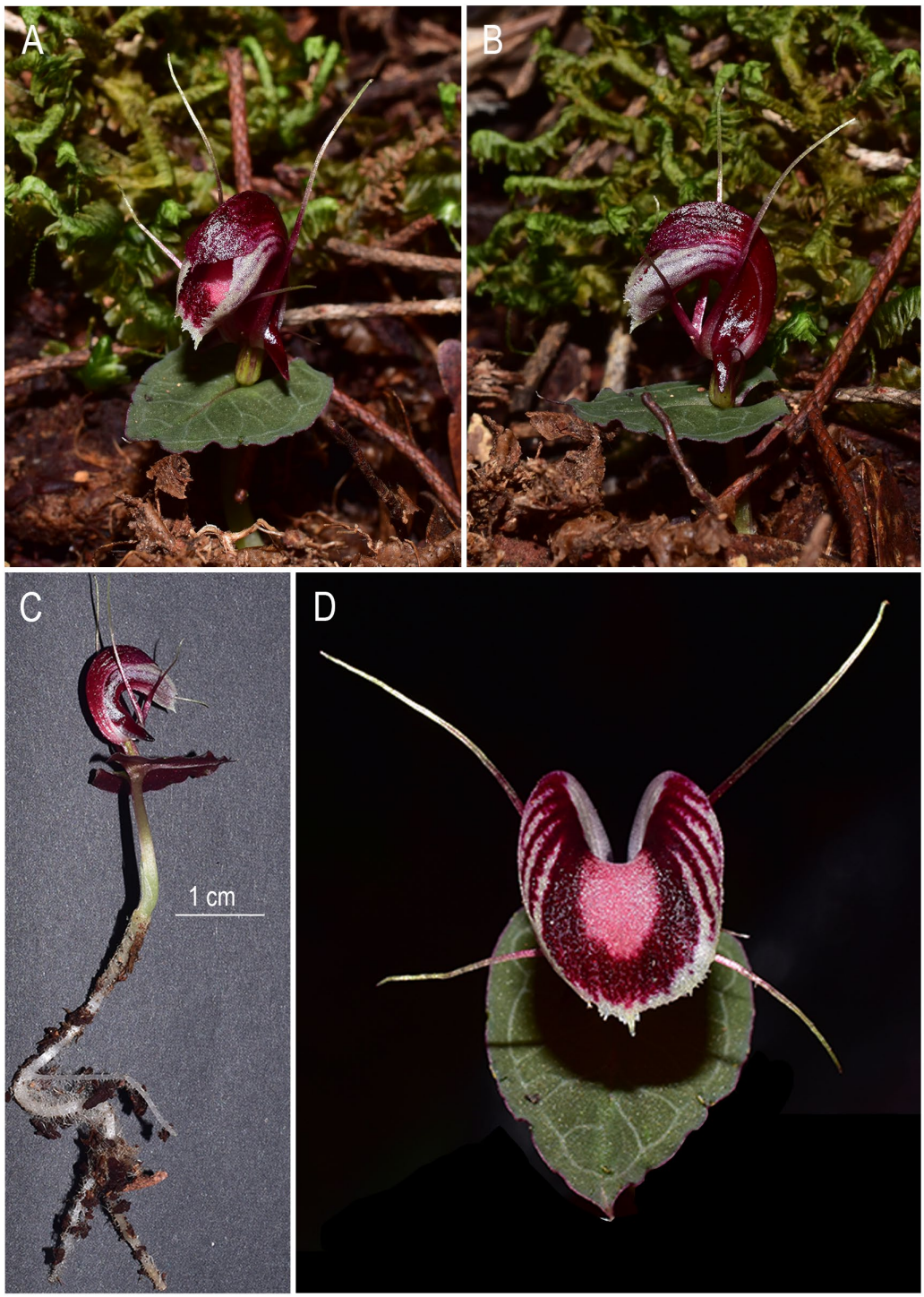

FIGURE 12. *Corybas holttumii* J.Dransf. & Gord.Sm. **A**. Plant habit, 3/4 view. **B**. Plant habit, side view. **C**. Plant with tuber and roots. **D**. Labellum, front view. Photographed *in situ* by Y.R. Yudistira based on *YRY01352023* (ANDA).

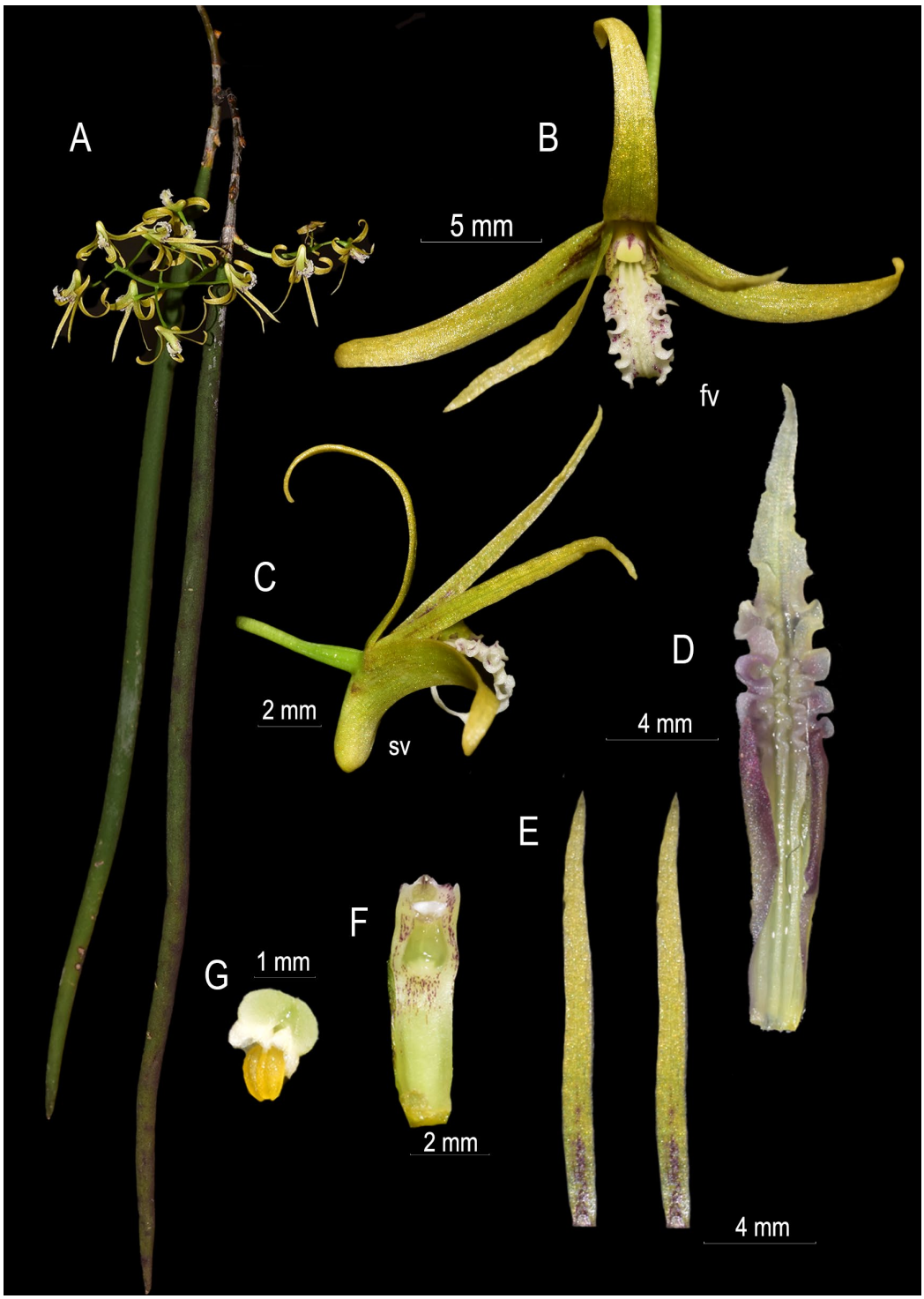

FIGURE 13. *Dendrobium teretifolium* R.Br. **A**. Plant habit. **B**. Flower, front view. **C**. Flower, lateral view. **D**. Labellum. **E**. Petals. **F**. Column. **G**. Anther cap and pollinia. Photographed by Y.R. Yudistira based on *YRY12042023* (FIPIA).

Conclusion. A total of seven species (*Acanthophippium bicolor, Bulbophyllum nematocaulon, B. sanguineomaculatum, B. thiurum, Cleisomeria lanatum, Corybas calopeplos, C. holttumii*) demonstrate a distributional range extending within Sundaland floristic region from mainland Asia (India and Sri Lanka) and peninsular Malaysia to Sumatra, Borneo, and Java. Accordingly, these recent distribution records conform to the phytogeographical boundaries by Van Welzen (2011). Updated distribution patterns of the studied orchid species, including newly documented occurrences, are illustrated in Fig. 14.

In this report, we notice a remarkably expanded distribution from the eastern part of Indonesia for 3 species: *Aerides augustiana, Anoectochilus papuanus,* and *Dendrobium teretifolium.* The expanding distribution of *Aerides augustiana* and *Dendrobium teretifolium* was in line with the floristic affinity area from van Welzen (2011), where Sulawesi and East Nusa Tenggara (Lesser Sunda Islands) fall into the Wallacea group. The Wallacea group shared the flora distribution and affinity with the Philippines and Australia (van Welzen, 2011). The range extension of *Anoectochilus papuanus* from Papua to East Java deviates from predicted biogeographical patterns. While East Java is floristically grouped with the Sunda Shelf and the Philippines within the Wallacean region (van Welzen, 2011), the presence of *A. papuanus* suggests a disjunct distribution that contradicts the floristic affinity area. Such biogeographical anomalies may arise from a paucity of data regarding the flora of Eastern Indonesia, which remains relatively underexplored (Vermeulen *et al.,* 2011; Sun *et al.*, 2024; Schuiteman & Wanma*,* 2017). By presenting these ten novel records, this study contributes to a more comprehensive understanding of orchid diversity in Indonesia, thereby reducing the disparity between documented and undocumented species. However, to address current knowledge gaps, it is essential to prioritize field explorations and the systematic review of herbarium collections across the Wallacea and Sahul bioregions, thereby facilitating a more robust assessment of orchid species richness.

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CONFLICT OF INTEREST. We declare that we have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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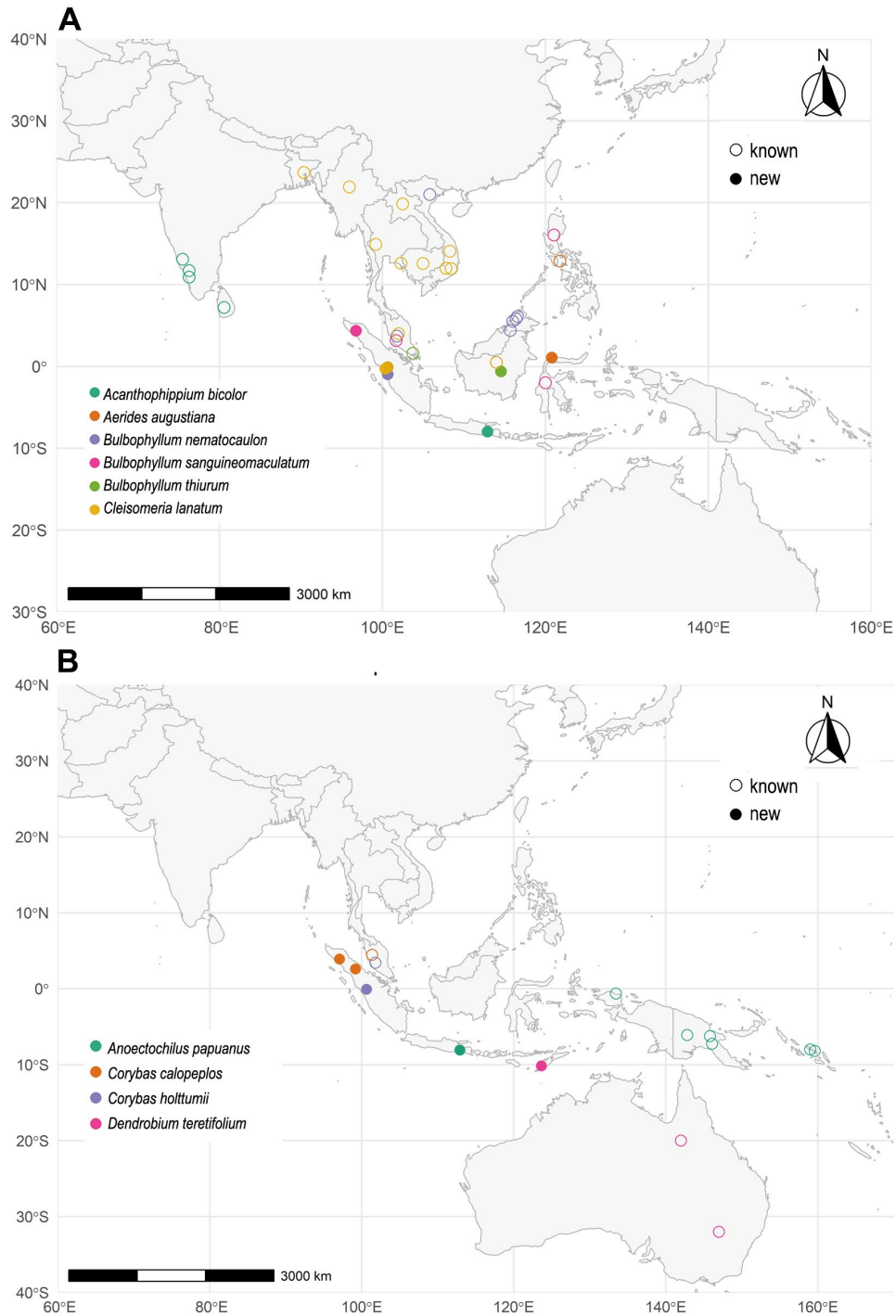

FIGURE 14. Geographic distribution of ten selected orchid species. **A**. *Acanthophippium bicolor, Aerides augustiana, Bulbophyllum nematocaulon, B. sanguineomaculatum, B. thiurum, Cleisomeria lanatum*. **B**. *Anoectochilus papuanus, Corybas calopeplos, C. holttumii, Dendrobium teretifolium*. Filled symbols denote the new distribution records reported in this study, while the open symbols indicate previously known occurrences based on literature and database records. Elaborated by R.K. Wati.

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