

THE REVISION OF THE GENUS *PTERISANTHES* (VITACEAE) IN SUMATRA

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ABSTRACT

TRIAS-BLASI, A., DAMIT, A., WAMBRAUW, H. L., AHMAD, R. P. P., WARSENO, T. & HUSSIN, Z. 2025. The revision of the genus *Pterisanthes* (Vitaceae) in Sumatra. *Reinwardtia* 24(2): 161–184. — The genus *Pterisanthes* consists of 16 accepted species, with nine species being native to Sumatra, two of which are endemic to the island. Here we provide synonymy, typifications, an identification key, descriptions, distribution maps, type images, and conservation assessments.

Key words: *Pterisanthes*, Sumatra, taxonomy, Vitaceae.

ABSTRAK

TRIAS-BLASI, A., DAMIT, A., WAMBRAUW, H. L., AHMAD, R. P. P., WARSENO, T. & HUSSIN, Z. 2025. Revisi marga *Pterisanthes* (Vitaceae) di Sumatra. *Reinwardtia* 24(2): 161–184. — Marga *Pterisanthes* terdiri dari 16 jenis, dengan sembilan jenis asli Sumatra, dua endemik. Sinonim, tipifikasi, kunci identifikasi, deskripsi, peta distribusi, foto tipe, dan penilaian konservasi disajikan pada naskah ini.

Kata kunci: *Pterisanthes*, Sumatra, taksonomi, Vitaceae.

INTRODUCTION

The family Vitaceae has 20 genera and *ca.* 1,000 species with a pantropical and (warm) temperate distribution (POWO, 2024). APG III recognizes two subfamilies in Vitaceae: Vitoideae and Leeioideae (Old World only) (Stevens, 2001 onwards). The Leeioideae are herbs, shrubs or trees with no tendrils, while the Vitoideae are generally lianas climbing by leaf-opposed tendrils (Stevens, 2001 onwards). However, some experts prefer to recognise two separate families, Vitaceae and Leeaceae (Trias-Blasi *et al.*, 2012; Wen *et al.*, 2018; Ma *et al.*, 2021). Vitaceae are commonly characterized

by having these morphological characters: stipule at petiole base, leaves alternate, flowers actinomorphic, ovary superior, leaf-opposed tendrils and inflorescences, intrastaminal disk, fruit a berry and seed with an endosperm.

Pterisanthes is one of the genera of the Vitaceae family, which has more than 16 species (POWO, 2024) with a distribution in Borneo, Java, Malay Peninsula, Sulawesi, Sumatra, the Thai Peninsula, Myanmar, and possibly the Philippines although the latter has not been confirmed (Latiff, 1982, 2001; Latiff, 1987; Wen 2007). *Pterisanthes* was first described by Blume in 1825 from a collection of samples originating from Java with the type spe-

Identification Key of *Pterisanthes* in Sumatra

- 1a. Inflorescence without pedicellate flowers on the margin of the lamellae 2
- 1b. Inflorescence with pedicellate flowers on the margin of the lamellae 5
- 2a. Tail-like structure at the apex of the inflorescence present 2. *P. caudigera*
- 2b. Tail-like structure at the apex of the inflorescence absent 3
- 3a. Leaves simple, central leaflet base cordate 4. *P. eripoda*
- 3b. Leaves compound, central leaflet base obtuse to cuneate 4
- 4a. Lateral leaflet blade shape elliptic to oblanceolate; lamellae oblong 7. *P. rufula*
- 4b. Lateral leaflet blade shape lanceolate; lamellae rectangular 9. *P. sumatrana*
- 5a. Leaves simple 6
- 5b. Leaves compound 7
- 6a. Primary branch inflorescence not more than 10 cm; pedicels 1–2 mm 1. *P. brevipedicellata*
- 6b. Primary branch inflorescence frequently more than 10 cm; pedicels 12–25 mm 6. *P. polita*
- 7a. Number of pairs of secondary veins on leaf 8–9; indumentum of upper leaf surface rough ... 8. *P. stonei*
- 7b. Number of pairs of secondary veins on leaf 4–7; indumentum of upper leaf surface smooth 8
- 8a. Stem indumentum glabrous to sparsely arachnoid, without rust to red coloured hairs, indumentum of lower surface of leaf sparsely tomentose 3. *P. cissioides*
- 8b. Stem indumentum pilose and arachnoid, with rust to red coloured hairs; indumentum of lower surface of leaf with arachnoid hairs concentrating homogeneously in various parts of the lamina forming loose “spots”, lateral leaflet blade shape asymmetrical base subcordate 5. *P. heterantha*

cies being *Pterisanthes cissioides* Blume. These samples had a very distinctive inflorescence in the form of a leaf-opposed, somewhat fleshy, leaf-like, flat lamellate panicle, where often the lamellate flowers are partially immersed in the lamina, and with a tendril at the base of the peduncle (Trias-Blasi *et al.*, 2014). Van Steenis & Bakhuizen van den Brink (1967) suggested that *Pterisanthes* has close morphological characteristics in seed morphology, petiole anatomy, indumentum types, and association of the tendril in the inflorescence, with *Ampelocissus* (Latiff, 1982). Molecular studies (Wen *et al.*, 2007; Liu *et al.*, 2015; Wen *et al.*, 2018) show that *Pterisanthes* is close to *Ampelocissus*, *Nothocissus*, and *Vitis*, and is nested within the former. Thus, it is possible that *Pterisanthes* will be sunk into *Ampelocissus* in the future. Until this is the case, we treat it as a separate genus. In this study we focus on the island of Sumatra, which is the most under-sampled area in the Malesian phytogeographical region, with likely many species new to science awaiting discovery (Mustaqim & Putra, 2020).

The aim of this research is to revise and classify *Pterisanthes* species in Sumatra. Based on specimen examinations carried out by the *Pterisanthes*

team in the “Taxonomy Skills for Conservation 2024” course in Herbarium Bogoriense (BO) and the subsequent work of Z.H. and A.T-B. At the Royal Botanic Gardens, Kew, we identified a total of nine species, two of them endemic to Sumatra.

MATERIALS AND METHODS

This study is based on examining herbarium specimens in herbarium Bogoriense (BO), Kew (K), and also examining herbarium specimens that have been recorded digitally at JSTOR (<https://www.jstor.org>), GBIF (<https://www.gbif.org>), and Naturalis bioportal (<https://bioportal.naturalis.nl>), with approximately 700 samples examined from nine species. The results of these examinations were then compared with protologues and other revisions of the genus, such as Latiff (1982) and Trias-Blasi *et al.* (2014). Georeferencing was performed using a variety of resources, such as GeoNames (<https://www.geonames.org/>) and GoogleEarth. SimpleMappr (www.simplemappr.net) was used to construct the distribution map based on the coordinates given on the specimen labels. GeoCAT (<https://geocat.iucnredlist.org/>) was used to determine the conservation status of the species.

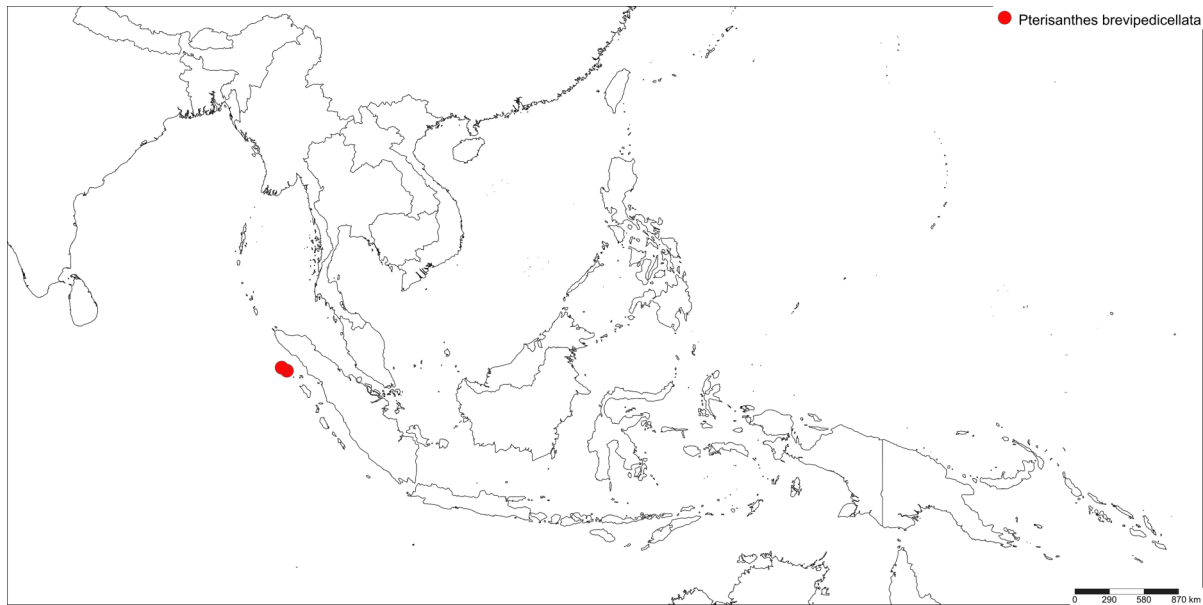


Fig. 1. Distribution map of *Pterisanthes brevipedicellata* Latiff.

TAXONOMY

Pterisanthes Blume (1825: 192). — Type: *Pterisanthes cissioides* Blume.

Embamma Griffith (1854: 694).

Vitis L. sect. *Pterisanthes* Miquel (1863: 73).

Slender wiry climbers. *Stem* slender, cylindrical, striate, glabrous. *Leaves* simple or palmately (2)3–7-foliolate, some species heterophyllous. *Inflorescence* a leaf-opposed flat lamellate panicle, leaf-like and slightly fleshy with associated tendrils at the peduncle; lamella shape very variable: horse-shoe-shaped, rectangular, rounded to very narrow. Flowers in Sect. *Pterisanthes* lamellate and pedicellate, in Sect. *Paginiflora* lamellate; only lamellate flowers hermaphrodite, sessile, partially embedded in the lamella, (3)–4–5-merous, calyx obscure, corolla petals ovate-triangular, ovary adnate to the disk; pedicellate flowers placed at the margin of the lamella, either male or sterile always 4-merous, calyx cupuliform; corolla petals ovate-oblong; filaments filiform, attached to the inner side of the petal by a thin membrane; anthers minute; ovary exserted; style short; stigma inconspicuous. Seeds obovate, rugose.

Distribution. Brunei Darussalam, Indonesia (Java, Kalimantan, Sulawesi, Sumatra), Malaysia (Peninsula, Sabah, Sarawak), Philippines (Mindanao), Singapore, Thailand (Ranong, Songkhla, Narathiwat).

SPECIES DESCRIPTIONS

1. *PTERISANTHES BREVIPEDICELLATA* Latiff – Fed. Mus. J. 27: 55 (1982). — Type: INDONESIA, Sumatra, Simaloer Island, 2°35'16"N, 96°7'56"E, 10 April 1918. *Achmad* 354. (holo-

type: L (L0715708), isotypes BO! (BO1337740, BO1337717, BO1616160)).

Climber. *Stem* cylindrical and ridged, glabrous. *Leaves* simple; petiole 1–4 cm long, glabrous to sparsely arachnoid pale hairs; Leaf blade ovate to oblong, 8.5–15 cm × 6–9 cm, base cordate, apex acuminate, margin entire with marked teeth with arachnoid rusty hairs; indumentum of the upper surface of the leaf glabrous to some rusty arachnoid hairs on the midrib, indumentum of the lower surface of the leaf glabrous; 5–6 pairs of secondary veins. *Inflorescence* with pedicellate and lamellate flowers; peduncle 1.5–3.5 cm long; primary branch of the inflorescence 5–7 cm long; Inflorescence panicle of lamellae, 5.5–12 × 1.3–3 cm; pedicel 1–2 mm long.

Distribution. Sumatra (Fig. 1).

Conservation status. There are only two known collections of this species. This could warrant the categorisation of this species as Critically Endangered as it has an AOO of 8 km² and the EOO could not be calculated (GeoCAT (Bachman *et al.*, 2011)). However, the specimens occur in forested areas, where no threats are apparent. We also lack information on fragmentation, decline and extreme fluctuations of the populations. Therefore, the most appropriate categorisation of this species is as Data Deficient (IUCN, 2023).

Notes. This species only occurs on Simaloer Island in Aceh Province.

Specimens examined. INDONESIA. Sumatra, Aceh, Simaloer Island, 2°35'16"N, 96°7'56"E, 10 April 1918, flowering, *Achmad* 354 (BO

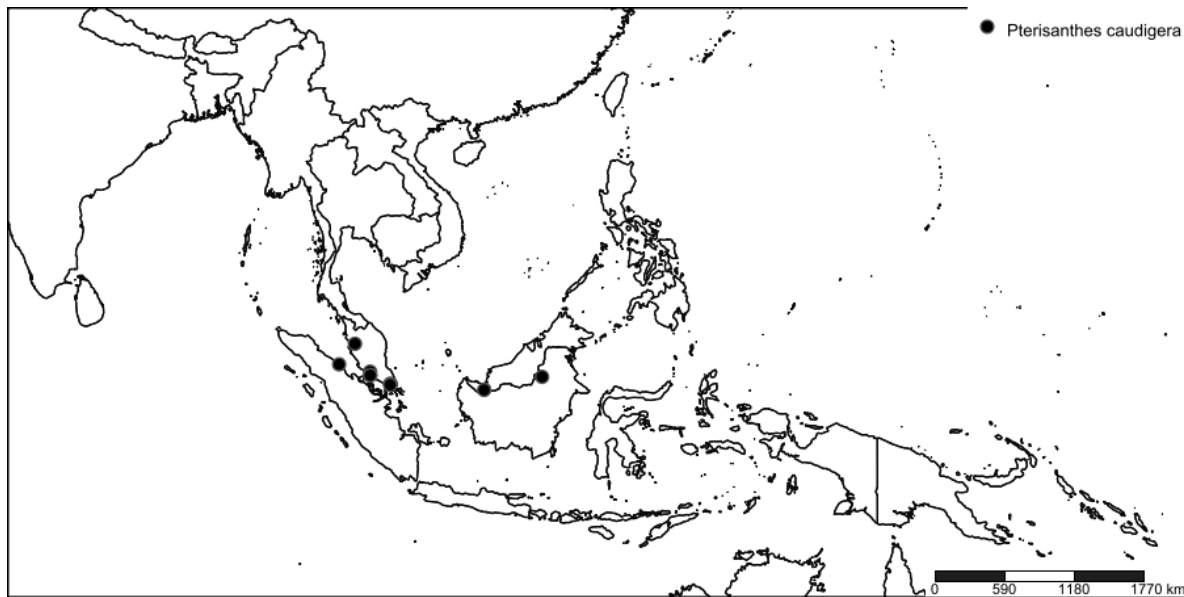


Fig. 2. Distribution map of *Pterisanthes caudigera* (Griff.) Planch.

(BO1337740, BO1337717, BO1616160)); Aceh, Hulu Langi Forest, Desa Langi, Dusun Sejahtera, Kec. Alafan, Kab. Simaloer, 2°49'N, 95°43'59"E, 30 July 2017, flowering, *Santoso, W., Rosalina, D., Fathi, M.* WS138 (BO (BO1972236)).

2. PTERISANTHES CAUDIGERA (Griff.) Planch. – Monogr. Phan. 5(2): 420 (1887); Suess., in Engler & Prantl, Natur. Pflanzemfam. 20d: 318 (1953). *Embamma caudigerum* Griff., Not. Pl. Asiat. 4: 695 (1854). — Type: MALAYSIA, Malacca, *Griffith, W.* 1299. (holotype K (K000574970! (Fig 2); syntypes K (K000574969!), P (P00697392 image!), A (51608 image!)).

Climber. *Leaves* simple and compound, 3-foliolate or 5-pedate; petiole 1.6–5.2 cm long; central blade ovate, 5.5–11.8 cm × 3.2–6.3 cm, base semicordate, apex acuminate, margin subentire to sinuate with teeth; lateral blade asymmetrically oblong, 4.2–9.8 cm × 2.8–5.1 cm, base oblique, apex acuminate, margin subentire to sinuate with teeth; petiolules 0.2–0.6 cm long; indumentum of the upper surface of the leaf sparsely fibrillose, indumentum of the lower surface of the leaf sparsely tomentose. *Inflorescence* with lamellate flowers, peduncle 1.8–4.6 cm long; primary branch of the inflorescence 2.8–6.5 cm long; inflorescence panicle of lamellae, 6.2–14.1 × 1–3.1 cm with a tail-like structure at the apex of the inflorescence.

Distribution. Borneo, Sumatra, and Malay Peninsula (Fig. 3).

Conservation status. The extent of occurrence (EOO) of this species is 343,095.535 km² whereas the area of occupancy (AOO) is 32.000 km², which suggest this species might be Least Concern or

Endangered, respectively. We think that the species might be Endangered as there are only few locations. However, we do not have information regarding the populations' decline or fragmentation. Therefore, this species should be considered as Data Deficient (IUCN, 2023).

Specimens examined. INDONESIA. Sumatra, Asahan, 3°00'47"N, 99°31'01"E, *Rahmat Si Boeea* 6613 (L); Aceh, P.T. Hargas logging concession, S. of the road Sibulussalam-Gelombang, just N of the crossing of the approach road with Lae (=River) Batu Batu (a tributary of Alas River), near the abandoned village of Belintang, 2°44'56"N, 97°59'45"E, 164 ft, 6 August 1985, flowering, *de Wilde, W. J. & de Wilde-Duyfjes, B. E.* 20686 (US (00920018)). MALAYSIA. Malay Peninsula, Negri Sembilan, Tampin, 2°28'12"N, 102°13'48"E, 30 January 1916, flowering, *A. ?* 1439 (K (K004492985)); Johor, Mount Austin, 1°33'9"N, 103°46'23"E, 11 January 1904, flowering, *Ridley, H. N.* 11997 (K (K004492986)); Malacca, *Maingay M. D.* 430/1135 (K004492987); Malacca, *Maingay M. D.* 432/1142 (K004492988); Malacca, *s.n. s.n.* (K (K004492 991, K0044929 92)); Johor, 18 January 1917, *Ridley, H. N. s.n.* (K (K004492990)).

3. PTERISANTHES CISSIOIDES Blume – Bijdr., Fl. Ned. Ind. 4: 193 (1825) [as *cissioïdes*]. *Vitis cissioides* (Blume) Backer (1911: 245). — Type: INDONESIA, Java, Bogor, *Blume s.n.* (lectotype: L (L0747475!)), designated by Trias-Blasi *et al.* (2014); isoelectoye L (L0715778!). *Vitis pterisantha* Miquel Miq., Ann. Mus. Bot. Lugduno-Batavi 1: 94 (1863). — Type: INDONESIA, Sumatra, *Korthals s.n.* (holotype L! [L0715787!]; isotype L! (L0715788!)).

Pterisanthes dalhousiae var. *major* Ridl., Fl. Ma-

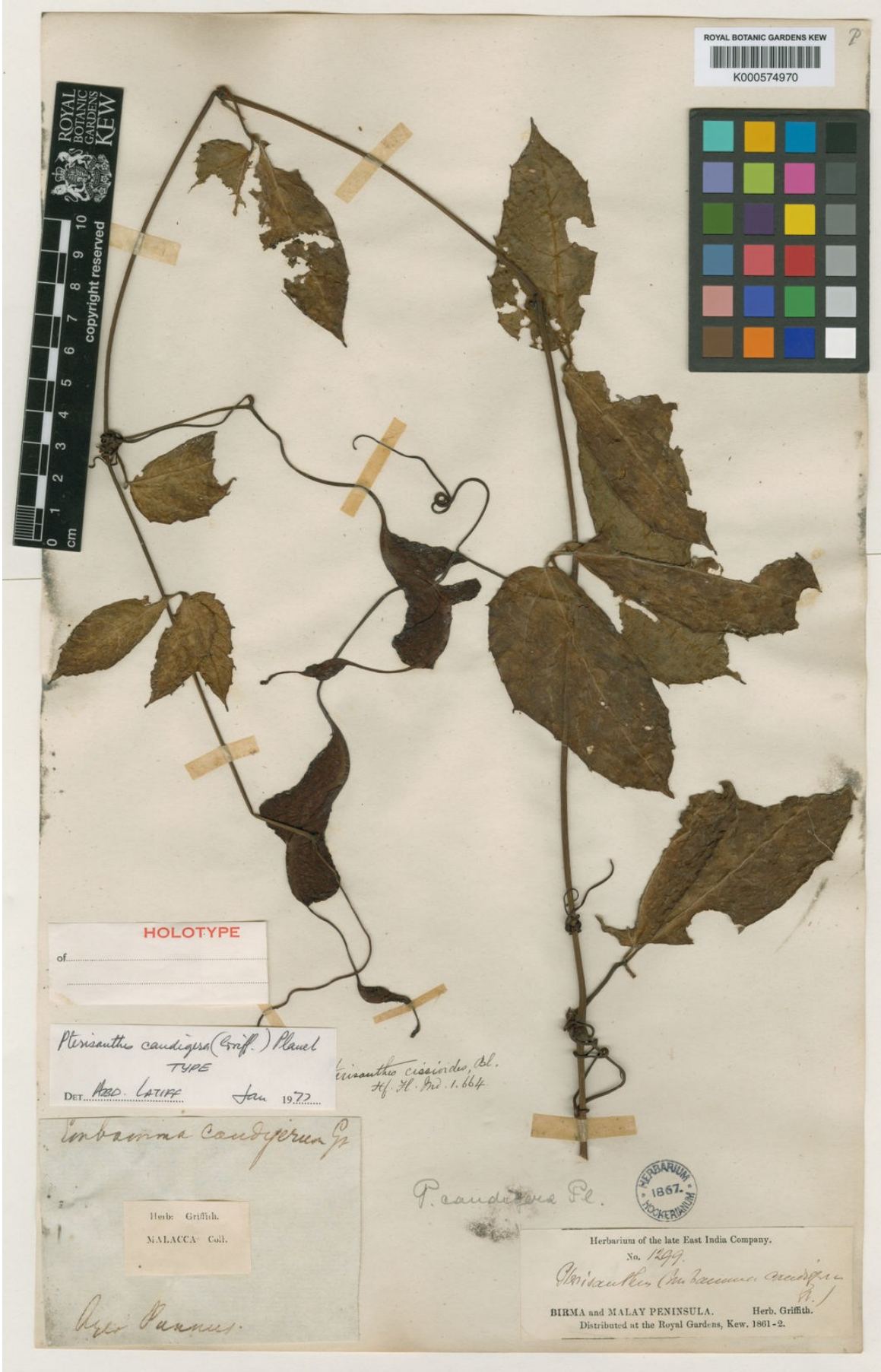


Fig. 3. Holotype of *Pterisanthes caudigera* (Griff.) Planch.

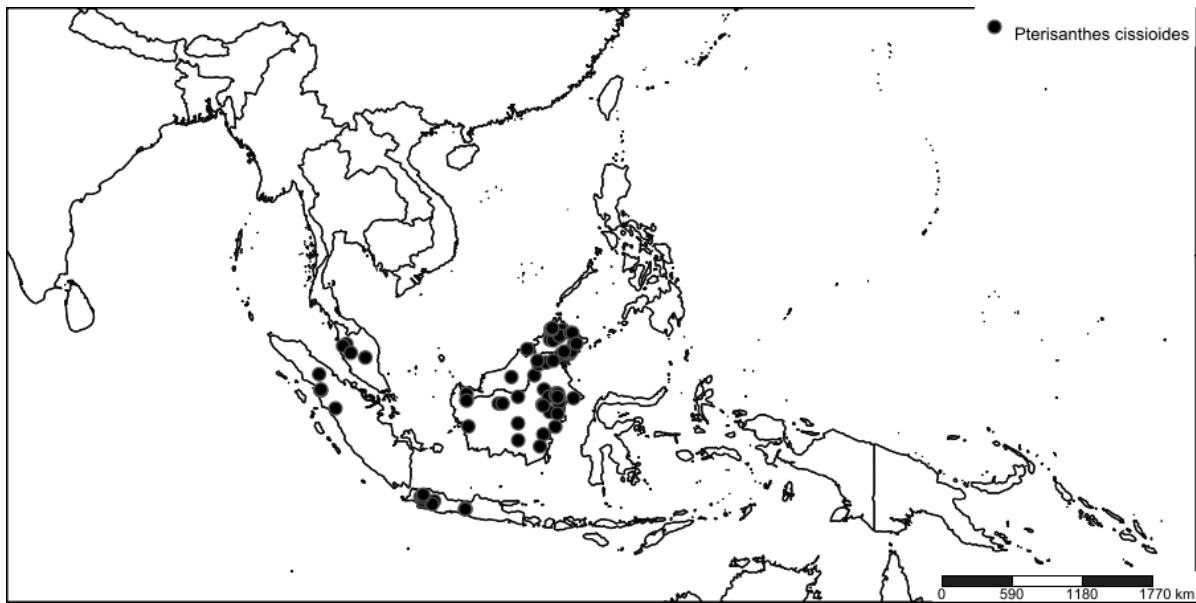


Fig. 4. Distribution map of *Pterisanthes cissioides* Blume.

lay Penins. 1: 481 (1922). — Type: MALAYSIA, Peninsular Malaysia, Perak, Hermitage, December 1887, *Curtis 1289* (holotype K!).

Pterisanthes trifoliata Merr., Univ. Calif. Publ. Bot. xv. 182 (1929). — Lectotype: MALAYSIA, Sabah, Tawao, Elphinstone Province, British North Borneo, October 1992 to March 1923, *Elmer 20829* (lectotype UC!, designated by Trias-Blasi *et al.* (2014); holotype: PNH likely lost; isotypes: K!, L (L0013712!)).

Climber. *Stem* glabrous to sparsely arachnoid. *Leaves* compound, 3-foliolate or 5-pedate; petiole 3.4–9.1 cm long, puberulous to hirsute; central blade elliptic to oblanceolate, 10.1–18.2 × 4.1–6.9 cm, base asymmetrical to oblique, apex acuminate, margin entire with 0.1–0.4 cm long back teeth and glabrous to arachnoid hair; lateral blade oblong, 9.1–16.2 × 4.0–6.7 cm, base asymmetrical to oblique, apex acuminate to caudate, margin entire with 0.1–0.4 cm long back teeth and glabrous to arachnoid hair; central petiolule 0.8–1.8, puberulous; lateral petiolule 0.3–0.4, puberulous; indumentum of the upper surface of the leaf glabrous and smooth, indumentum of the lower surface of the leaf sparsely arachnoid; 5–6 pairs of secondary veins. *Inflorescence* with pedicellate flowers; peduncle 2.8–5.4 cm long; primary branch of the inflorescence 8–25 cm long; Inflorescence panicle of lamellae, 14.5–25.1 × 2.7–8.4 cm, glabrous.

Distribution. Brunei Darussalam, Indonesia (Java, Kalimantan, Sumatra), Malaysia (Peninsula, Sabah), Thailand (Phangnga) (Fig. 4).

Conservation status. Using GeoCAT (Bachman *et al.*, 2011), we calculated an EOO of 2,255, 654.004 km² and an AOO of 104.000 km² for this

species. As this species is very widespread in its distribution, it is likely that the AOO has been overestimated. However, this species is likely to be categorised as Least Concern (IUCN, 2023).

Specimens examined. INDONESIA. Sumatra, North Sumatra, Kab. Simalungun, Kec. Girsang Sipangang Bolon, Sibaganding forest, secondary forest, 2°42'53"N, 98°56'8"E, 4,317 ft, 21 March 2018, flowering, *Damayanto, I. P. G. P., Rahmawati* IPGPD554 (BO (BO1959568, BO1959569)); West coast, E of Lubuk Sikaping, Mt. Gadang, W side, primary forest, 0°7'33"N, 100°10'15"E, 2,953 ft, sterile, *Borssum, J. v.* 2062 (BO (BO1620787)); inland (N-NW) of the town of Kecamatan Batangtoru, medium stature forest on montane ecotone, 1°29'22"N, 99°2'52"E, 2,460 ft, flowering, *Takeuchi, W., Sambas, E.* 18432 (BO (BO1542245)). Borneo, East Kalimantan, Kab. Malinau, Kec. Pujungan, Long Belaka, 2°37'16"N, 115°14'11"E, 25 March 2009, fruiting, *Koizumi, M., Lalo, Koizumi* 1962 (BO (BO1954311)); East Kalimantan, Bukit Bangkirai, old secondary forest, to track III, 1°1'30"S, 116°51'53"E, 3 February 2001, fruiting, *Ruskandi, A., Rugayah, AR & R* 306 (BO (BO1831734)); East Kalimantan, Sebulu, North of Samarinda, 0°7'1"S, 116°30'7"E, 22 January 1974, *Nuhamara, T.S.* 30 (BO (BO1973371)); East Kalimantan, Loa Djanan R. Region West of Samarinda, 0°34'58"S, 117°5'42"E, 6 September 1954, fruiting, *Kostermans, A.* 9960 (BO (BO1973372)); East Kalimantan, Loa haur, West of Samarinda, 0°8'42"S, 116°24'54"E, 131 ft, 15 May 1952, flowering, *Kostermans, A.* 6944 (BO (BO1973369)); Sungai Wain region, North of Balikpapan, 1°16'3"S, 116°49'43"E, 98.5 ft, August 1950, *Kostermans, A.* 4277 (BO (BO1973368), L (L0672039)); Batu Kajang, 1°50'6"S, 115°54'47"E,

1,476 ft, 28 November 1979, fruiting, *Ma'roef*, *A. AM.243* (BO (BO1973370)); Central East Borneo, W. Koetai, no. 5, near Lahoem, 0°22'12"N, 115°23'33"E, 98.5 ft, 1 August 1925, *Endert, F.H. 1846* (BO (BO1620798)); Central East Borneo, Long Petah, 0°2'32"N, 115°23'30"E, 1,968 ft, 10 September 1925, flowering, *Endert, F.H. 3147* (BO (BO1620797)); Central East Borneo, West Koetai, 0°24'18"N, 115°51'5"E, 98.5 ft, 22 November 1925, flowering, *Endert, F.H. 5130* (BO (BO1620799), L (L0672046)); Wanariset research area, Rintis Baru, 1°2'44"S, 116°59'15"E, 164 ft, 30 July 1990, flowering, *Kessler 603* (K (K004493000), L (L0672056)); Wanariset. Plot Matthys, 1°2'44"S, 116°59'15"E, 164 ft, 15 May 1990, flowering, *van Balgooy & Kessler 5959* (K (K000605883), L (L0672059, L0672060)); Central Kalimantan, Kalampangan, Peat swamp forest, 2°16'12"S, 114°1'55"E, 65.6 ft, 25 July 2004, flowering, *Sadili, A., 1157* (BO (BO1665470)); Ketapang, Gunung Palung National Park, Cabang Panti Research Site. DT5, -1.24, 110.239, 65.6 ft, 24 January 1996, fruiting, *Laman T. G., TL112* (BO (BO1803334), K (K004493001) A (2326863), E (E00088154) L (L0762161)); West Kalimantan, G. Berui, 2.5 km SSW Kota Serimbu, 0°44'28"N, 110°5'18"E, 164–328 ft, November 1995, flowering, *Kohyama, Tukirin, Yamada, K 10631* (BO (BO1480044), L (L0374578)); Western Kalimantan, Serawai, Desa Jelundung, surrounding environs to 0.5 km, 0°29'43"N, 112°32'3"E, 393.8 ft, 2 October 1995, flowering, *Church, A. C., Ismail, Ruskandi, A. s.n.* (K (K000073652)); South Kalimantan, Tanah Boemboe, Batoelitjin, 3°25'59"S, 115°54'11"E, 98.5 ft, 28 January 1928, *Kostermans, A. 2150* (BO (BO1973367)); North Kalimantan, G. Samenggaris, 4°13'6"N, 117°15'1"E, December 1912, *Amdjah 1050* (BO (BO1620782, BO1620783, BO1620784)). Java, Bogor, Res. Batavia, Goenoeng Djamboe (W of Leuwiliang), Forest, 6°34'36"S, 106°36'34"E, 26 June 1921, flowering, *Bakhuizen van den Brink 5253*, (BO (BO1620789), K (K004492997, K004492998), L (L0715781), P (P02343271)); Res. Preanger, Tjijdambrong bij Tjikidang, 6°52'44"S, 107°38'35"E, 24 March 1907, flowering, *Bakhuizen van den Brink, 14* (BO (BO1920173)); Bogor, Tjambangkon, Leuwiliang, 7°7'1"S, 107°30'7"E, 1,640 ft, 2 February 1929, sterile, *Bakhuizen van den Brink 7049* (BO (BO1620776); Bogor, 6°35'39"S, 106°47'21"E, 19 February 1929, flowering, *Merr Stiger s.n.* (BO (BO1620779)); Bogor, 6°35'39"S, 106°47'21"E, January 1929, flowering, *Merr Stiger s.n.* (BO (BO1620778)); Tapos bij Tjisalala (Paroengkoeda), 6°51'9"S, 106°45'34"E, 1,968 ft, 21 December 1920, fruiting, *Bakhuizen van der Brink, R. C. 658* (BO (BO1920170)); G. Kendeng bij Nirmala, 7°10'41"S, 109°39'43"E, 3,937 ft, 23 December 1913, flowering, *Backer, C. A. 11002* (BO (BO1620781)); Depok, 6°24'S, 106°49'7"E, 3

September 1911, flowering, *Caspius? s.n.* (BO (BO1616164)). MALAYSIA. Sabah, Mount Kinabalu, B. N. B., Dallas, Mt. Spur, 6°1'46"N, 116°27'59"E, 3,000 ft, 21 December 1931, flowering, *Clemens, J., Clemens, M. S., 30317* (BO (BO1620774), K (K0044930 03), L (L0672044), K (K000574968), A (2326868, 2326865)); Mount Kinabalu, Tenompok, secondary forest, 5°4'28"N, 116°33'29"E, 4,000 ft, 20 February 1932, fruiting, *Clemens, J., Clemens, M. S., 26042bis* (BO (BO1620771)); Mount Kinabalu, Kiau, 5°58'0.12"N, 116°31'29"E, 1 January 1915, flowering, *Clemens, M. S., 9975* (BO (BO1620772), K (K004493005), A (2326868, 2326868)); Mount Kinabalu, B. N. B., Dallas, 914.4 m elevation, Woods, 5°51'47"N, 116°31'29"E, 5,000 ft, 9 August 1931, flowering, *Clemens, J., Clemens, M. S., 26042* (BO (BO1620773), K (K004493004, K004493007), L (L0672043, L0672048, L0672040), A (2326869)); Tawao, Elphinstone Province, British North Borneo, 4°14'40"N, 117°53'28"E, October 1922–March 1923, *Elmer, A. D. E. 20829* (K (K000574968)); Sabah, *Lowe s.n.* (K (K004493006)); Beluran, Bukit Tangkunan, Telupid, 5°38'N, 117°12'E, 30 January 1982, fruiting, *Rahim, Abd. et al. 93296* (K (K004493008), L (L0672053)); Lahad Datu, Takun Kennedy, Bay section 31. Sandakan, 4°58'46"N, 118°13'42"E, 8 September 1961, fruiting, *Muin Chai 26101* (K (K004493009)); Tawau Hills Park near headquarters camp, 4°24'N, 117°53'E, 984–1,312 ft, 15–16 July 1984, flowering, *Beaman, J., Beaman, R., Beaman, T. & Decker, P. 10179* (K (K004493010)); Beluran, Bidu-Bidu Hill, 5°48'24"N, 117° 14'58"E, 31 July 1990, fruiting, *Maikin, Francis & Donggop 130676* (K (K004493011), L (L0761953)); Kota Belud, Ridge S of Melangkap Tamis on NW side of Mt. Kinabalu, 6°8'N, 116°29'E, 1,804–2,952 ft, 28 January 1984, flowering, *Beaman, J., Beaman, R., Decker, P & Medley, K. 8394* (K (K004493013)); Hap Seng Km. 12, 4°28'4"N, 118°3'23"E, 19 May 1982, flowering, *Krispinus, F. 94804* (K (K004493014), L (L0672054)). Sarawak, Bt. Lawi, Bario, 4th Division, 3°44'5"N, 115°28'45"E, 4,593 ft, 22 August 1985, fruiting, *Awa, Dyg., Bernard Lee 50950* (K (K004493016), L (L0672062)).

4. *PTERISANTHES ERIPODA* (Miq) Planch. – Monogr. Phan. 5(2): 418 (1887). *Vitis eriopoda* Miq., Ann. Mus. Bot. Lugduno-Batavi 1: 95 (1863). — Type: INDONESIA, Sumatra, *Korthals s.n.* (lectotype L! (L0715762 image (Fig. 5)), designated by Trias-Blasi *et al.* (2014); isolectotype L! (L0715763 image) and K! (K001089984)).

Pterisanthes ovata Korth. nom. nud.

Cissus araneosa Miq., Fl. Ned. Ind., Eerste Bijv.: 517 (1861), nom. illeg.

Vitis araneosa Miq., Ann. Mus. Bot. Lugduno-



Fig. 5. Lectotype of *Pterisanthes eriopoda* (Miq.) Planch.

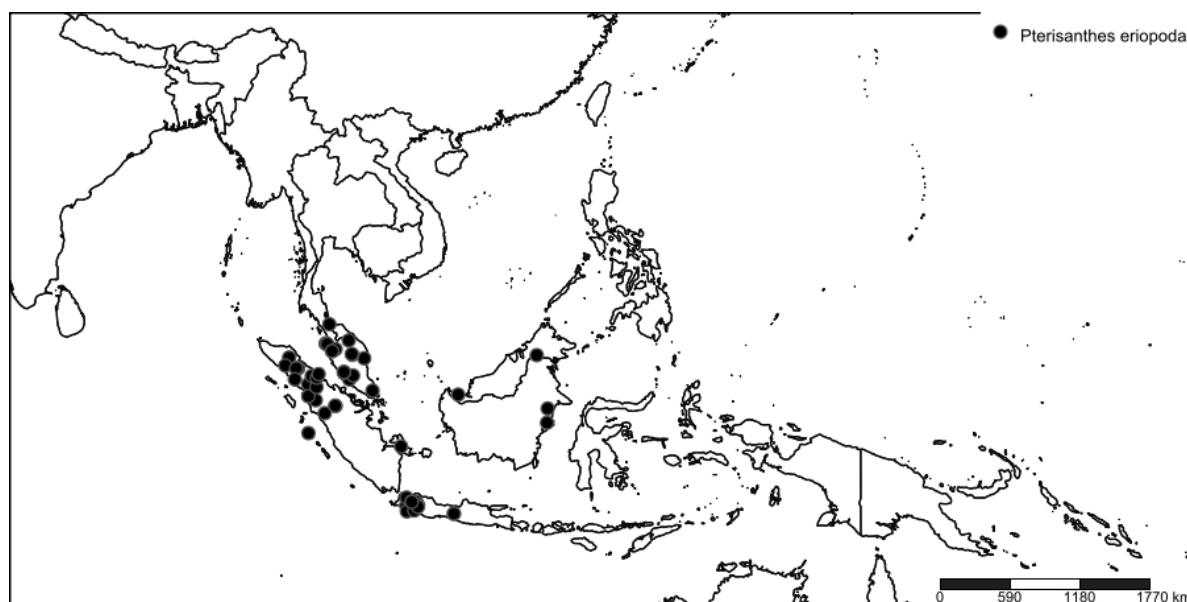


Fig. 6. Distribution map of *Pterisanthes eriopoda* (Miq.) Planch.

Batavi 1: 94 (1863), nom. illeg.

P. coriacea var. *araneosa* King (1896: 408). — Type: MALAYSIA, Peninsular Malaysia, Perak (central), Gopeng Kinta, July 1883, *King's Collector 4621* (lectotype K! (K000801205), designated by Trias-Blasi *et al.* (2014); isoelectotype K! (K004492971), designated here)).

P. beccariana Planchon (1887: 418). — Type: MALAYSIA, Sarawak, *Beccari 796* (lectotype FI! (No: 2743), designated by Trias-Blasi *et al.* (2014); isoelectotypes FI! (No: 2743A), FI! (No: 2743B)).

P. miquelii Planch., Monogr. Phan. 5(2): 418. 1887. **synon. nov.** *Vitis araneosa* Miq. Ann. Mus. Bot. Lugduno-Batavi 1: 94 (1863), nom. illeg. — Type: INDONESIA, Sumatra, *Korthals s.n.* (lectotype L (L.2338567 image!) designated here).

P. cissoides var. *rubiginosa* Korth. Herb.

Climber. *Stem* cylindrical, glabrous to floccose. *Leaves* simple; petiole 1–5 cm long, long with wavy ferruginous hairs; blade narrowly ovate to broadly ovate to elliptical, 6.5–19 cm × 4–10 cm, base cordate to subcordate, apex acute to acuminate, margin entire with 1–2 mm long black teeth at the end of the veins (to 5 per side); indumentum of the upper surface of the leaf often glabrous, sometimes with a few scattered hairs more dense on the veins, indumentum of the lower surface of the leaf arachnoid (occasionally sparsely pubescent) with long ferruginous wavy hairs, conspicuously dense on the protruding veins and persistent on the leaf margin; 5–6 pairs of secondary veins. *Inflorescence* with lamellate flowers; peduncle 1.5–4.5 cm long; primary branch of the inflorescence 0.1–9 (17) cm long; inflorescence panicle of lamellae, 4–20 × 1–3.5 cm, glabrous.

Distribution. Borneo, Peninsular Thailand, Ja-

va, Sumatra and Peninsular Malaysia (Fig. 6).

Conservation status. Using GeoCAT (Bachman *et al.*, 2011), we calculated an EOO of 2,439,103.686 km² and an AOO of 204,000 km² for this species. As this species is very widespread in its distribution, it is likely that the AOO has been overestimated. This species is likely to be categorised as Least Concern (IUCN, 2023).

Notes. When Miquel (1863) first described *Vitis eriopoda* Miq., he distinguished this species from *V. araneosa* Miq. based on the difference in the leaf shapes, despite their very similar inflorescence. However, the name *V. araneosa* had already been used by Leconte (1854), so Miquel's name was therefore illegitimate. Subsequently, Planchon (1887) described *P. miquelii* Planch., based on *Vitis araneosa* Miq. He also recognized the similarity of *P. eriopoda* (Miq.) Planch. with *V. araneosa* (now *P. miquelii*) based on Miquel's description, despite lacking direct examination of the specimens. Similarly, Latiff (1982) recognized the similarity in the gross morphology of *P. eriopoda* and *P. miquelii*. However, he distinguished them based on leaf shape (narrowly ovate vs. broadly ovate) and colour indumentum below (cinnamomeous vs. reddish). Here, we synonymize *P. eriopoda* (Miq.) Planch. and *P. miquelii* because from the specimens examined, we believe that the characters used in the past to differentiate the two species overlap.

Several possible *P. miquelii* syntypes collected by Korthals were found (K000574959, BO1337720, P00697395, L2338557, L2338558, L2338560, L2338561, L2338562, L2338563, L2338564, L2338565, L2338566, L2338567, L2338568, L2338569, L2338570). It has been very difficult to

pick a lectotype among these syntypes as they all are of the same condition and are similar to each other. However, we selected specimen L2338567 as it shows the inflorescences better and also is located in Leiden where Miquel would have likely seen the specimen. As Korthals did not specify a collector's number, we cannot be sure if the other syntypes are from the same collection or not.

Specimens Examined. INDONESIA. Sumatra. Palembang, Moeara Doewa, 2°55'S, 104°44'45"E, *Teijsmann 3851* (BO (BO1621393); Tapanuli Selatan, Kotanopan, Sibanggorjulu, G. Sarikmarapi, 0°41'38"N, 99°33'E, 4,921 ft, 30 March 1983, *Sarkat Danimihardja SD2264* (BO (BO1919061, BO1919062)); Mentawai Island, 2°12'S, 99°39'E, 9 September 1924, *IBOET 29* (BO (BO1621397, BO1621398)); Bangka, 2°23'1"S, 105°59'5"E, *Teijsmann, s.n.* (BO (BO1621379, BO1621380)); W. Sumatra, Sijunjung, Muro Kulampi, ridge top, lowland forest, 0°42'38"S, 101°58'31"E, 820 ft, 25 February 1974, flowering, *Dransfield, J. 3951* (BO (BO1906622), L (L0715767)); N. Sumatra, Sijunjung, Teiteibati Nat. Reserve, Siberut Island, rare shade place, 1°21'36"S, 98°53'31"E, 328 ft, July 1992, fruiting, *Afriastini, J. J. 1912* (BO (BO0010891)); Jambi, Parawisata Mt. Bukit Lawang Bohorok, 250 m elevation, primary forest, 3°32'23"N, 98°6'56"E, 820 ft, 5 December 1980, fruiting, *Wiriadinata, H. & Maskuri 519* (BO (BO192003)); Jambi, 87 m elevation, forest, 2°58'4"N, 99°11'11"E, 285 ft, 15 March 2013, *Rembold, K. & Hardianto Mangopo 713* (BO (BO1981135)); N. Sumatra, Bt. Lawang, Bohorote, Langkai, climber on riverside tree, 3°32'55"N, 98°7'E, 656 ft, 25 February 1973, flowering, *Dransfield, J. 3330* (BO (BO1891101), L (L0715766)); N. Sumatra, Aceh, Gunung Leuser Natural Park, Sekundur Forest Reserve, upper Besitang River area, Langkat: base camp at aras Napal, primary and old logged-over lowland rain forest, 4°21'57"N, 97°27'50"E, 164–328 ft, 10 August 1991, fruiting, *de Wilde W. J. J. O. & de Wilde-Duyffes, B. E. E. 21340* (BO (BO1891093), L (L0715770)); Atjeh, S and SW parts of Gunung Leuser Natural Park, Sekundur Forest Reserve, upper Besitang River area, Langkat: base camp at Aras Napal, 50 m elevation, logged over dry land forest on rolling hills with yellow, red loamy soils, 2°43'N, 97°54'E, 164 ft, 6 August 1985, flowering, *de Wilde, W. J. J. O. & de Wilde-Duyffes, B. E. E. 20687* (BO (BO0119938), L (L0715772)). Java. Jakarta, op den Salak, helling, Tjiapoesezide, 6°40'57"S, 106°44'8"E, 3,937 ft, 1918, sterile, *Bakhuizen van den Brink, R. C. 704* (BO (BO1620777), (L0715761, U1770491)); Java, ord. Tjiharoen by Tjibeber (Tjihaoer by Tjibeber), 6°23'58"S, 106°18'43"E, 3,937 ft, 24 November 1916, *Leeuwen, V. 2377* (BO (BO1621391, BO1621392, BO1621385)); Preanger, Tjadas Malang, Tjidadap, Tjibeber, 7°1'55"S, 107°8'12"E, 3,280 ft,

6 January 1917, *Bakhuizen van der Brink, R. C. 1521* (BO (BO1621390)); Preanger, Lengkong, lunchen Tjibadak en Jandbaai, 6°56'29"S, 107°37'37"E, 1,804 ft, 2 August 1918, *Bakhuizen van der Brink, R. C. 1696* (BO (BO1621389)); Pasir Angin, Tjadas-Malang, Tjidadap, Tjibeber, 6°56'9"S, 107°8'31"E, 3,280 ft, 22 June 1917, *Winckel, W. F. 576* (BO (BO1919820)); G. Beser nearby Tjidadap h. va Tjibeber, 6°23'58"S, 106°18'43"E, 3937–4429 ft, 15 June 1917, *Backer, C. A. 22636* (BO (BO1919798, BO1919797)); Or. Sombing nearby Tjidadap L. va. Tjibeber, 7°36'31"S, 109°30'47"E, 1,100 ft, 11 September 1917, *Backer, C. A. 22997* (BO (BO1621383), L (L0715755, U1770489)); Tjadas Malang nearby Tjidadap L. va. Tjibeber, 6°23'58"S, 106°18'43"E, 2,952–3,280 ft, 12 June 1917, *Backer, C. A. 22530* (BO (BO1620804)); Preanger, Tapos, by Tjimoujed/Tjisalak - Padaenghoeda, 1,968 ft, 11 January 1920, *Bakhuizen van der Brink, R. C. 3098* (BO (BO1621387); Preanger, Tjadas-Malang Tjidadap, Tjibeber, 6°23'58"S, 106°18'43"E, 3,280 ft, 29 July 1917, *Bakhuizen van der Brink, R. C. 2529* (BO (BO1621388), L (L0715759)); Preanger, Tjadas-Malang Tjidadap, Tjibeber, 6°23'58"S, 106°18'43"E, 3,280 ft, 18 April 1917, *Bakhuizen van der Brink, R. C. 2970* (BO (BO1620802)); Tjidadap (L. v. Tjibeber), 6°23'58"S, 106°18'43"E, 3,280 ft, 25 February 1918, *Winckel W. F. 577* (BO (BO1620803)); Buitenzorg, Djasinga, 6°35'49"S, 106°48'21"E, 328 ft, 7 August 1927, *Beumee, J. G. B. 1512* (BO (BO1621386)); Paui Tamiang, Tjadas Malang, 8°12'14"S, 112°47'45"E, 3,280 ft, 31 January 1917, *Winckel, W. F. 774* (BO (BO1621384)); Preanger, Tjadas Malang (Near Tjidadap, south of Tjibeber), 6°56'10"S, 107°8'31"E, 3,280 ft, 1923, *Winckel, W. F. 1235* (BO (BO1621376), L (L0715750)). MALAYSIA. Malay Peninsula, Terengganu, Kemamam, Sungai Nipah Forest Reserve, Compartment 56, Sungai Ayam, 10 m elevation, secondary forest, 4°17'8"N, 103°10'20"E, 32.8 ft, 25 May 2006, flowering, *Rafidah, A. R. FRI51658* (BO (BO1874494)); Pulau Pinang, Penang, West Hill, 5°25'36"N, 100°15'7"E, *Curtis 1402* (K); Pulau Pinang, Penang, Govt. Hill, 5°25'36"N, 100°15'7"E, *Curtis 168* (K (K004492967), (SING)); Johor, foot of Gunong Muntahak, 1°51'9"N, 103°47'8"E, 600 ft, 1 March 1928, *Holttum, R. E. 19901* (BO); Selangor, Hulu Selangor, Bukit Tunggul F.R., Dirt road (with drop gate) trailhead. Secondary. Lowland Dipt. forest. Edge of Belukar, 33°3'19"N, 101°24'50"E, 85 ft, 24 April 2016, flowering, *Chew, M. Y. 73094* (K (K004492968)); February 1867–68, flowering, *Maingay, A. C. 431/2707* (K (K004492969, K004492970)); Perak, Larut, 4°50'60"N, 100°43'59"E, July 1883, fruiting, *Dr. King's Collector 4621* (K (K004492971, K000801205), L (L0715775)); Negeri Sembilan, Gunung Angsi, path to wood, 2°41'54"N, 102°2'52"E, 2,000 ft, 24 March 1923, flowering, *s.n. 1702* (K (K004492975)); Pahang, Wray's camp, 4°34'6"N, 102°16'



Fig. 7. Holotype of *Pterisanthes heterantha* (Griff.) M.A. Lawson.

49°E, fruiting, *Ridley, H. N. s.n.* (K (K004492976)); Pahan, Gunung Tahan, 4°37'57"N, 102°14'2"E, 3,500 ft, 9 June 1912, flowering, *Ridley, H. N. 8027* (K (K004492977)). Sarawak. Kuching, 1°33'25"N, 110°20'27"E, 11 February 1894, flowering, *Haviland, G. D. & Hose, C. 1503* (BO (BO1621378), K (K004493068), L (L0672036), P (P02343264), A (2326879)). THAILAND. Songkhla Province, Kopah, Ban Krap, Bk. Tinggi, 6°53'24"N, 100°31'48"E, 11 December 1917, flowering. *Haniff & Nur 2728* (K (K004492995)).

5. **PTERISANTHES HETERANTHA** (Griff.) M. A. Lawson, Fl. Brit. India 1(3): 664 (1875). *Embamma heteranthum* Griff. in Not. Pl. Asiat. 4: 694 (1854). — Type: MALAYSIA, Malacca, Verupha Alor Golah. *Griffith, W. 1298* (holotype: K (K000574972! (Fig. 7)), isotype (K000574973!)) (Fig. 7).

Pterisanthes heterotricha Merr., Pap. Michigan Acad. Sci. 1933, xix. 167 (1934). — Type: INDONESIA, Sumatra, East Coast, near Aek Sordang, Loendoet Concession, Koealoe, 3 May 1927, *Bartlett 7597* (holotype MICH (MICH1138556! image); isotypes NY (00415146! image), MIN (1002867! image), US (US 3169341).

Climber. *Stem* pilose and arachnoid. *Leaves* compound, 3-foliolate; petiole 1.5–4 cm long, rust to red coloured arachnoid hairs and multicellular hairs longer than the arachnoid hairs; central blade ovate to oblong, 8–12 cm × 2–6 cm, base acute, slightly oblique, apex acuminate, margin entire with numerous minute teeth and multicellular hairs; Lateral blade obliquely lanceolate or asymmetrical, 3–9 cm × 2–6 cm, base subcordate, apex acute to acuminate, margin entire with numerous minute teeth and multicellular hairs; central petiole 1–5 cm long, rust to red coloured arachnoid hairs and multicellular hairs longer than the arachnoid hairs; lateral petiole 1–3 cm long, rust to red coloured arachnoid hairs and multicellular hairs longer than the arachnoid hairs; indumentum of the upper surface of the leaf sparsely pilose and smooth, indumentum of the lower surface of the leaf rust to red coloured arachnoid hairs concentrating homogeneously in various parts of the lamina forming loose “spots”; 6–7 pairs of secondary veins. *Inflorescence* with pedicellate and lamellate flowers; peduncle length 1–2 cm long; primary branch of the inflorescence length 4–6 cm long; inflorescence panicle of lamellae, 6–8 × 3 cm, rust to red coloured arachnoid hairs.

Distribution. Malay Peninsula, Borneo (West Kalimantan) and Sumatra (Fig. 8).

Conservation status. The extent of occurrence (EOO) is 403,886.225 km² whilst the area of occupancy (AOO) is 40.000 km². According to the

AOO, the species might be Endangered but we think this might have been overestimated; therefore, this is categorised as Least Concern (IUCN, 2023).

Notes. *Pterisanthes heterantha* and *P. stonei* have a difference in lamella shape (rectangular versus shoe shape), indumentum of the upper surface of the leaf (smooth vs. rough) and number of pairs of secondary veins (4–7 vs. 8–9), but other characters are relatively similar. Variability of *Pterisanthes* spp. has long been the subject of controversy because of their morphological variations and widespread distribution in Sumatra lowland rain forest compared with Borneo or Java’s specimen collections based on BO collections.

Specimens examined. INDONESIA. Sumatra, Jambi, Kebun Raya Bukit Sari, Kec. Tebo ilir. Kab. Tebo, 1°34'00"S, 102°46'59"E, 75 ft, 21 December 2005, flowering, *Hidayat, A. & Widjaya, E. A. AH1075* (BO (BO1944325, BO1842663, BO1842662)); Jambi, Lubuk Kepayang, Kec. Air Hitam, Kabupaten Sarolangun, 2°03'46"S, 102°45'57"E, 292 ft, 28 September 2013, flowering, *Rembold, K & Manpopo Katja Rembold 1605* (BO (BO1946547)); Archipel. Ind Sumatra. Djambi my m/s Manau, 590 ft, 17 August 1925, flowering, *Posthumus?, O. 701* (BO (BO1621375), L (L0715748)). Kalimantan, Kalimantan Barat (West Kalimantan), Sintang. Bukit Baka National Park. Slope NE of camp; environs leading up to ridge, 0°37'59"N, 112°16'58"E, 1,017 ft, 17 October 1993, fruiting, *Church, A. C. with Mahyar, U. W., Ruskandi, A. and Nurdin 167* (A (02326871), L (L0763293)). MALAYSIA. Malay Peninsula. Negeri Sembilan, Senawang Forest Reserve, 2°42'00"N, 101°59'00"E, 4 December 1922, flowering, *Holtum, R. E. 9954* (K (K004492961)); 26 July 1865–66, flowering, *Maingay, A. C. 429/1384* (K (K004492961)); Selangor, Templer Park, ca. 20 miles N of Kuala Lumpur along the road to Rawang, in lowland tropical forest on the way to the waterfall, 3°18'15"N, 101°35'42"E, 24 October 2010, *Wen, J. 11804* (US (1175924, 1175925)); Negeri Sembilan, Jebebu, Pasoh F. R., 50 ha plot, 3°00'00"N, 102°19'58"E, 28 October 2010 *Wen, J. 11820* (US (1175823)).

6. **PTERISANTHES POLITA** (Miq.) M.A. Lawson – (1875: 663). *P. coriacea* Korth. ex King (1896: 693). nom. superfl. — Type: INDONESIA, Sumatra, in fruticetis prope Pao, *Korthals s.n.* (lectotype L (L0013706! (Fig. 9)) designated by Trias-Blasi *et al.* (2014); isolectotypes L (L0013704!, L0013705!, L0013707!)).

Pterisanthes sinuosa Merrill (1907: 423). — Type: PHILIPPINES, Mindanao, Lake Lanao, Camp Keithley, November 1906, *Clemens 647* (lectotype A! (image seen!)), designated by Trias-Blasi *et al.* (2014)).

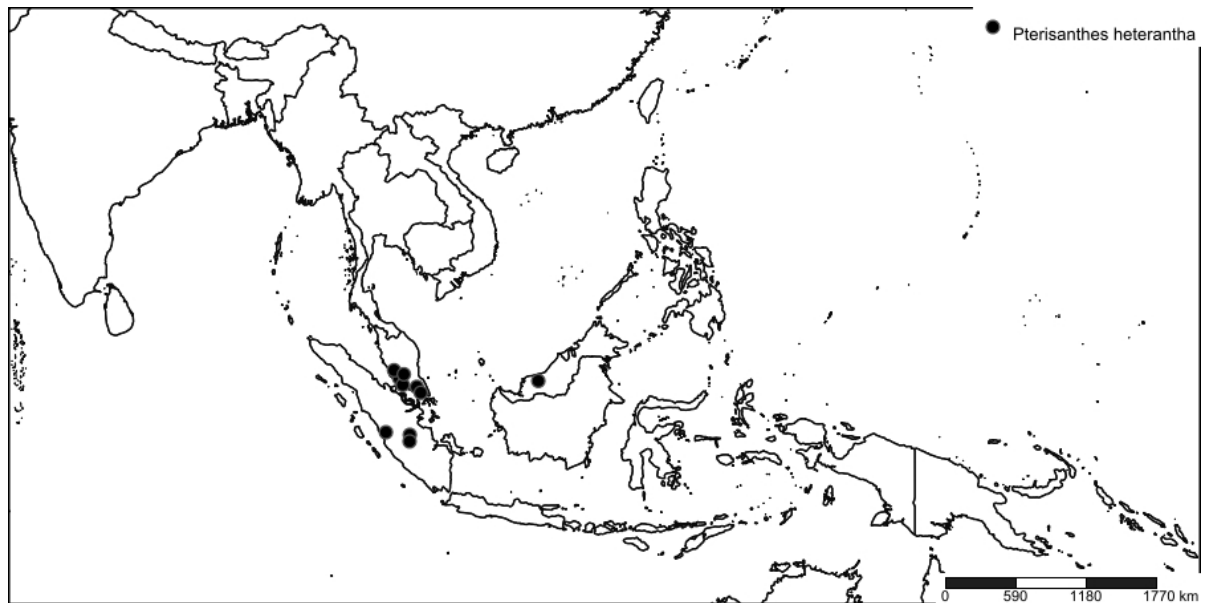


Fig. 8. Distribution map of *Pterisanthes heterantha* (Griff.) M.A. Lawson.

Pterisanthes parvifolia Merrill (1917: 76). — Type: MALAYSIA, Sarawak, Baram District, Marudi, 26 October 1894, *Hose* 231 (lectotype K! (K000801204), designated by Trias-Blasi *et al.* (2014); isoelectotypes, A! (00051640), BM, L! (L0672034).

Pterisanthes gladiata Van Steenis (Van Steenis & Bakhuizen Van Den Brink 1967: 388) — Type: MALAYSIA, Sabah, Mount Kinabalu, 1,200–1,500 m, 15 February 1933, *J. & M. Clemens* 31582 (holotype L (L0013703!)).

Climber. *Stem* cylindrical, glabrous. *Leaves* simple; petiole 1.5–6.2 cm, glabrous; Leaf blade oblong to broadly ovate, 7.7–14.9 cm × 4.0–12.6 cm, base semi cordate to cordate, apex acuminate, margin entire, with hook-like teeth; indumentum of the upper surface of the leaf glabrous or rarely sparsely hairy, indumentum of the lower surface of the leaf glabrous or rarely sparsely hairy; 4–5 pairs of secondary veins. Inflorescence with pedicellate and lamellate flowers; peduncle 2.2–5.9 cm long; primary branch of the inflorescence 6.4–26.4 cm long; *Inflorescence* panicle of lamellae, 5.4–36.1 cm, sparsely pale arachnoid hairs, pedicel 12–25 mm long.

Distribution. Myanmar, Peninsular Thailand, Sulawesi, Sumatra, Peninsular Malaysia, Singapore, and Borneo (Fig. 10). It is possibly distributed in the Philippines (Latiff, 1982), but no specimens have been found from the country.

Vernacular names. Simple-leaved ribbon vine, Akar janggut baung.

Conservation status. The EOO of this species is 5,104,101.259 km² and the AOO is 520,000 km². As this species is abundant and widespread, it is

suggested to be categorised as Least Concern (IUCN, 2023).

Specimens Examined. INDONESIA. Sumatra, Aceh, Northern Sumatra, Gunung Leuser Natural Park, Sekundur Forest Reserve, upper Besitang River area, Langkat; base camp Aras Napal, 3°33'N, 98°E, 164–328 ft, 9 August 1991, flowering, *de Wilde, W. J. J. O & de Wilde-Duyffjes, B. E. E.* 21314 (L (L0715729)); Old jungle near the Aek Kanopan, Loendoet Concession, Koealoe, 2°34'3"N, 99°37'3"E, 1–17 April 1927, flowering, *Bartlett, H. H.* 7321 (K (K004493041), L (L0715722)); hauptstaechlich Oatklaste, 1914–1917, flowering, *Surbeck, H.* 337 (L (L0715723)); *Meranky* 2759 (L (L0715721)), Indonesia, Sumatra, flowering; Indonesia, Sumatra, July 1933, *Wilkamp? s.n.* (BO (BO1620805)), flowering. Kalimantan, Kalimantan Barat, Ketapang, Gunung Palung National Park, Cabang Panti Research Site IF 14, freshwater swamp forest, 1°13'S, 110°6'E, 65 ft, 22 March 1997, *Laman, T. G., Rachman, I. A., Mirmanto, E., TL968* (BO (BO1803332), A (2326884)); Long Bagun, disturbed primary forest, 0°31'30"N, 115°14'3"E, 328 ft, 24 June 1975, flowering, *Wiriadinata, H.*, 563 (BO (BO1919785), K (K004493085), L (L0672011)); Central Kalimantan, Bukit Raya and Upper Katingan (Mendawai) River area. Upper Katingan river, ca. 50–100 km WNW of Tumbang Samba, primary rainforest, 1°15'N, 112°40'E, 492 ft, 23 December 1982, flowering, *Mogea, J. P., de Wilde, W. J. J. O., MOGEA* 4404 (BO (BO1919784), L (L0672009)); East Kalimantan, Iltantawir, Balikpapan, disturbed primary forest, 1°14'33.7"S, 116°51'9"E, 15 September 1951, flowering, *Saveur, E. G., 4* (BO (BO1919783), K (K004493040), L (L0671998)); Kalimantan Tengah, Project Barito Ulu Base camp and environs, track waterfall below J. Banbangalong river, 0 m elevation, river-

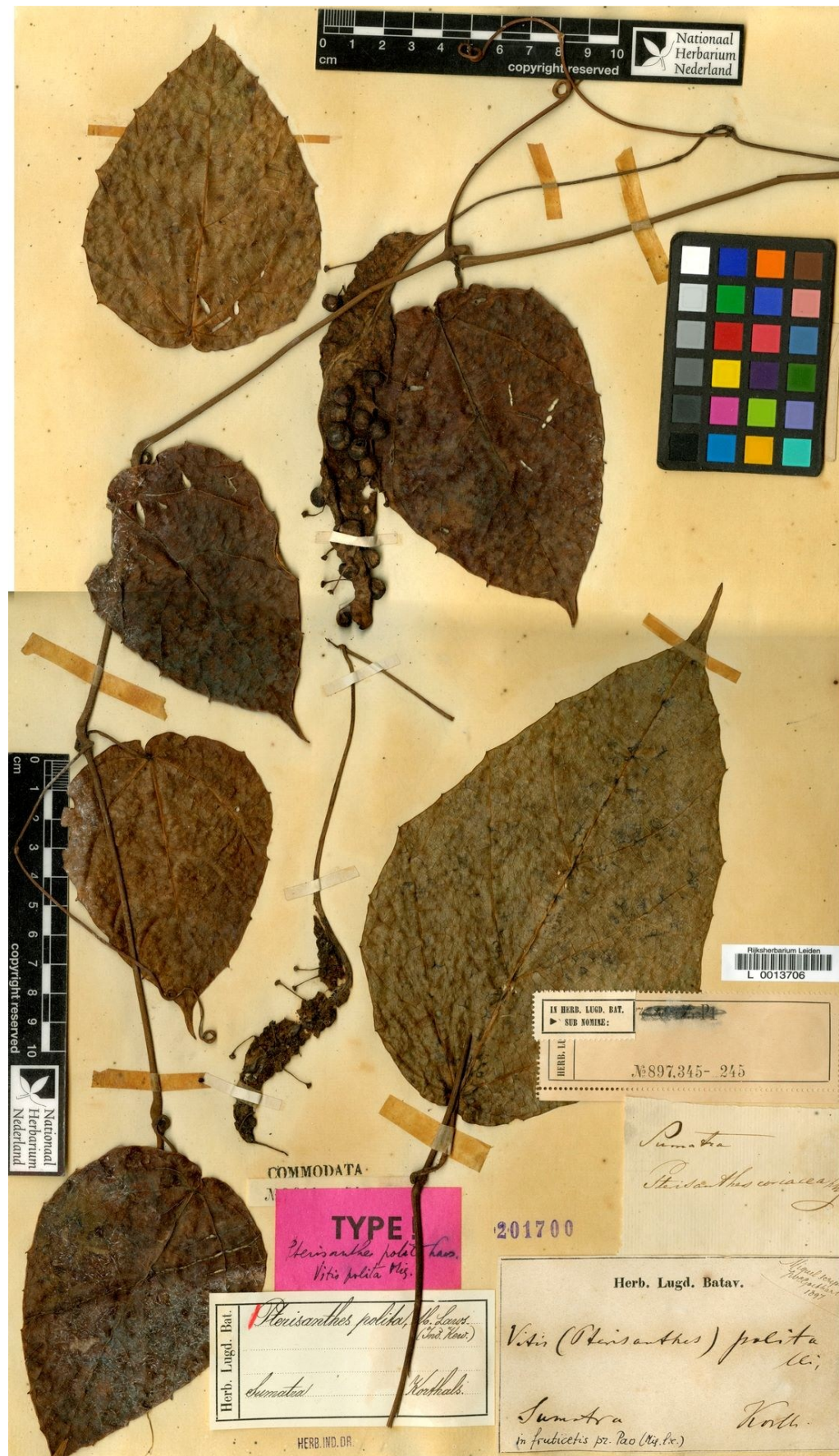


Fig. 9. Lectotype of *Pterisanthes polita* (Miq.) M.A. Lawson.

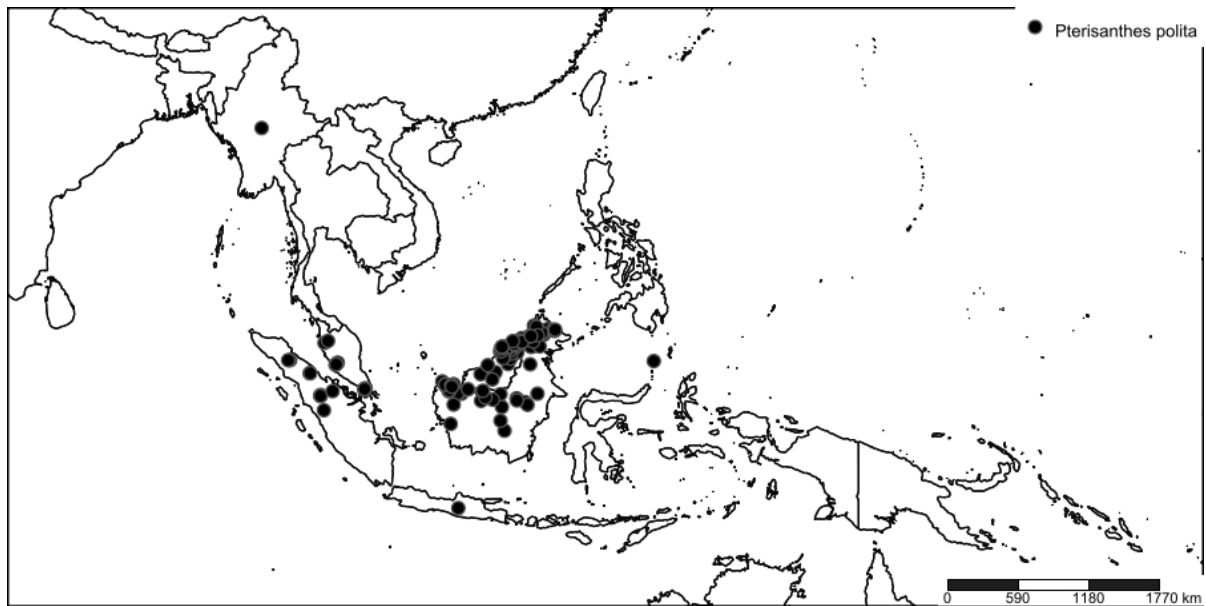


Fig. 10. Distribution map of *Pterisanthes polita* (Miq.) M.A. Lawson.

rine forest, 3°14'32.5"N, 114°13'53.6"E, 11 June 1990, flowering, *Risdale, C. E.* PBU490 (BO (BO 0009777), K (K004493046, K004493047), L (L0202163, L0202165)); West Kutai Borneo, Kelian river, 0°4'S, 115°25'E, 656.1 ft, 10 October 2017, flowering, *Nanda Utami, NU2203* (BO (BO1951841), K (K004493046, K004493047), L (L0202163, L0202165)); Khapoues, (1°45'S, 114°17'60"E), flowering, *Teysmann, 8695* (BO (BO1620815)); Soengei bloeoe, 1°6'N, 112°39'E, 1896–97, flowering, *Jaheri, 680* (BO (BO1620818, BO1620820)); Soengai bloeoe, 1°6'N, 112°39'E, 1896–97, flowering, *Jaheri, 294* (BO (BO1620819)); G. Bentuang area; 5–10 km N. of Masa village; 150 km N. E. of Pontianak, 0°52'S, 100°26'E, 8 June 1989, flowering, *Burley, J. S., Turkin et al. 2351* (K (K004493045), L (L0672029)); East Kalimantan, PT. Limbang Ganeca, Ulu Mahakam, Belayan river area, 0°12'N, 116°2'E, 164 ft, 15 June 1999, flowering, *Sidiyasa, K. & Ambriansyah 1656* (K (K004493048), L (L0374641)). BRUNEI. Tutong, Rambai, Ladan Hill Forest Reserve, Bukit Bedawan, Southern of LP-263. Dilah hantu (Ib.), 4°29'33"N, 114°48'52"E, 1,591 ft, 26 March 1997, fruiting, *Kalat, A., Dr. Idris, Niga, Joffre, Suhaili, Kapat, Jangarun, Han & Clayton 18076* (K (K004493021)); Temburong, Sungei Temburong above Kuala Belalong. Dilah Hantu (Ib), 4°34'42.17"N, 115°8'40.94"E, 23 June 1989, flowering, *Wong, K. M., 1230* (K (K004493022), L (L0763252)); Temburong, Subd. Amo. Upper Belalong river west of Bukit Belalong, 4°30'N, 115°8'E, 426 ft, 24 March 1991, flowering, *Johns, R. J., Sands, M., Awong, Shanang, Ariffin, Saleh 7021* (K (K004493023), L (L2338486)); Belait, Melilas. Ulu Belait, 4°10'N, 114°44'E, 82 ft, 22 July 1993, flowering, *Atkins, S., Cowley, E. J., Davies, S., Sands, M. J. S., Awong, Han 526*, (K

(K004493024, K004493025), L (L0762782)); Belait, Jalan Merangking Buau, 4°27'34"N, 114°37'17.45"E, 10 August 1991, flowering, *Niga Nangkat NN250* (K (K004493027)); Tutong, Lamunin, Ladan Hills, 4°38'N, 114°46'E, 295 ft, 23 March 1993, fruiting, *Coode, M. J. E., Ferguson, I. K. et al.: Salleh Bat, Shanang Pikir 7330* (K (K004493028), L (L0761419)); Temburong, Selapon, village margin, 4°40'N, 115°12'E, 50 ft, 18 November 1990, flowering, *Dransfield, J., Wong Khoon Meng, Dransfield, S., Kirkup, D., Salleh et al. 6911* (K (K004493029, K004493030), L (L0672017)); Belait, Bukit Teraja. Disturbed Kerangas/Forest Margins. Belait series sandstones, 4°18'N, 114°26'E, 951 ft, 5 December 1991, flowering, *Coode, M. J. E., Kirkup, D. W., Soe Paing, Niga, Ariffin, Jangarun, Ibrahim, Salleh, Ramli, Han 6934* (K (K004493031), L (L0762971)); Belait, Labi: Bukit Teraja, 4°10'48"N, 114°15'36"E, 1,148 ft, 18 October 1991, flowering, *Simpson, D. A., Marsh, M. 2124* (K (K004493032)); Belait, Melilas, Ulu Sungai Belait, 4°10'N, 114°42'E, 82 ft, 29 August 1995, fruiting, *Kalat, A., Niga, Salleh, Ibrahim, Clayton, Noorazman, Talip & Munau BRUN17075* (K (K004493033)); Tutong, Ladan Hills Forest Reserve Nyamokning West, east of LP-230, by Sungai Apan, 4°25.45'N, 114°48.36'E, 295 m, 7 June 1996, fruiting, *Joffre Hj Ali Ahmad, Said, I. M., Niga, N., Ariffin, K., Rosli, M., Ibrahim, A., et al. 17536* (K (K004493034)); Belait, Labi. Jalan Melayan, 4°30'N, 114°28'E, 262 ft, 3 March 1992, flowering, *Dransfield, J., Kamariah Abu Salim, Joffre, Shanang Salleh, Suhaili, Maung Soe Paing JD7256* (K (K004493036), L (L2338512)); Labi Hills Forest Reserve, Compartment 46, Bukit Telingan, 4°12'N, 114°35'E, 164 ft, 17 April 1990, fruiting, *Coode, M. J. E. Wong Khoon Meng et al.*

6812 (K (K004493038)); Belait, New road to Merankin from 13 km Labi Road, ca. 4 km from junction, 4°32'N, 114°35'E, 32 ft, 6 November 1990, flowering, *Kirkup, D., Dransfield, J., Wong Khoon Meng, Dransfield, S.* 200 (K (K004493086), L (L0672016)); Belait, Bukit Telingan, Labi. Belait series sandstones, 4°21'34.18"N, 114.2°8'21.95"E, 394 ft, 8 November 1990, flowering, *Kirkup, D., Dransfield, J., Dransfield, S., Niga et al.* 239 (K (K004493087)); Temburong, S. Belalong above Kuala Belalong Field Study Centre, 4°30'N, 115°10'E, 164 ft, 6 March 1991, flowering, *Argent, G. & Mitchel, D.* 91201 (K (K000605631), L (L0672026)). MALAYSIA. Malay Peninsula, Perak, Hill Garden Larut, 4°50'60"N, 100°43'60"E, August 1885, flowering, *Wray, L.* 654 (K (K004492964)); Selangor, Sungai Buluh, (3°12'36"N, 101°33'36"E), flowering, *Ridley, H. N. s.n.* (K (K004492965)); Perak, flowering, *Wray, L.* 150 (K (K004492966)). Sabah, Mount Kinabalu, in jungle near camp, 6°2'47"N, 116°33'43.7"E, 15 February 1933, flowering, *Clemens, J., Clemens, M. S.,* 31583 (BO (BO1620808)); Mount Kinabalu, 6°4'N, 116°33'E, 11 March 1933, flowering, *Clemens, J., Clemens, M. S.,* 32099 (BO (BO1620807)); Ranau, Hutan Simpan trus madi 1, 5°21'54"N, 116°18'3.6"E, 23 February 1990, fruiting, *Majwat, J.* 128756 (K (K000605631)); Nabawan, KM. 55 Jalan Nabawan/Sepulut. Ulu Sg. Nabawan, 4°37'7"N, 116°27'46.98"E, 24 February 1990, flowering, *Sumbing, J.* 128411 (K (K000605639), E (E00166264), L (L0761825)); Tenom, HS. Kalang, 5°8'85"N, 115°57'15"E, 10,827 ft, 18 September 1991, flowering, *Gambio et al* 133697 (K (K000605643)); Keningau, Logged area pisngon, 5°29'14"N, 116°9'24"E, 17 January 1990, flowering, *Sumbing, J.* 128268 (K (K000605582)); Pandewan, Sungai Pemaatarian, 17 February 1987, fruiting, *Mantor, A.* 119987 (K (K000605581)); Pensiangan, Ponontoman fr., 4°32'41"N, 116°18'42"E, 16 August 1994, fruiting, *Sumbing, J.* 136971 (K (K004493089), L (L0763711)); Sipitang, Hutan Simpan Kuala Megalong, 5°4'44"N, 115°32'59"E, 82 ft, 24 August 1991, flowering, *Amin Sigun, Ag.* 106036 (K (K004493090), L (L0762671)); Kota belud, Melangkap Kappa on NW side of Mt. Kinabalu, 6°9'N, 116°31'E, 1,968.5–2,296.6 ft, 15 February 1984, flowering, *Beaman J., Beaman, R., Decker, P. & Medley, K.* 8570 (K (K004493093, K004493098)); Beluran, West of Bt. Luminitong, 5°53'46"N, 117°33'26"E, 11 March 1982, flowering, *Aban, G.* 94482 (K (K004493094), L (L0672012)); Sandakan, Sg. Ruku-ruku, Telupid, 5°30'4"N, 117°17'32"E, 6 August 1981, flowering, *Aban, G.,* 94034 (K (K004493095)); H. S Tangkulap, 5°26'29"N, 117°10'15"E, 12 May 1989, flowering, *Majawat, G. et al.* 110036 (K (K004493096), L (L0762669)); Sandakan, Sepilok Forest Reserve, 5°50'21"N, 117°56'59"E, 22 April 1960, fruiting, *Dr. Meijer, W.* SAN 21239 (K (K004493099)); Ke-

ningau, Logging area, Lanas, 5°19'41"N, 116°29'51"E, 18 July 1987, fruiting, *Fidilis Krispinus* 119661 (K (K004493103), L (L0672023)); Telupid, Tawai Forest Reserve, 5°36'15"N, 117°5'48"E, 18 October 1985, flowering, *Francis et al.* 109624 (K (K004493104), L (L0672027)); Kinbatagan, Corridor Creek - Nr. Sg. Malesian Mallau Basin Kuamut Islands, 500 m, 4°35'11"N, 116°56'46"E, 1,640 ft, April 1988, flowering, *Lamb, A.* 125/88 (K (K004493105, K004493106)). SARAWAK. Ulu Mayeng, Kakus, basalt hillside, mixed dipterocarp forest, 2°39'6.6"N, 113°37'23.96"E, 29 July 1964, fruiting, *Sibat ak Luang, S.* 21829 (BO (BO1919786), K (K004493077), L (L0671992)); Bkt. Tebunan, Ulu Trusan, Lawas, 5th Division, 4°47'9.44"N, 115°16'18.47"E, 7 May 1986, flowering, *Lee, B. S.* 52406 (K (K004493049), L (L2338492)); Semunsan Wildlife Sanctuary, 1°57'15.98"N, 109°36'43.17"E, 5 May 1988, flowering, *Mohtar, Abg., Othman, Is.* S.52653 (K (K004493050), L (L0763773)); Bukit Lambir, Miri, 4th Division, 4°12'N, 113°59'E, 23 May 1966, flowering, *Banyek ak Ludong & Sibat ak Luang S.* 24479 (K (K004493051), L (L0671993)); Bako National Park. Path to Telok Paku, 1°43'N, 110°28'E, 10 November 1963, flowering, *Chai, P.* S.18015 (K (K004493053), L (L0672031)); 1865–68, flowering, *Beccari, O.* 1333 (K (K004493059)); Baram, Miri river, 4°33'11.04"N, 114°6'19.17"E, January 1894–95, flowering, *Hose, C.* 544 (K (K004493060), L (L0672001)); 4th division, Bkt. Kelaby, Ulu Dapoi, Tinjar, Marudi, 4°24'22.81"N, 114°15'46.17"E, 300 ft, 3 April 1965, fruiting, *Pa'ie, I. S.* 22945 (K (K004493062), L (L0671995)); 1st division, G. Undan, 17th miles Bau/Lundu Road, 1°28'47.33"N, 110°0'36.33"E, 164 ft, 30 April 1983, flowering, *Yii Puan Ching S.* 45954 (K (K004493063), L (L0672015)); 1st division, Gunong Buri, 1°10'N, 110°56'E, 18 March 1982, flowering, *Yii Puan Ching S.* 45656 (K (K004493064), L (L0672019)); 2nd division, Bukit Alak, Tebakang area, 1°6'16.33"N, 110°30'42.94"E, 2,493 ft, 16 April 1983, flowering, *Awa, Dyg. & Paie, I. S.* 45656 (K (K004493065), L (L0672022)); Ulu S. Jangkang, Lambir National Park, 4°11'54.14"N, 114°2'34.34"E, 25 October 1983, flowering, *Mohtar, Abg. et al. S.* 47151 (K (K004493067, K004493071), L (L0761261)); Gunong Api, Ulu Melinau, Tutoh, Baram District, NE flank of mountain, 4°7'N, 115°15'E, 2,800 ft, 1 October 1971, flowering, *Anderson, J. A. R. S.* 30870 (K (K004493070), L (L0672007)); Baram, Marudi F. R., 4°10'41.59"N, 114°19'19.94"E, 12 October 1963, *Yacup, F. R. S.* 8277 (K (K004493072)); N. Semperaja, Mujong Balleh, 2°6'14.65"N, 113°22'42.16"E, 60.86 ft, 14 April 1964, flowering, *Pa'ie, I. S.* 19866 (K (K004493076), L (L0671996)); Serian, Bukit Nyereng Balai Ringin P. F., 1°2'50.55"N, 110°44'58.14"E, 25 March 1961, fruiting, *Muas, A.* 13470 (K (K00449



Fig. 11. Lectotype of *Pterisanthes rufula* (Miq.) Planch.

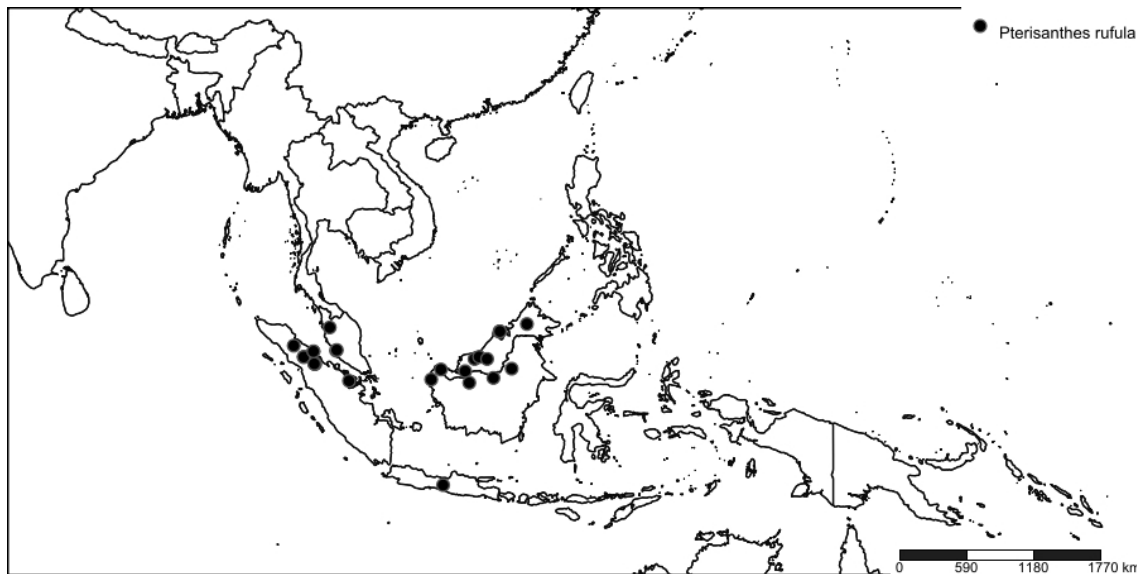


Fig. 12. Distribution map of *Pterisanthes rufula* (Miq.) Planch.

3078)); Lundu, G. Gading, 1°40'18.59"N, 109°51'11.72"E, 11 April 1961, fruiting, *Pa'ie*, I. 13593 (K (K004493079), L (L0671997)); Miri, Lambir Hills F. R., 4°11'54.14"N, 114°2'34.34"E, 500 ft, 5 June 1961, fruiting, *Dan bin Hj. Bakar* 3028 (K (K004493080), L (L0672002)); Bidi Cave, 4°2'33.5"N, 114°48'45"E, 18 October 1929, flowering, *M. & Clemens*, J. 20616 (K (K004493081); Lundu, 1st Division, Gunong Gading, 683 m, 1°42'22"N, 109°49'32"E, 2,240 ft, 22 September 1974, flowering, *Mamit*, J. S. 35129 (K (K004007102), L (L0672010)); South side of Bungoh range, near summit, 1°15'31"N, 110°8'13"E, 5 December 1959, flowering, *J. A. R. A., Ilias & Dawos*, J. S. 29311 (K (K004493083), L (L2338526)). SINGAPORE. Jurong Road, 15th Mile, (1°21'16"N, 103°43'37"E), 19 December 1932, flowering, *Corner*, E. J. H. s.n. (K (K004492962)); Bukit Mandai, (1°24'44"N, 103°43'37"E), January 1894, flowering, *Ridley*, H. N. s.n. (K (K004492963)); Sana, Sungei Tau, 28 May 1956, fruiting, *Purse-glove*, J. W. P. 5128 (K (K004493082)).

7. *PTERISANTHES RUFULA* (Miq.) Planch. — Monogr. Phan. 5(2): 417 (1887); POWO (2021). — *Vitis rufula* Miq., Ann. Mus. Bot. Lugduno-Batavi 1: 94 (1863). — Type: INDONESIA, Sumatra, in m., Melintang, *Korthals* s.n. (lectotype L (L0013711 image! (Fig. 11)) designated here; isolectotypes L (L0013708 image!, L0013709 image!, L0013710 image!).

Pterisanthes taeniata Planch., Monogr. Phan. 5(2): 419 (1887). — Type: MALAYSIA, Borneo, *Beccari* 2264 (holotype FI; isotype K (K000574960!)).

Climber. *Leaves* compound, 3-foliolate or 5-pedate; petiole 2–10 cm long, puberulous to hirsute; central blade elliptic to oblanceolate, 7.5–15

× 2.0–8.0 cm, base obtuse to cuneate, apex acuminate to caudate, margin entire with 0.1–0.6 cm long black teeth; lateral blade elliptic to oblanceolate, 4.0–15.0 × 1.5–6.5 cm, base asymmetrical to oblique, apex acuminate to caudate, margin entire with 0.1–0.6 cm long black teeth; central petiolule 0.5–1, puberulous; lateral petiolule 0.5–1 cm, puberulous; 4–5 pairs of secondary veins. *Inflorescence* with lamellate flowers; peduncle 1.97–3 cm long; primary branch of the inflorescence 1.5–12 cm long; Inflorescence panicle of lamellae, 6.5–21 × 1 cm, oblong.

Distribution. Sumatra, Peninsular Malaysia, Borneo (Fig. 12).

Vernacular Names. Akar tasak (Sumatra).

Conservation status. Using GeoCAT (Bachman *et al.*, 2011), we calculated an EOO of 1,598,361.049 km² and an AOO of 108.000 km² for this species. As this species is very widespread in its distribution, it is likely that the AOO has been overestimated. Therefore, this species is likely to be categorized as Least Concern (IUCN, 2023).

Notes. Four specimens thought to be syntypes of *P. rufula* were found at L. We selected the specimen in the best condition and portraying the characteristics of the species.

Specimens examined. INDONESIA. Sumatra, North Sumatra, Bukit Lawang. Bohorok. Langkat, 3°33'19"N, 98°08'41"E, 1,640 ft, 27 November 1973, flowering, *Soedarsono* 389 (K (K004493116)); North Sumatra, Bukit Lawang. Bohorok. Langkat, 3°33'19"N, 98°08'41"E, 1,476 ft, 27 November 1973, fruiting, *Soedarsono* 388 (K (K0044

Fig. 13. Holotype of *Pterisanthes stonei* Latiff.

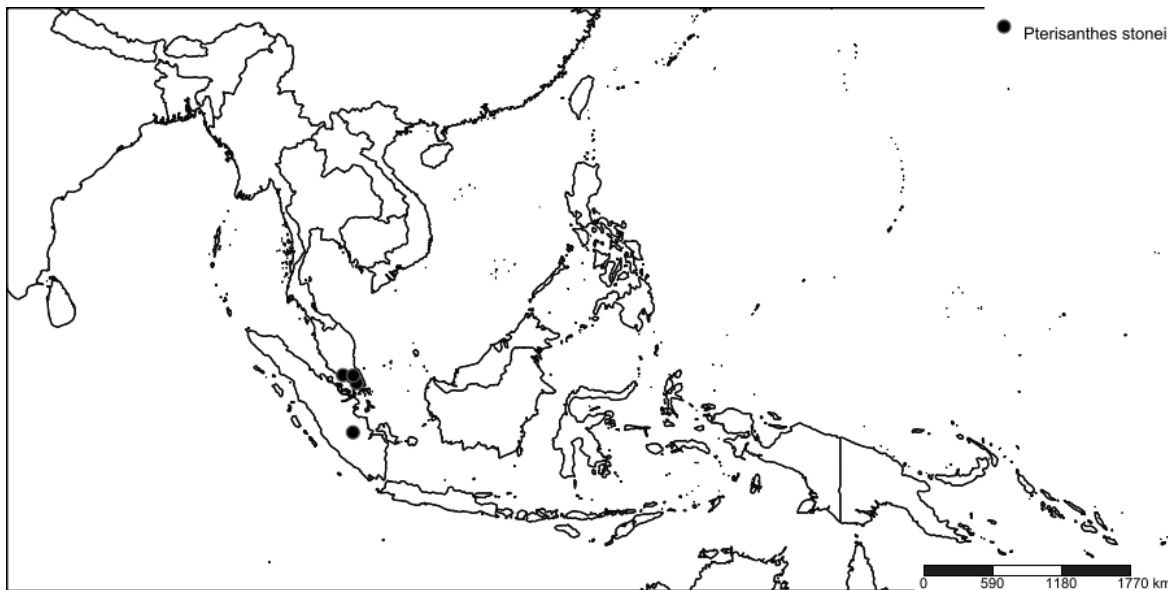


Fig. 14. Distribution map of *Pterisanthes stonei* Latiff.

93117)); North Sumatra, Bukit Lawang. Bohorok. Langkat, 3°33'19"N, 98°08'41"E, 1,476 ft, 27 November 1973, flowering, *Soedarsono* 332 (K (K004493117)); flowering, *Korthals s.n.* (K (K004493119)). MALAYSIA. Malay Peninsula, Selangor, 1899, flowering, *Ridley, H. N.* 10204 (K (K004492982)); Selangor, Sungai Buluh, 3°12'36"N, 101°33'39"E 1 August 1908, flowering, *Ridley, H. N.* 13348 (K (K004492983)); August 1880, flowering, *Dr. King's Collector* 678 (K (K004492984)). Sarawak, Bintulu Division, Bukit Kana, Ulu Sg. Sangan, Tatau, 2°40'00"N, 112°52'00"E, 14 October 1994, fruiting, *Yii Puan Ching et al.* S.67049 (K (K004493107)); Base camp to Bt. Sadok, 1°31'59"N, 111°45'00"E, 14 October 1982, fruiting, *Ilias Paie & Manggi* S.45013 (K (K004493108)); 1865–68, flowering, *Beccari, O.* 2264 (K (K000574960)). BRUNEI. Belait, Sungai Liang Arboretum Recreation Park, 4°40'00"N, 114°28'58"E, 82 ft, 6 May 1996, flowering, *Joffre Hj Ali Ahmad & Ariffin Kalat* BRUN 17443 (K (K004493109)); Tutong, Ulu Tutong, Bukit Bahak. Vicinity of LP338A, 4°22'51"N, 114°50'13"E, 426 ft, 13 December 1991, flowering, *Kirkup, D. W., Coode, M., Niga, SoePaing, Ariffin, Ibrahim, Jangarun, Shanan* 513 (K (K004493110)); Belait, Bukit Sawat. Andulau Forest Reserve, 4°34'59"N, 114°32'60"E, 164 ft, 3 July 1996, flowering, *Said, I. M., Niga Nangkat, Suhaili H. Zinin, Ibrahim Abdullah & Han Sing* BRUN 16202 (K (K004493111)); Belait, Sungai Liang, Arboretum Reserve, 4°41'00"N, 114°30'07"E, 3 January 1988, fruiting, *Wong, K. M. WKMI* (K (K004493112)); Belait, Sungai Liang, Arboretum Reserve, 4°41'00"N, 114°30'07"E, 16 May 1988, fruiting, *Wong, K. M. WKMI* 26 (K (K004493113)); Belait, Sungai Liang Arboretum, 4°41'00"N, 114°30'07"E, 26 October 1989, flowering, *Forman, L.L. & Blewett, J. B. J.* 1089 (K (K004493114, K004493115)).

8. *PTERISANTHES STONEI* Latiff. – Fed. Mus. J. 27: 51 (1982). — Type: MALAYSIA, Malay Peninsula, Johor, 19–23 February 1969, *Jumali & Heaslett s.n.* (holotype SING (SING0390773 image! (Fig. 13))).

Climber. *Stem* hairy. *Leaves* compound, 3-foliolate; petiole 5.6–8.4 cm; central blade elliptic to rhombic, 11.3–15.2 cm × 3–5 cm, base acute, apex acuminate, margin sinuate with teeth; lateral blade oblong, 9.3–14.8 cm × 2.8–4 cm, base oblique, apex acuminate, margin sinuate with teeth; petiolules 0.6–1.1 cm long; indumentum of the upper surface of the leaf hairy and rough, indumentum of the lower surface of the leaf heterotrichous; 8–9 pairs of secondary veins. *Inflorescence* pedicellate and lamellate flowers; peduncle length 2 cm; primary branch of the inflorescence length 13 cm; Inflorescence panicle of lamellae, 13 × 5 cm.

Distribution. Malay Peninsula and Sumatra (Fig. 14).

Conservation status. It has an AOO of 28,414.267 km² and the EOO is 16.000 km² (GeoCAT (Bachman *et al.*, 2011)). This species is suggested to be classified as Near Threatened or Endangered, respectively. However, the specimens occur mostly in forested areas, where no threats are apparent. We also lack information on fragmentation, decline, and extreme fluctuations of the populations. Therefore, the most appropriate categorization of this species is as Data Deficient (IUCN, 2023).

Specimens examined. INDONESIA. Sumatra, Jambi, Harapan Rain Forest, Simpang Tanding (Km. 38), (2°2'49"S, 103°18'40"E), 30 March



Fig. 15. Holotype of *Pterisanthes sumatrana* Latiff (Meijer 7134).

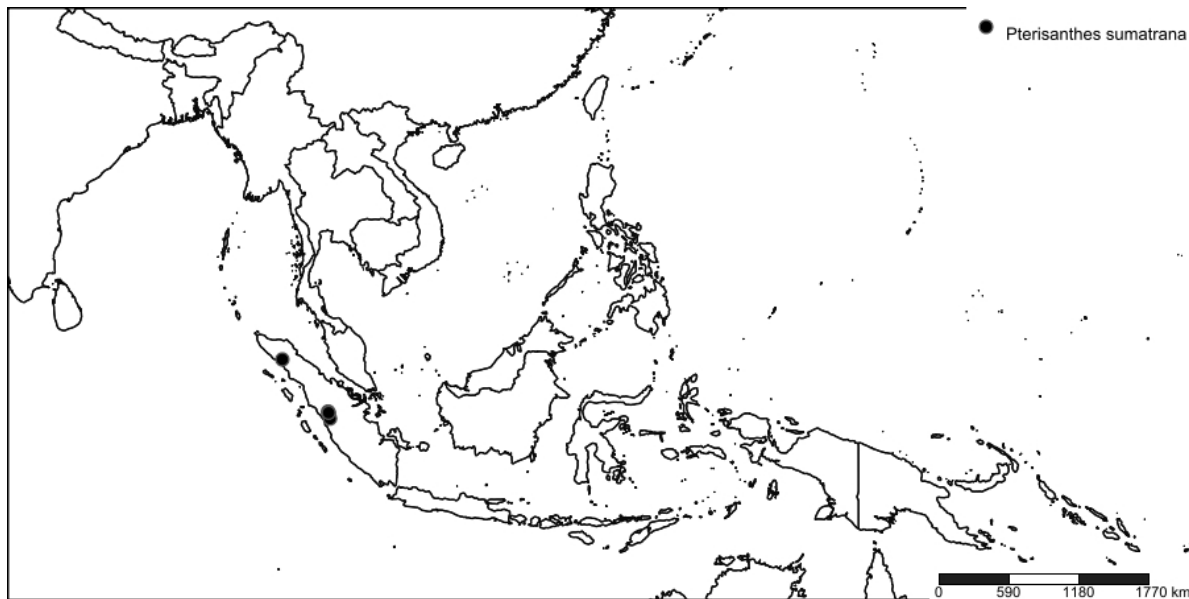


Fig. 16. Distribution map of *Pterisanthes sumatrana* Latiff.

2013, flowering, *Wardi, Ruhiyat, de Kok, R., Drinkell, C. BOHK374* (BO (BO1909587), K (K00 0734623), E (E00622131)); Jambi, Kabupaten Batangharu, SPAS, 50 m (2°11'1"S, 103°22'15"E) 6 April 2008, fruiting, *de Kok, R. Rdk 1295* (K (K000576271)). MALAYSIA. Malay Peninsula, Johore, Bukit Lemanoh forest reserve, (2°27'3"N, 103°13'30"E), 19 February 1969, flowering, *Jumali & Heaslett, E.A. s.n.* (SING (54669)).

9. *PTERISANTHES SUMATRANA* Latiff. – Fed. Mus. J. 27: 61 (1982). — Type: INDONESIA, Sumatra, base of Gunung Nantigo, near Mount Sago, 17 July 1957, *Meijer, W. 7134* (holotype L (L2338074 image! (Fig. 15))).

Climber. *Stem* cylindrical, glabrous to sparsely hairy. *Leaves* compound, 3-foliolate; petiole 1.1–3 cm long; central blade lanceolate, 7.1–10.2 × 2–3.1 cm, base obtuse (rounded), apex acuminate to apiculate (with a short, sharp tip), margin entire, with a hook-like teeth; central leaflet blade lanceolate, 7.1–10.2 × 2.0–3.1, base obtuse (rounded), acuminate to apiculate, margin entire, with hook-like teeth, lateral blade lanceolate, 6.4–9.2 × 1.7–3.5 cm, base asymmetrical to oblique, apex acuminate-apiculate, margin entire, with hook-like teeth; central petiolule 0.7–2.2 cm long; lateral petiolule 0.3–1.3 cm; indumentum of the upper surface of the leaf glabrous, indumentum of the lower surface of the leaf glabrous; 4–5 pairs of secondary veins. *Inflorescence* with lamellate flowers; peduncle 1.2–3.9 cm long; primary branch of the inflorescence 2.4–6.8 cm long; inflorescence panicle of lamellae, 6.6–11.1 cm, rectangular shaped.

Distribution. Sumatra (Fig. 16).

Vernacular names. Sumatra vine.

Conservation status. Using GeoCAT (Bachman *et al.*, 2011), we calculated an EOO of 7,874.584 km² and an AOO of 20,000 km² for this species and consists of 5 localities, mainly in the Gunung Sago range (between Payakumbuh and Bukittinggi). Based on the IUCN Red List criteria (IUCN, 2012), and as the habitat of *P. sumatrana* is affected by human activities and is in decline, we propose a conservation status of Endangered (EN) B2ab (i,ii,iii).

Notes. *Pterisanthes sumatrana* is similar to *P. rufula* in general appearance but differs in the rectangular shape of the lamellae (Latiff, 1982) and the oblong shape of the lateral leaflet blade.

Specimens examined. INDONESIA. Sumatra, Aceh, Gunung Leuser. P. T. Hargas logging concession, S. of the road Sibulussalam-Gelombang, just N. of the crossing, 50 m 3°44'27"N, 97°9' 17"E, 164 ft, 6 September 1989, flowering, *de Wilde, W. J. J. O. & de Wilde-Duyffes, B. E. E. s.n.* (BO (BO0120043)); West Sumatra, G. Nantigo, near Mt. Sago, 0°23'12"S, 100°41'20"E, 2,952 ft, 17 July 1957, *Meijer, W. 7134* (L (L0715712)); Bukit Tinggi, afd. L. Kolo, 1,100 m, 0°19'S, 100°22'E, 3,608 ft, 18 June 1918, *Bünnemeijer HAB, 3023* (L (L0715713)); Mt. Sago near Payakumbuh, 0°18'27"S, 100°43'1"E, 2,952 ft, 28 February 1957, *Maradjo, P. 442* (L (L0715710)); Sumatra Barat, Batu Badinding, G. Sago, Lubak, Payakumbuh, 0°20'54"S, 100°30'53 "E, 3,937 ft, 7 April 1983, *Sarkat Danimihardja 2333* (L (L0715709)).

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