

A REVISION OF *AESCHYNANTHUS* (*GESNERIACEAE*) IN CAMBODIA, LAOS AND VIETNAM

D. J. MIDDLETON

The species of *Aeschynanthus* Jack (*Gesneriaceae*) in Cambodia, Laos and Vietnam are revised. Eighteen species are recognised, keys to the species are given, all names are typified, and detailed descriptions of all species are provided. Conservation assessments are given for all species. *Aeschynanthus cambodiensis* D.J.Middleton, *Aeschynanthus jouyi* D.J.Middleton and *Aeschynanthus pedunculatus* D.J.Middleton are newly described.

Keywords. *Aeschynanthus*, Cambodia, *Gesneriaceae*, Laos, taxonomic revision, Vietnam.

INTRODUCTION

This paper marks the second in a series of geographical revisions of the genus *Aeschynanthus* Jack (*Gesneriaceae*) which began with an account of the genus in Thailand (Middleton, 2007b). The previous work also included historical background to the genus and a discussion of the characters. Although it was initially intended that the whole of *Aeschynanthus* would be monographed region by region, the research has revealed that, due to previously unknown synonymy, there is considerably more overlap in species between areas than was appreciated at the beginning of the project. Therefore, after this publication I now intend to publish the monograph as a complete work at the end and only produce regional revisions, like this one and the Thai revision, where they can feed directly into ongoing Flora projects.

Pellegrin (1926, 1930) published two accounts of *Aeschynanthus* in Cambodia, Laos and Vietnam. In addition there are brief accounts of the genus in Vietnam (Pham-Hoàng Hô, 1993; Vu Xuan Phuong, 2004) and a checklist for Laos (Newman *et al.*, 2007). Pellegrin (1926) recognised 10 species, Pellegrin (1930) 12 species, Pham-Hoàng Hô (1993) nine species (only for Vietnam), Vu Xuan Phuong (2004) 16 species (only for Vietnam), and Newman *et al.* (2007) six species (only for Laos). In each of these accounts the number of species recognised is lower than one might expect from the number of species recognised in neighbouring countries like China (34 species – Wang *et al.*, 1998) and Thailand (20 species – Middleton, 2007b). This is partly due to the lower collecting densities in each of the three countries, particularly

Royal Botanic Garden Edinburgh, 20A Inverleith Row, Edinburgh EH3 5LR, Scotland, UK. E-mail: d.middleton@rbge.ac.uk

in Laos and Cambodia (see Newman *et al.*, 2007), and one would expect the number of species to increase as more collecting is done. It should also be borne in mind that the actual number of species in China is lower than in Wang *et al.* (1998) as several species recognised in that account will be treated as synonyms in my forthcoming monograph (see for example synonymy under *Aeschynanthus parasiticus* in this paper).

I have not been able to confirm a number of the species said to occur in Vietnam by Vu Xuan Phuong (2004). These are *Aeschynanthus hookeri*, *A. longicaulis* and *A. hosseusii*. I have not seen specimens determined as the first two species from Vietnam (and no specimens are cited for them in the paper) but I suspect that they are *Aeschynanthus parviflorus* and *A. membranifolius*, respectively. The specimen cited as *Aeschynanthus hosseusii* by Pellegrin (1930), and possibly followed by Vu Xuan Phuong (2004), is rather *A. bracteatus* (but see discussion there).

Aeschynanthus in Cambodia, Laos and Vietnam (CLV) consists of several species widespread in Asia such as *A. fulgens*, *A. bracteatus* and *A. acuminatus*; others widespread in other parts of Asia but which only just get into CLV such as *A. superbus*, *A. parasiticus* and *A. pulcher*; endemic species to CLV but which occur in more than one of the constituent countries such as *A. mendumiae* found in Laos and Vietnam; and species endemic to only one of the countries such as *A. cambodiensis* in Cambodia, and *A. jouyi*, *A. pedunculatus* and *A. poilanei* in Vietnam.

Synonymy and descriptions are given in full for species in Cambodia, Laos and Vietnam that were also included in the account for Thailand (Middleton, 2007b). Although this leads to a certain degree of duplication the descriptions here include measurements from additional specimens. Also, treating all species in full ensures that this revision can be a practical tool for identification of *Aeschynanthus* species in the region without having to refer to other works. Several of the species occurring in Vietnam and Laos have wider distributions in China and the Himalayas. A number of previously unrecognised synonyms are included for some of these taxa but the synonymy may not be completely comprehensive until all of the remaining taxa from continental Asia outside Thailand, Cambodia, Laos and Vietnam have been investigated.

IUCN conservation assessments have been provided for all species using the IUCN (2001) criteria. All species have been given the category of Least Concern (LC) although several species are known from very few specimens and the category may change once more extensive explorations of the region have been made.

A morphological species concept is employed whereby taxa are recognised by discontinuities in characters or complexes of characters.

MATERIAL STUDIED

Herbarium material was studied from the following herbaria: A, AAU, BKF, BM, BR, CGE, E, G, G-DC, HN, HNU, K, K-W, L, M, MEL, MO, NSW, NY, P, PE, S, SING, TI, U, UC, US, W (herbarium codes from *Index Herbariorum* at

<http://sweetgum.nybg.org/ih/>, accessed 12 March 2009). All specimens cited have been seen unless otherwise indicated. The dimensions given in the descriptions are for dried material for vegetative characters and rehydrated material for floral characters.

SYSTEMATIC TREATMENT

Aeschynanthus Jack, Trans. Linn. Soc. London 14: 42 (1823), nom. cons. – Type species: *Aeschynanthus volubilis* Jack, designated by Sprague (1929).

Trichosporum D.Don, Edinburgh Philos. J. 7: 82 (1822). – Type species: *Trichosporum parviflorum* D.Don (= *Aeschynanthus parviflorus* (D.Don) Spreng.), designated by Middleton (2007b).

Rheithrophyllum Hassk., Flora 25(2): Beibl. 56 (1842). – Type species: *Rheithrophyllum subverticillatum* Hassk. (= *Aeschynanthus angustifolius* (Blume) Steud.).

Euthamnus Schltr., Bot. Jahrb. Syst. 58: 284 (1923). – Type species: *Euthamnus papuanus* Schltr. (= *Aeschynanthus papuanus* (Schltr.) B.L.Burtt).

Oxychlamys Schltr., Bot. Jahrb. Syst. 58: 286 (1923). – Type species: *Oxychlamys pullei* Schltr. (= *Aeschynanthus oxychlamys* Mendum).

Micraeschynanthus Ridl., Fl. Malay Penin. 5: 324 (1925). – Type species: *Micraeschynanthus dischidioides* Ridl. (= *Aeschynanthus dischidioides* (Ridl.) D.J.Middleton).

Epiphytic herbs or subshrubs with erect, arching or pendulous stems, these sometimes rooting along their lengths when in contact with a suitable substrate. *Leaves* opposite or, more rarely, verticillate, pedicellate; blades coriaceous to distinctly fleshy, simple, margins entire to weakly crenate or weakly dentate, sometimes somewhat undulate, venation pinnate but more often than not obscure. *Inflorescence* an axillary few-flowered cyme, or flowers solitary in the axils of leaves, or a pseudo-terminal cluster. *Flowers* strongly protandrous. *Calyx* of 5 sepals, these free or variously fused into a tube for part or most of length. *Corolla* zygomorphic, tubular, widening towards lobes, curved to various degrees, sometimes distinctly inflated at the base, glabrous to variously pubescent outside and inside; with 5 lobes, these consisting of a 2-lobed upper lip, 2 lateral lobes and a lower lobe; very variable in colour but most frequently (in Thailand) red, orange, yellow or green and then often with other darker or lighter patterning. *Stamens* 4, in 2 pairs, attached to the inside of the corolla tube and occupying the space in the upper curve of the flowers, included or exerted from corolla tube when mature; vestigial staminode present; anthers of each pair attached by their apices, occasionally all 4 attached together. *Disk* present, annular to dentate. *Pistil* developing as filaments wither and also occupying the space in the upper curve of the corolla tube, consisting of a sterile stipe at the base, the fertile ovary section, the style and the peltate stigma; ovules many, anatropous. *Fruit* a long narrow capsule which opens loculicidally by two valves. *Seeds* many, tiny, with short to long appendages at both ends.

Distribution. From India and southern China through Southeast Asia and Malesia to the Solomon Islands.

Key to the species in Cambodia, Laos and Vietnam (flowering)

- 1a. All four stamens attached to each other at their apices; corolla white or very pale yellow _____ **6. A. chiritoides**
- 1b. Stamens attached at their apices in two separate pairs, very rarely all four attached together but then corolla red or orange; corolla red, orange, greenish or yellow _____ 2
- 2a. Calyx lobes free to base _____ 3
- 2b. Calyx lobes fused for part (at least 15%) or most of their length _____ 13
- 3a. Stems with minute papery ridges giving them a wrinkled look, at least when young; stems upright; leaves \leq 3 cm long; corolla red; pistil completely glabrous _____ **4. A. buxifolius**
- 3b. Stems without minute papery ridges; stems upright, arching or hanging; leaves, corolla and pistil characters various _____ 4
- 4a. Leaves mostly marbled; at least the lower third of the corolla greenish or yellowish, often completely so; 5 patches or complete band of robust multicellular hairs in lower half of corolla _____ 5
- 4b. Leaves not marbled; corolla red or orange to base, sometimes whitish at very base; no robust multicellular hairs in corolla tube _____ 7
- 5a. Calyx lobes < 1 cm long; corolla < 2 cm long; pedicels glandular puberulent _____ **16. A. poilanei**
- 5b. Calyx lobes > 1 cm long; corolla > 2 cm long; pedicels glabrous _____ 6
- 6a. Corolla tube greenish outside (but maybe with some red showing through from the inside of the corolla); calyx lobes green; leaf margin entire or very weakly crenate _____ **5. A. cambodiensis**
- 6b. Corolla tube bright red in upper 1/3–2/3 outside, greenish or yellowish below this; calyx lobes red; leaf margin usually dentate and often strongly undulate _____ **11. A. mendumiae**
- 7a. Inflorescences distinctly pedunculate with peduncles > 0.5 cm long _____ 8
- 7b. Inflorescences without a peduncle or peduncle < 0.5 cm long _____ 11
- 8a. Inflorescences subtended by large bracts, these > 15 mm long; corolla 32–85 mm long, red _____ 9
- 8b. Inflorescences with small bracts \leq 10 mm long or bracts early caducous; corolla 15–37 mm long, greenish, brownish or reddish _____ 10
- 9a. Corolla 32–51 mm long _____ **3. A. bracteatus**
- 9b. Corolla 60–85 mm long _____ **18. A. superbus**
- 10a. Calyx lobes 2.5–4.5 mm long, apex rounded; peduncle 0.8–4.5 cm long; style glabrous _____ **2. A. acuminatus**

- 10b. Calyx lobes 8.5–11.5 mm long, apex acuminate to obtuse; peduncle 2.8–23 cm long; style pubescent _____ **15. A. pedunculatus**
- 11a. Stems erect; corolla with short stiff upward pointing eglandular hairs near base inside; corolla 15–28 mm long _____ **8. A. humilis**¹
- 11b. Stems predominantly pendulous or arching and pendulous; corolla without short stiff upward pointing eglandular hairs near base inside (when robust hairs present these clearly glandular); corolla 21.5–41 mm long _____ 12
- 12a. Calyx lobes 2.6–7 mm long; corolla lobes < 5 mm long _____ **12. A. micranthus**
- 12b. Calyx lobes 9.5–14.5 mm long; corolla lobes \geq 5 mm long _____ **1. A. acuminatissimus**
- 13a. Leaves mottled; corolla predominantly green, inside with 5 tufts of robust multicellular hairs near base _____ **10. A. membranifolius**
- 13b. Leaves not mottled; corolla predominantly red or orangish, inside pubescence variable but not as above _____ 14
- 14a. Stems short and erect; leaves mostly thin; corolla 15–28 mm long _____ **8. A. humilis**
- 14b. Stems erect only when young, thereafter arching or hanging and often very long; leaves coriaceous to fleshy; corolla 25–73 mm long _____ 15
- 15a. Stamens not or barely exerted from corolla; calyx tube 83–96% of total calyx length _____ **17. A. pulcher**
- 15b. Stamens quite clearly exerted from corolla; calyx tube 17–94% of total calyx length _____ 16
- 16a. Corolla with numerous short stiff hairs near base inside _____ **13. A. parasiticus**
- 16b. Corolla without short stiff hairs near base inside _____ 17
- 17a. Corolla < 4 cm long _____ **14. A. parviflorus**
- 17b. Corolla > 4 cm long _____ 18
- 18a. Lateral corolla lobes not spreading or reflexed, 2.8–8 mm long; stamens long exerted _____ **7. A. fulgens**
- 18b. Lateral corolla lobes spreading to reflexed, 15–15.5 mm long; stamens only shortly exerted _____ **9. A. jouyi**

Key to the species in Cambodia, Laos and Vietnam (fruiting)

It is not always possible to accurately identify *Aeschynanthus* species solely on fruiting material, particularly in the absence of any remnant calyx. The key below should

¹ The calyx lobes are actually fused at the extreme base for at least 15% of their length in this species but, given that this character could be misinterpreted, the species is also included here.

help identify taxa but not every couplet is completely diagnostic and a remnant calyx is not always present. Also, the seeds are extremely small and a good hand lens or microscope is needed to observe some of the characters in the key. *Aeschynanthus cambodiensis* and *A. mendumiae* are included on the basis that we can be fairly confident of the seed type based on their very clear relationships to other species in *Aeschynanthus* sect. *Polytrichium* Benth. *Aeschynanthus jouyi* is not included in the key as the fruit is unknown and its relationship to other species not entirely clear.

- 1a. Leaves marbled; seeds with 1 hair at apical end, many hairs at hilar end ____ 2
 1b. Leaves not marbled; seeds with 1 hair at apical end and 1 or 2 hairs at hilar end _____ 5
- 2a. Fruiting pedicels glandular pubescent _____ **16. A. poilanei**
 2b. Fruiting pedicels glabrous _____ 3
- 3a. Leaf margin distinctly crenate or dentate; central to northern Laos and Vietnam _____ **11. A. mendumiae**
 3b. Leaf margin entire or only very weakly crenate; Cambodia, southern Laos and southern Vietnam _____ 4
- 4a. Remnant calyx divided to base _____ **5. A. cambodiensis**
 4b. Remnant calyx fused for 3.9–5 mm at base _____ **10. A. membranifolius**
- 5a. Stems with minute papery ridges giving them a wrinkled look, at least when young; seed appendages to 1.1 mm long _____ **4. A. buxifolius**
 5b. Stems without papery ridges; seed appendages 1.8–35 mm long _____ 6
- 6a. Seeds with a collection of inflated cells at one end of the grain _____ **17. A. pulcher**
 6b. Seeds without inflated cells _____ 7
- 7a. Seeds with 2 hairs at hilar end _____ **13. A. parasiticus/14. A. parviflorus**
 (more or less indistinguishable in fruit)
 7b. Seeds with 1 hair at hilar end _____ 8
- 8a. Seed appendages \geq 15 mm long and papillose _____ 9
 8b. Seed appendages < 10 mm long, not papillose _____ 12
- 9a. Leaves sparsely to densely pubescent beneath, 0.7–5 cm long _____ 10
 9b. Leaves glabrous beneath, 1.4–17 cm long _____ 11
- 10a. Stems erect; remnant calyx fused into a short tube at base ____ **8. A. humilis**
 10b. Stems hanging; remnant calyx free to base _____ **6. A. chiritoides**
- 11a. Leaves 3.3–17 cm long; remnant calyx fused into a tube at base _____ **7. A. fulgens**
 11b. Leaves 1.4–6.6 cm long; remnant calyx free to base _____ **12. A. micranthus**
- 12a. Peduncle absent or nearly so _____ **1. A. acuminatissimus**

- 12b. Peduncle 0.8–23 cm long _____ 13
- 13a. Capsule 33–44 cm long; seed appendages > 4 mm long _____ **18. A. superbus**
- 13b. Capsule 7.7–22 cm long; seed appendages ≤ 4 mm long _____ 14
- 14a. Remnant bracts > 15 mm long _____ **3. A. bracteatus**
- 14b. Remnant bracts ≤ 10 mm long _____ 15
- 15a. Remnant calyx lobes 2.5–4.5 mm long, apex rounded; peduncle 0.8–4.5 cm long _____ **2. A. acuminatus**
- 15b. Remnant calyx lobes 8.5–11.5 mm long, apex acuminate to obtuse; peduncle 2.8–23 cm long _____ **15. A. pedunculatus**

1. *Aeschynanthus acuminatissimus* W.T.Wang, Acta Phytotax. Sin. 13(2): 64 (1975); Wang, Phytologia 45: 313 (1980); Li, Acta Bot. Yunnan. 5(1): 32 (1983); Wang, Fl. Reipubl. Popularis Sin. 69: 510 (1990); Wang et al., Fl. China 18: 379 (1998). – Type: China, Yunnan, Xichou, 1964, *Z. Y. Zhang* 46 (holo PE n.v.; photo E).

Fig. 1.

Aeschynanthus garrettii auct. non Craib: Pellegrin, Fl. Indo-Chine 4: 497 (1930), *pro parte*; Pham-Hoàng Hô, Cayco Vietnam ed. 3, 3(1): 4 (1993); Vu Xuan Phuong, Vietnam J. Biol. 26(4A): 38 (2004).

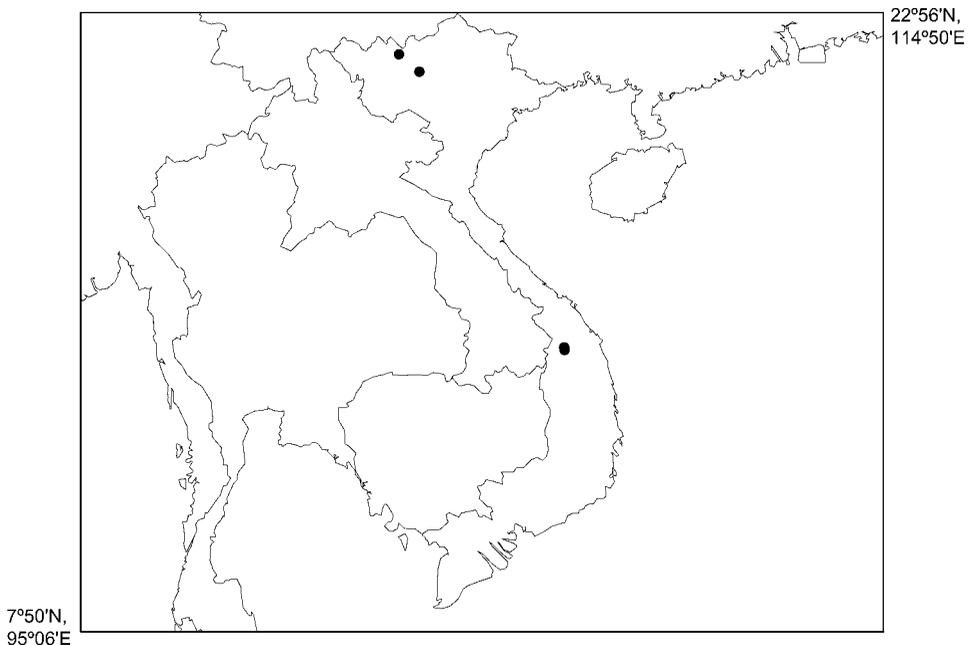


FIG. 1. Distribution of *Aeschynanthus acuminatissimus* W.T.Wang in Cambodia, Laos and Vietnam.

Epiphyte, stem creeping or climbing, glabrous. *Leaves* opposite; petiole 3–6 mm long, glabrous; blade coriaceous or slightly fleshy, elliptic or ovate, not marbled, 1.7–7 × 0.7–3.8 cm, 1.7–4 times as long as wide, apex acuminate or acute, base cuneate to rounded, glabrous above and beneath, faintly punctate or not beneath, margin entire, 3–5 pairs of secondary veins, these weakly visible or obscure, tertiary venation obscure. *Inflorescences* subterminal or axillary, 1(–3)-flowered; peduncle 0–0.1 cm long; bracts early caducous; pedicels 14–15 mm long, glabrous. *Calyx* of separate lobes free to base, glabrous, linear or narrowly ovate, erect, 9.5–14.5 × 0.9–2 mm, apex acute. *Corolla* 30–41 mm long, externally bright red, lobes bright red, corolla throat hardly oblique; tube broad at base or somewhat gibbose; upper lobes oblong or ovate, spreading or reflexed, 6–7 × 4.1–6 mm, sinus 3.2–6.1 mm deep, apex rounded; lateral lobes deltoid or ovate, spreading or not, 5.5–8 × 5.5–7.5 mm, apex rounded; lower lobe obovate or elliptic, spreading or not, 5–9 × 4.6–9 mm, apex rounded; glabrous outside, inside with glandular hairs in throat and on base of lobes. *Stamens* at corolla throat or barely exerted, fused in 2 pairs; filaments with few glandular hairs; anterior filaments inserted at 15–16 mm from corolla base which is 47–48% of corolla length, filaments 12.5–13 mm long, anthers 2.1–2.5 × 1–1.2 mm; posterior filaments inserted at 17.5–19 mm from corolla base which is c.56% of corolla length, filaments 9–11 mm long, anthers 1.7–2.3 × 0.8–1.2 mm; staminode 2 mm long. *Disk* 1.2–2 mm high, 5-crenate. *Pistil* 22.5–36 mm long; stipe 9–12 mm long, glabrous; ovary 7–13 mm long, glabrous or with very few sessile glands; style 7.5–11 mm long, glabrous. *Capsule* 6–12 cm long, 3–4 mm wide, with a long narrow stipe that widens into a much broader seed-bearing part. *Seed* grain 1–1.1 × 0.2–0.3 mm, papillose, bubble cells absent; apical appendage a filiform hair, 1.9–2.7 mm long; hilar appendage a single filiform hair, 1.8–2.2 mm long; appendages not papillose.

Distribution. Southern China, northern Vietnam.

Habitat and ecology. In forest at 600–2000 m altitude. The two Kon Tum collections (see note below) were collected at 2380–2400 m altitude.

Proposed IUCN conservation status. Least Concern (LC). Although this species is known from fairly few collections the regions of China and Vietnam in which it has been collected still contain extensive forest.

Specimens examined. VIETNAM. **Lao Cai:** Chapa [Sa Pa], vii 1927, *A. Pételot* 5037 (P); *ibid.*, viii 1933, *A. Pételot* 6012 (A); Van Ban District, Liem Phu, Route to Ta Xa Mountain, 26 x 2002, *M.F. Gardner, P. Thomas & N.D.T. Luu* 17 (E).

Uncertain specimens (see note below). VIETNAM. **Kon Tum:** Massif du Ngoc Phan, 13 xii 1946, *E. Poilane* 35830 (P); Ngoc Linh Mountain, 9 iii 1995, *L. Averyanov et al.* VH584 (AAU, HN).

A number of specimens previously identified as *Aeschynanthus garrettii* Craib, but which are quite clearly not the same taxon as *A. garrettii* in Thailand (including the type), have here been placed in *A. acuminatissimus*. I have seen the type of

Aeschynanthus acuminatissimus from southeastern Yunnan only from a photograph but the Vietnamese material does appear to match and it agrees well with the published descriptions and other non-type material from China. The collection localities in northern Vietnam are quite close to the type locality in China. The capsule in this species has a long stipe and more abruptly widens into the seed-bearing part than many other species in the region. This is probably the reason for its confusion with *Aeschynanthus garrettii*, which has a similar fruit, and it is certainly likely to be related to this species and *A. buxifolius*. It differs from both species most obviously in the lack of papery ridges on the young stems, a feature very characteristic of *Aeschynanthus garrettii* and *A. buxifolius*.

Two fruiting collections from Kon Tum in central Vietnam, *Averyanov et al.* VH584 (AAU, HN) and *Poilane* 35830 (P), appear to be close to this species but without flowering material from the region it cannot be ascertained with certainty what they are. They both have a very short peduncle with only one remaining longer pedicel on each bearing a capsule with a very long stipe. The dimensions for these plants are not included in the description above.

2. *Aeschynanthus acuminatus* Wall. ex A.DC., Prodr. 9: 263 (1845); [Wall. Num. List 6397 (1832); Brown, Cyrtandreae 116 (1839), nom. nud.; Steudel, Nomencl. Bot. ed. 2, 1: 32 (1840), nom. nud.; Brown in Bennett, Pl. Jav. Rar. 116 (1840), nom. nud.]; Clarke, Commelyn. Cyrtandr. Bengal. t.45 (1874); Clarke in A.DC. & C.DC., Monogr. Phan. 5: 30 (1883); Clarke in Hooker, Fl. Brit. Ind. 4: 341 (1884); Pellegrin, Bull. Soc. Bot. France 72: 823 (1926 [‘1925’]); Pellegrin, Fl. Indo-Chine 4: 495 (1930); Barnett, Dansk Bot. Ark. 20: 199 (1962); Barnett, Fl. Siam. 3(3): 198 (1962); Kao & DeVol, Taiwania 17(2): 142 (1972); Wang, Phytologia 45: 311 (1980); Li, Acta Bot. Yunnan. 5(1): 28 (1983); Wang, Fl. Reipubl. Popularis Sin. 69: 502 (1990); Pham-Hoàng Hô, Cayco Vietnam ed. 3, 3(1): 3 (1993); Wang et al., Fl. China 18: 377 (1998); Hilliard, Fl. Bhutan 2(3): 1300 (2001); Smitinand, Thai Pl. Names ed. 2, 14 (2001); Burt, Thai For. Bull. (Bot.) 29: 83 (2001); Kress et al., Checkl. Myanmar 261 (2003); Newman et al., Checkl. Vasc. Pl. Lao PDR 146 (2007); Middleton, Edinburgh J. Bot. 64: 373 (2007). – *Trichosporum acuminatum* (Wall. ex A.DC.) Kuntze, Revis. Gen. Pl. 477 (1891). – Type: Bangladesh, Sylhet, *N. Wallich* 6397 (lecto G-DC, designated by Middleton (2007b: 374); isolecto BR, CGE, G, K-W). **Fig. 2.**

Aeschynanthus chinensis Gardner & Champ., Hooker’s J. Bot. Kew Gard. Misc. 1: 328 (1849). – *Aeschynanthus acuminatus* var. *chinensis* (Gardner & Champ.) C.B. Clarke in A.DC. & C.DC., Monogr. Phan. 5: 31 (1883). – Type: Hong Kong, *J.G. Champion* s.n. (lecto K, designated by Middleton (2007b: 374); isolecto K). *Aeschynanthus bracteatus auct. non* Wall. ex A.DC.: Bentham, Fl. Hongk. 258 (1861).

Epiphyte, sometimes lithophytic, stems creeping or hanging, glabrous, green or grey-brown. *Leaves* opposite; petiole 2–10 mm long, glabrous; blade papery to slightly

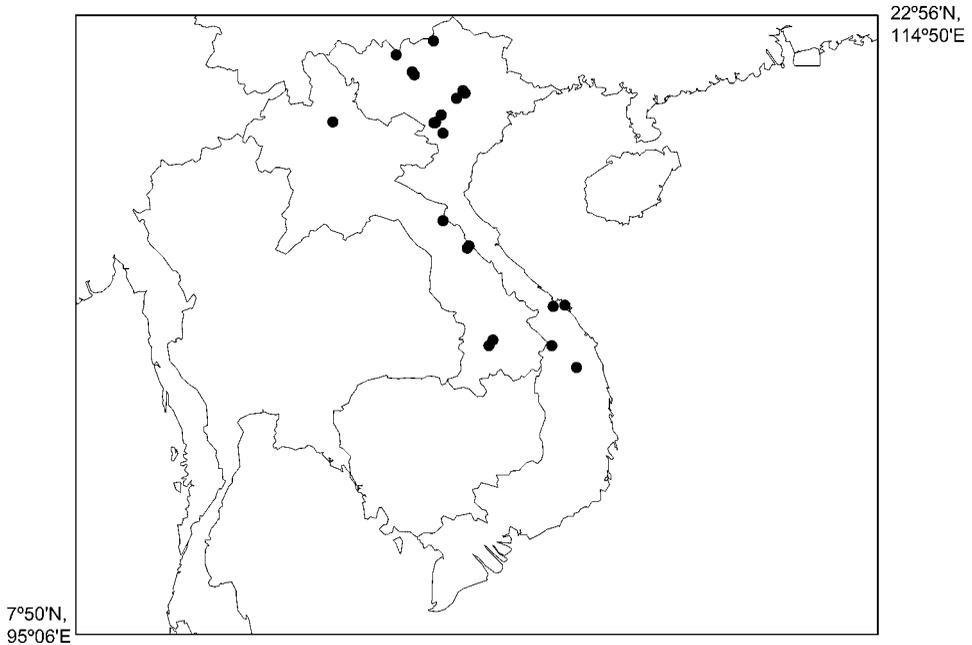


FIG. 2. Distribution of *Aeschynanthus acuminatus* Wall. ex A.DC. in Cambodia, Laos and Vietnam.

fleshy, obovate or elliptic, mid green above, pale green beneath, not marbled, $3.6\text{--}13.2 \times 1.3\text{--}6.5$ cm, 1.4–5.5 times as long as wide, apex acuminate, base cuneate to obtuse, glabrous above and beneath, very faintly punctate or not beneath, margin entire, 4–8 pairs of secondary veins, these weakly to clearly visible, tertiary venation obscure. *Inflorescences* subterminal or axillary; peduncle 0.8–4.5 cm long; bracts ovate or orbicular, $4\text{--}10 \times 2\text{--}10$ mm; pedicels 8–9 mm long, glabrous. *Calyx* of separate lobes free to base, green, sometimes with purple tips of lobes, glabrous, ovate or elliptic, completely recurved, or at least widely spreading, $2.5\text{--}4.5 \times 1.4\text{--}3.4$ mm, apex rounded. *Corolla* 15–24.7 mm long, externally green, or green with faint brown lines, yellowish-green or rarely orange-red, lobes green tinged with brown-red margin and patches of brown, pale brick-red or greenish-yellow, internally green with purple markings, lobes brick red; tube broad at base; upper lobes ovate or oblong, mostly reflexed or spreading, $4.6\text{--}7.7 \times 3.3\text{--}6.2$ mm, sinus 3–5.2 mm deep, apex rounded; lateral lobes ovate or deltoid, reflexed, $5.1\text{--}8 \times 5.6\text{--}8.5$ mm, apex obtuse to rounded; lower lobe elliptic or oblong, reflexed, $4.8\text{--}9.1 \times 3.2\text{--}6$ mm, apex rounded, outside glabrous, usually with ciliate lobes, inside with sparse glandular hairs throughout including on base of lobes and in throat, with sessile glands running down tube under lower 3 lobes. *Stamens* long exserted, fused in 2 pairs; filaments various shades of purple and/or red, glabrous or with very few sessile glands, anthers purple or greyish-purple; anterior filaments inserted at 2.5–4 mm

from corolla base which is 13–20% of corolla length, filaments 24–25 mm long, anthers $2.9\text{--}3.6 \times 1.5$ mm; posterior filaments inserted at 5.5–7 mm from corolla base which is 28–35% of corolla length, filaments 19–21 mm long, anthers $2.6\text{--}3 \times 1.4\text{--}1.7$ mm; staminode 1.3–3.5 mm long; pollen yellowish-grey or green. *Disk* 1.4–2.2 mm high, 5-crenate. *Pistil* 19–23 mm long; stipe 2–7 mm long, glabrous; ovary green, 9–22 mm long, glabrous or with very few sessile glands; style pink or green, 4.5–7 mm long, glabrous. *Capsule* 10.5–22 cm long, 2–3.2 mm wide. *Seed* grain $0.7\text{--}1.4 \times 0.2$ mm, fairly smooth, bubble cells absent; apical appendage a solitary hair, 2.9–3.7 mm long; hilar appendage a solitary hair, 3–3.2 mm long; appendages not papillose.

Distribution. Southern China, Taiwan, northeastern India, Burma, Thailand, Vietnam.

Habitat and ecology. In evergreen forest at 100–1820 m altitude.

Proposed IUCN conservation status. Least Concern (LC). This species is common and widespread.

Specimens examined. LAOS. Ban Kikh–Taktoong, 24 xii 1921, *B. Hayata* s.n. (TI). **Bolikhamxai:** near Nape, *Delacour* s.n. (P). **Khammouane:** Nakai Nam Theun, 23 v 2006, *M.F. Newman et al.* LAO 1441 (E); Nakai Nam Theun, Nam On Catchment, Phou Ak escarpment, 23 v 2006, *M.F. Newman et al.* LAO 1246 (E). **Saravan:** Boloven Plateau, vicinity of Paksou, 25 xi 1938, *E. Poilane* 28605 (L, P).

VIETNAM. **Danang:** Col des Nuages, 11 ii 1960, *T. Smitinand & E.C. Abbe* 6426 (A, BKF, K). **Ha Giang:** Vi Xuyen, Cao Bo, Tam Ve Village, 8 ix 2000, *D.K. Harder, P.K. Loc, N.V. Du & N.Q. Hieu* 5304 (MO, SING). **Hoa Binh:** Da Bac District, Phu Canh Mountain range, 4–6 km N of Doan Ket Village, 30 iii 2001, *N.T. Hiep et al.* HAL455 (E); Mai Chau District, Hang Kia Municipality, between Hang Kia and Pa Co Villages, 8 iv 2001, *N.T. Hiep, L. Averyanov & P.K. Loc* HAL762 (E); Mai Chau District, Hank Kia, Thung Ang, 4 xii 2002, *D.K. Harder et al.* 7755 (MO); Mai Chau District, Pa Co, 5 km E of Pa Co, 8 xii 2002, *D.K. Harder et al.* 7990 (MO). **Kon Tum:** Dak Gley, Nui Dai Ding, 18 i 1947, *E. Poilane* 32750 (P); Kon Plong, Hieu, Mang La, 14 iv 2000, *L. Averyanov et al.* VH5218 (E, MO); *ibid.*, 23 iv 2000, *L. Averyanov et al.* VH5589 (E), VH5691 (MO); near Mang Khen village, 17 xi 1995, *L. Averyanov et al.* VH1752 (AAU, MO); *ibid.*, 23 xi 1995, *L. Averyanov et al.* VH1937 (AAU, MO). **Lao Cai:** Laokay–Chapa, *A. Pételot* 8482 (E, P); Van Ban District, Liem Phu, Khuoi Ngao Village, 22 ii 2001, *D.K. Harder et al.* 6649 (MO); Van Ban District, Liem Phu, route to Ta Xa Mountain, RBGE acc. no. 20022492, vouchered as *D.J. Middleton* 4244 (E). **Thanh Hoa:** Ba Thuc District, Thanh Son Municipality, Pu Luong Range, 10 x 2003, *L. Averyanov et al.* HAL4258 (E). **Thua Thien-Hue:** Mt Bach Ma, 23 i 1944, *J.E. Vidal* 688A (P). **Vinh Phu:** Cam Tao, 18 ix 1980, *P.K. Loc* P.4286 (HNU); Massif du Tam-Dao, xii 1930, *A. Pételot* s.n. (P); *ibid.*, *Eberhardt* 3699 (A, P); Tam Duong, Ho Son, near Tam Dao, 27 xi 2003, *P. Thomas & N.D.T. Luu* 68 (E).

Wallich (1828–1849), Brown (1839), Steudel (1840) and Brown (1840) all mentioned this species, and *Aeschynanthus bracteatus*, but gave no descriptions. Both species were validated by de Candolle (1845).

The citation of this species by Pham-Hoàng Hô (1993) looks like it might rather be *Aeschynanthus pedunculatus* but no specimens are cited to check.

3. *Aeschynanthus bracteatus* Wall. ex A.DC., Prodr. 9: 261 (1845); [Wall., Num. List 794 (1829); Brown, Cyrtandreae 116 (1839), nom. nud.; Steudel, Nomencl. Bot. ed. 2, 1: 32 (1840), nom. nud.; Brown in Bennett, Pl. Jav. Rar. 116 (1840), nom. nud.]; Miquel, Fl. Ned. Ind. 2: 718 (1858); Clarke, Commelyn. Cyrtandr. Bengal. t.43 (1874); Clarke in A.DC. & C.DC., Monogr. Phan. 5: 31 (1883); Clarke in Hooker, Fl. Brit. Ind. 4: 342 (1884); Pellegrin, Bull. Soc. Bot. France 72: 823 (1926 [1925]); Pellegrin, Fl. Indo-Chine 4: 494 (1930); Burt & Davidson, Notes Roy. Bot. Gard. Edinburgh 21: 229 (1955); Wang, Phytologia 45: 311 (1980); Wang, Fl. Reipubl. Popularis Sin. 69: 504 (1990); Pham-Hoàng Hô, Cayco Vietnam ed. 3, 3(1): 3 (1993); Wang et al., Fl. China 18: 378 (1998); Hilliard, Fl. Bhutan 2(3): 1301 (2001); Kress et al., Checkl. Myanmar 261 (2003). – *Trichosporum bracteatum* (Wall. ex A.DC.) Kuntze, Revis. Gen. Pl. 477 (1891). – Type: India, Pundua, *N. Wallich* 794 (lecto G-DC, designated here; isolecto BM, G, K, K-W, L, S).

Figs 3, 4.

Aeschynanthus paxtonii Lindl., J. Hort. Soc. London 4: 79 (1849). – Type: Illustration in Lindl., J. Hort. Soc. London 4: 79 (1849), lectotype designated here.

Aeschynanthus peelii Hook.f. & Thomson, Ill. Himal. Pl. 17 (1855); Anthony, Notes Roy. Bot. Gard. Edinburgh 18: 190 (1934); Hilliard, Fl. Bhutan 2(3): 1301 (2001). – *Aeschynanthus bracteatus* var. *peelii* (Hook.f. & Thomson) C.B. Clarke, Commelyn. Cyrtandr. Bengal. t.44 (1874). – Type: Illustration in Hooker, Ill. Himal. Pl. plate 17 (1855), lectotype designated here.

Aeschynanthus hosseusii auct. non Pellegr.: Pellegrin, Fl. Indo-Chine 4: 498 (1930), *pro parte*; Pham-Hoàng Hô, Cayco Vietnam ed. 3, 3(1): 4 (1993).

Epiphytic or lithophytic; stems arching or hanging, green flushed purple, grey-brown when older, glabrous. *Leaves* opposite; petiole 5–21 mm long, glabrous; blade slightly fleshy or coriaceous, sometimes thinly so, elliptic or ovate, dark to mid green above, pale green beneath, not marbled, 3.1–13.5 × 1.1–4.5 cm, 1.8–4.4 times as long as wide, apex acuminate to caudate, base cuneate to rounded, glabrous above and beneath, very faintly punctate or not beneath, margin entire, 4–9 pairs of secondary veins, clearly visible to obscure, tertiary venation obscure. *Inflorescences* axillary or subterminal, 2–6-flowered; peduncle 0.8–11 cm long, bracts showy, red, sometimes with green midvein, elliptic or ovate, 15.5–41 × 4.5–18 mm; pedicels 8–17 mm long, deep maroon, red or green, glabrous. *Calyx* of separate lobes free to base, red or deep maroon, glabrous, lobes linear to narrowly ovate or narrowly elliptic, erect or spreading, 15–26.5 × 2.3–6.5 mm, apex acuminate to rounded. *Corolla* 32–51 mm long, externally tube orange-red, pinkish-red or bright red, sometimes white at extreme base or with a yellow patch on the ventral surface and dark red striations along length, lobes orange-red, pinkish-red or bright red, hairs red, internally lobes red with cream and dark markings on lower 3 lobes, base of corolla often gibbose or slightly so; upper lobes oblong or elliptic, reflexed when mature, 5.2–13.5 × 2.2–6 mm, sinus 2.2–4.7 mm deep, apex rounded; lateral lobes oblong, ovate or deltoid, reflexed, 4.5–11 × 3.7–8.5 mm, apex rounded; lower lobe mostly elliptic-oblong,

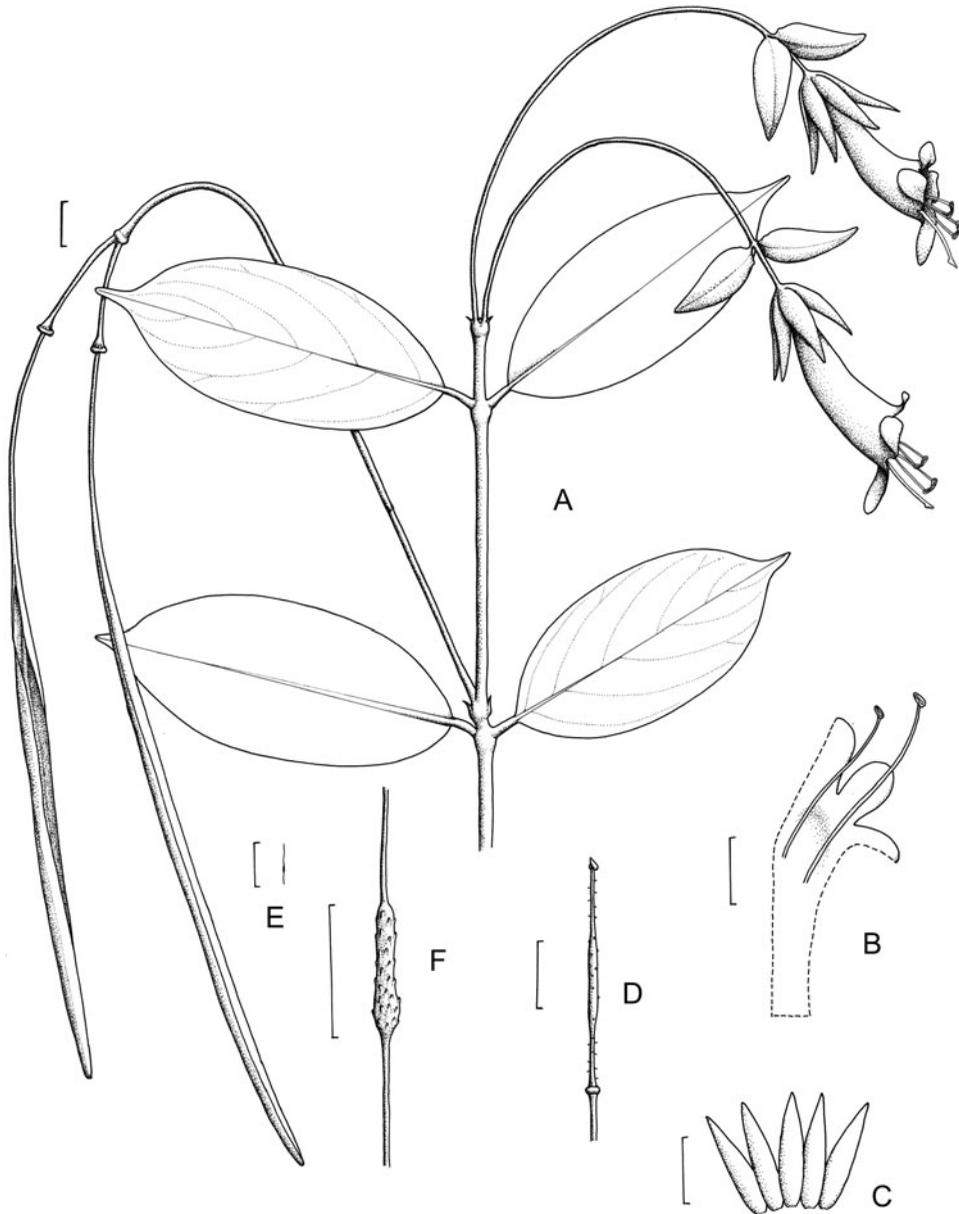


FIG. 3. *Aeschynanthus bracteatus* Wall. ex A.DC. A, habit; B, flower dissection; C, calyx opened out; D, pistil; E, seed; F, seed grain. A–D from Ludlow, Sheriff & Hicks 19649 (BM – from Bhutan, not otherwise accounted for in this revision); E, F from Pételot 2304 (A). Scale bars: A–E, 1 cm; F, 1 mm. Drawn by Anna Dorward.

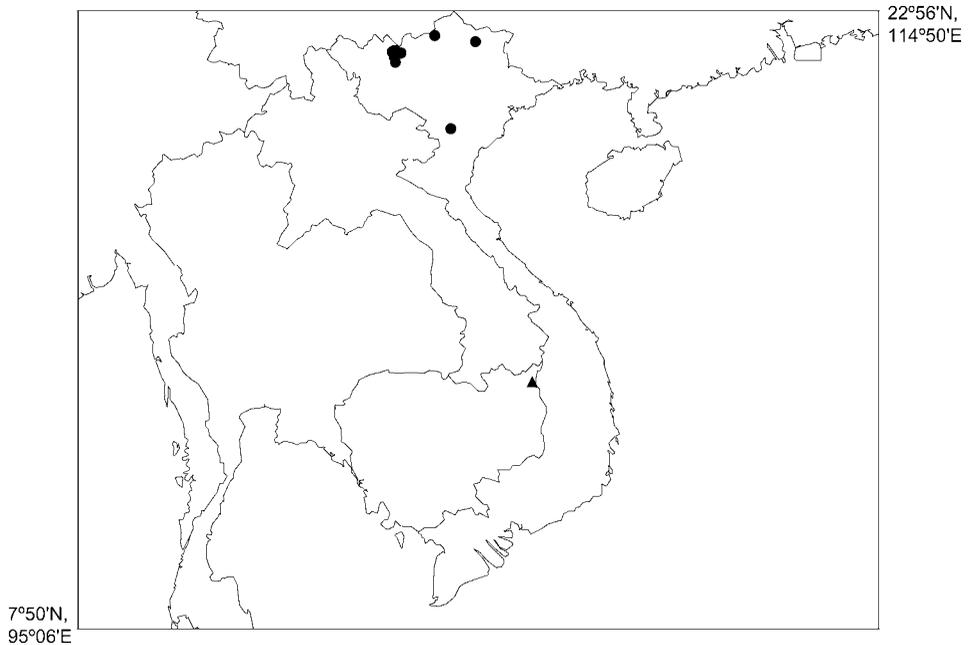


FIG. 4. Distribution of *Aeschynanthus bracteatus* Wall. ex A.DC. (●) and *Aeschynanthus cambodiensis* D.J.Middleton (▲) in Cambodia, Laos and Vietnam.

reflexed or spreading, $3.6\text{--}11 \times 4.3\text{--}7$ mm, apex rounded, outside glabrous with ciliate lobes or with few hairs on dorsal surface and around lobes, inside glabrous or with sparse glandular hairs particularly in upper part and in throat, sessile glands inside tube present. *Stamens* long exserted, fused in 2 pairs; filaments white at base and purple or red higher, with glandular hairs, these sometimes very few, anthers pale yellow; anterior filaments inserted at 14.5–28 mm from corolla base which is 42–68% of corolla length, filaments 23–31 mm long, anthers $2.3\text{--}3.8 \times 0.8\text{--}2$ mm; posterior filaments inserted at 17.5–27.5 mm from corolla base which is 52–65% of corolla length, filaments 17–25 mm long, anthers $2\text{--}3.2 \times 0.8\text{--}1.9$ mm; staminode 0.8–2.5 mm long. *Pollen* yellow or ochre. *Disk* 1.2–2.5 mm high, a simple annular ring or 5-crenate. *Pistil* 20–64 mm long; stipe 5–31 mm long, with glandular hairs or sessile glands or a mixture of the two, sometimes sparsely so; ovary green, 9.9–25 mm long, with glandular hairs or sessile glands or a mixture of the two, sometimes sparsely so; style green, 5.1–14 mm long, pubescence as for ovary; stigma white. *Capsule* 7.7–19 cm long, 2–2.5 mm wide, stipe is mostly fairly long before the capsule widens gradually into the seed-bearing part. *Seed* grain $1\text{--}1.4 \times 0.2$ mm, papillose, bubble cells absent; apical appendage a filiform hair, 2.4–3.5 mm long; hilar appendage a single filiform hair, 2.4–4 mm long; appendages not papillose.

Distribution. Northeastern India, Bhutan, Burma, Vietnam.

Habitat and ecology. In forest, on moist cliff faces and on roadside banks. Throughout its distribution collected over a remarkable altitudinal range from 0–3200 m but in Vietnam collected at 200–1800 m.

Proposed IUCN conservation status. Least Concern (LC). This species is common and widespread.

Specimens examined. VIETNAM. **Cao Bang:** Massif du Pia Houac, Namkep–Cao Houac, vii 1922, *A. Pételot* 705 (P). **Ha Giang:** Vi Xuyen, Cao Bo, Tam Ve Village, 8 ix 2000, *D.K. Harder et al.* 5310 (E, SING). **Lao Cai:** s.l., RBGE acc. no. 19970165, vouchered as *M. Mendum* s.n. (E); 15 km SE of Sa Pa, 3 iv 1995, *W. Cherry* s.n. (NSW); *ibid.*, xi 1991, *R. Cherry* 153 (NSW); Lo Qui Ho–Chapa, 28 vii 1926, *E. Poilane* 12615 (P); Chapa [Sa Pa], 21 vi 1917, *B. Hayata* s.n. (TI); *ibid.*, viii 1939, *A. Pételot* 1107 (HNU); *ibid.*, RBGE acc. no. 19970168, vouchered as *M. Mendum* CULT 167 (E); *ibid.*, viii 1939, *A. Pételot* 2304 (A); *ibid.*, 31 x 1911, *H. Lecomte & A. Finet* 445 (P); *ibid.*, viii 1930, *A. Pételot* 5826 (A, HNU, P); Sa Pa–Ban Khoang, *M. Mendum* s.n. (E); *ibid.*, xi 1991, *R. Cherry* 123 (NSW); *ibid.*, 15 xi 1991, RBGE acc. no. 19970165, vouchered as *M. Mendum* CULT 175 (E); *ibid.*, 3 v 1992, RBGE acc. no. 19970175, vouchered as *M. Mendum* CULT 185 (E); *ibid.*, 3 v 1992, *S. Goodwin & R. Cherry* 92/117 (NSW); Sa Pa District, near Khoang Village, *Vu Xuan Phuong* HNK45 (K); Sa Pa District, Ta Phin Municipality, Tseng Seng Village, 17 vi 2006, *P.K. Loc et al.* HAL8854 (E); Sa Pa, NE ridge of Fan Si Pan, 28 x 1994, *K.D. Rushforth* 3051 (E); Sa Pa District, Cat Cat River environs, 5 xi 2003, *P. Thomas & N.D.T. Luu* 14 (E); Than Uyen, Ho Mit, Mang Han San, 21 v 1999–22 v 1999, *N.T. Hiep et al.* NTH2676 (AAU). **Thanh Hoa:** Ba Thuoc District, Co Lung Municipality, Khuyn Village, 16 ix 2003, *L. Averyanov et al.* HAL2948 (E).

Wallich (1829–1849), Brown (1839), Steudel (1840) and Brown (1840) all mentioned this species, and *Aeschynanthus acuminatus*, but gave no descriptions. Both species were validated by de Candolle (1845).

Aeschynanthus bracteatus is one of the most frequently collected *Aeschynanthus* species in continental Asia. It is common in the eastern Himalayas and has been collected occasionally in northern Vietnam where it is at once recognisable by its large, brightly coloured bracts and strongly reflexed corolla lobes.

Pham-Hoàng Hô (1993) cites *Aeschynanthus hosseusii* Pellegr. but without mentioning a specimen. All of the names used in the work follow Pellegrin (1930) exactly and Pellegrin did cite specimens. It could be assumed, therefore, that the Vietnamese specimen cited by Pellegrin is the source of the name. Pellegrin (1930) misidentified a specimen of *Aeschynanthus bracteatus* as *A. hosseusii*. However, the basic illustration in Pham-Hoàng Hô (1993) would imply a calyx tube which *Aeschynanthus bracteatus* does not have so the citation above should be treated with caution.

The synonymy cited above is certainly only a partial list for this species but a complete synonymy must await a more thorough study of the Himalayan taxa.

The type collection, *Wallich* 794, is mixed, with some of the material belonging to *Aeschynanthus bracteatus* and some to *A. acuminatus*. They are mixed even on some of the sheets. There are two specimens with this number in the de Candolle herbarium; one of them is clearly *Aeschynanthus bracteatus*, and this specimen has been lectotypified.

Although there is material in Kew in a type folder, and labelled as *Aeschynanthus peellii* in Hooker's hand, the protologue quite clearly states that the original material was collected at 5–7500 ft in Sikkim, not 7–9000 ft as noted on the Kew material. Therefore, it is not part of the original material and cannot be lectotypified. Instead, the illustration in the protologue has been typified here.

4. *Aeschynanthus buxifolius* Hemsl., J. Linn. Soc. 35: 515 (1903); Wang, Phytologia 45: 314 (1980); Li, Acta Bot. Yunnan. 5(1): 31 (1983); Wang, Fl. Reipubl. Popularis Sin. 69: 517 (1990); Wang et al., Fl. China 18: 382 (1998); Vu Xuan Phuong, Vietnam J. Biol. 26(4A): 39 (2004). – Type: China, Yunnan, Mengtze, *A. Henry* 11217 (lecto E [barcode E00062765], designated here; isolecto E, K, US).

Fig. 5.

Epiphyte, rarely lithophytic; stems erect, slightly arching when very long, with papery ridges giving the stems a wrinkled look, especially when younger. *Leaves* opposite; petiole 1–4 mm long, glabrous; blade slightly fleshy, elliptic or oblong, dark green above, paler beneath, not marbled, 0.6–3 × 0.5–9 cm, 1.2–3.7 times as long as wide, apex acute to rounded, base cuneate to rounded, glabrous above and beneath, not punctate beneath, margin entire, secondary veins obscure, tertiary venation

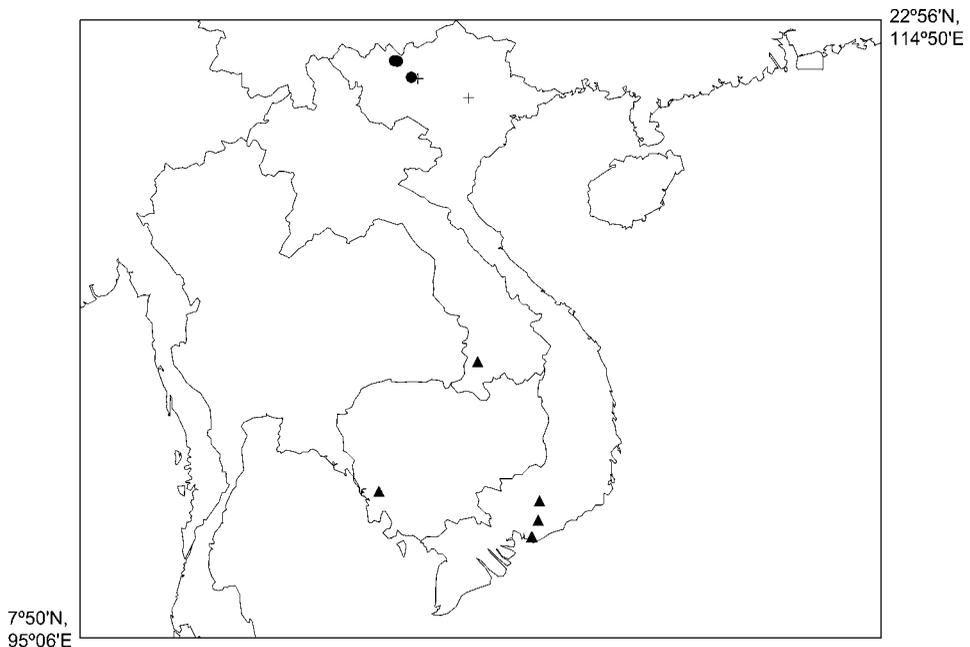


FIG. 5. Distribution of *Aeschynanthus buxifolius* Hemsl. (●), *Aeschynanthus membranifolius* (Costantin) D.J.Middleton (▲) and *Aeschynanthus jouyi* D.J.Middleton (+) in Cambodia, Laos and Vietnam.

obscure. *Inflorescences* subterminal or axillary, flowers solitary, peduncle absent; bracts green, minute; pedicels 6–14 mm long, green, glabrous. *Calyx* of separate lobes free to base, green faintly flushed red, glabrous, lobes linear or narrowly triangular, erect, $3.7\text{--}8 \times 0.9\text{--}1.8$ mm, apex acute or rounded. *Corolla* 24–37 mm long, externally tube bright red to dark red, lobes bright red, internally tube yellow, lobes bright red with cream and dark markings on lower 3 lobes, base of tube narrow to broad; upper lobes squarish, ovate or oblong, reflexed or not, $3.2\text{--}5 \times 3.1\text{--}4.6$ mm, sinus 2.5–3.7 mm deep, apex rounded; lateral lobes deltoid or ovate, reflexed or not, $3.9\text{--}6 \times 4.2\text{--}8$ mm, apex rounded; lower lobe oblong or elliptic, reflexed or not, $5\text{--}7.5 \times 3.6\text{--}6.4$ mm, apex rounded; glabrous outside except for ciliate lobes, inside with sparse glandular hairs and short stiff upward pointing hairs near base, sessile glands inside tube present. *Stamens* long exerted, fused in 2 pairs; filaments white at base and red higher, with glandular hairs in upper part, papillose at base, anthers red; anterior filaments inserted at 12–19 mm from corolla base which is 41–51% of corolla length, filaments 26–28 mm long, anthers $2.6\text{--}3.2 \times 1.1\text{--}1.3$ mm; posterior filaments inserted at 16–20 mm from corolla base which is 54–61% of corolla length, filaments 20.5–22.5 mm long, anthers $2.1\text{--}2.8 \times 1.2\text{--}1.4$ mm; staminode 0.9 mm long. *Pollen* yellow. *Disk* 1.2–1.3 mm high, 5-crenate or a simple annular ring. *Pistil* 24.5–48.5 mm long; stipe 10–18.5 mm long, glabrous or with few sessile glands; ovary cream, 8–15 mm long, glabrous or with sessile glands; style cream, 6.5–15 mm long, glabrous or with few sessile glands; stigma cream, edged red. *Capsule* 6–7.5 cm long, c.3 mm wide. *Seed* grain $0.8\text{--}1 \times 0.3$ mm, papillose, bubble cells absent; apical appendage short and stout, 0.5–0.8 mm long; hilar appendage single and stout, 0.5–1.1 mm long; appendages not papillose.

Distribution. Southern China, northern Vietnam.

Habitat and ecology. In forest at 1600–2550 m altitude.

Proposed IUCN conservation status. Least Concern (LC). This species, although not very frequently collected, has been found over a wide area.

Specimens examined. VIETNAM. s.l., RBGE acc. no. 19970164, grown on from *Cherry* 135, vouchered as *M. Mendum* CULT 168 (E). **Lao Cai:** Lo Qui Ho–Ta Phinh, ix 1929, *A. Pételot* 5178 (P); *ibid.*, viii 1943, *A. Pételot* 8479 (E, P); near Chapa [Sa Pa], 1 viii 1926, *E. Poilane* 12740 (P); Sa Pa–Phong Tho, RBGE acc. no. 19970178, grown on from *Goodwin & Cherry* 384, vouchered as *M. Mendum* s.n. (E); Sa Pa District, near Khoang Village, *Vu Xuan Phuong et al.* HNK56 (K); Van Ban District, Khanh Yen Ha Municipality, SW of Na Nheo, 20 iii 2002, *L. Averyanov et al.* HAL2546 (E).

Aeschynanthus buxifolius is most easily distinguished from other species in this region by the dense minute papery ridges on the stems, resulting in a flaky wrinkled look. It shares this character with *Aeschynanthus garrettii* Craib from Thailand and *A. tubulosus* J. Anthony from China and Burma but those species generally have larger leaves and lack the stout hairs in the corolla tube. *Aeschynanthus buxifolius* and *A. garrettii* have very short appendages on the seeds. This character is unknown in *Aeschynanthus tubulosus*.

5. *Aeschynanthus cambodiensis* D.J.Middleton, sp. nov.

Aeschynantho mendumiae similis sed corolla viridi, foliis margine integro vel debilissime crenato et tubo corollae latiore differt. – Type: Grown on from *Virachay Botanical Survey* 144 from Cambodia, Ratanakiri, Ho Chi Minh Trail between border post and Otayak Ranger's outpost, RBGE acc. no. 20060028, vouchered as *D.J. Middleton* 4232 (holo E; iso BKF, E, P, RUPP). **Figs 4, 6.**

Epiphyte with arching and pendulous stems; stems green, turning brown with age, glabrous. *Leaves* opposite; petiole 3–8 mm long, glabrous; blade coriaceous, elliptic, dark green with pale green veining above, purple with pale green veining beneath, 4.5–14.3 × 1.5–4.3 cm, 2–4.4 times as long as wide, apex acuminate, base cuneate to acute, glabrous above and beneath, not punctate beneath, margin entire or very weakly crenate, secondary and tertiary veins obscure except by association with coloration. *Inflorescences* axillary, 1–2-flowered, peduncle absent; pedicels 7–9 mm long, green, glabrous. *Calyx* of separate lobes free to base, pale green, glabrous, lobes narrowly ovate or linear, erect or slightly spreading, 17.5–25 × 2.3–2.5 mm, apex acuminate. *Corolla* 24–27 mm long, externally tube green (but with some red from the inside of the corolla showing through in upper part), lobes pale orange at margin and green at base, internally tube green at base and red at top, lobes pale orange at margin and red at base; upper lobes oblong, not spreading or reflexed, c.3 × 3.5 mm, sinus 4 mm deep, apex rounded; lateral lobes deltoid, not spreading or reflexed, c.5 × 5 mm, apex rounded; lower lobe squarish, not spreading or reflexed, c.4.5 × 3.8 mm, apex rounded; outside sparsely glandular puberulent, inside with a broad band of robust multicellular hairs in lower half and scattered ones higher. *Stamens* long exserted, fused in 2 pairs; filaments green, with glandular hairs; anterior filaments inserted at c.11 mm from corolla base which is c.41% of corolla length, filaments c.31 mm long, anthers c.2.6 × 1.2 mm; posterior filaments inserted at c.14 mm from corolla base which is c.52% of corolla length, filaments c.25 mm long, anthers c.2.2 × 1.2 mm; staminode c.1 mm long. *Disk* c.1.2 mm high, a simple annular ring. *Pistil* c.48 mm long; stipe c.4 mm long, glabrous; ovary green, c.10.5 mm long, glabrous; style green, c.33.5 mm long, sparsely glandular pubescent. *Fruit* unknown.

Distribution. Cambodia. Only known from one collection in Ratanakiri Province but this is not far from both the Lao and Vietnamese borders so it could also occur in those countries.

Habitat and ecology. The only collection was made in a seasonally flooded area with a *Dipterocarpus* canopy and grassy areas at 140 m altitude.

Proposed IUCN conservation status. Least Concern (LC). This species has only been collected once in the wild in northern Cambodia in an area which is extremely poorly known. This would suggest a category of Data Deficient might be appropriate. However, the site is in a National Park and there is extensive forest in the region, including contiguous forest into southern Laos and western Vietnam.

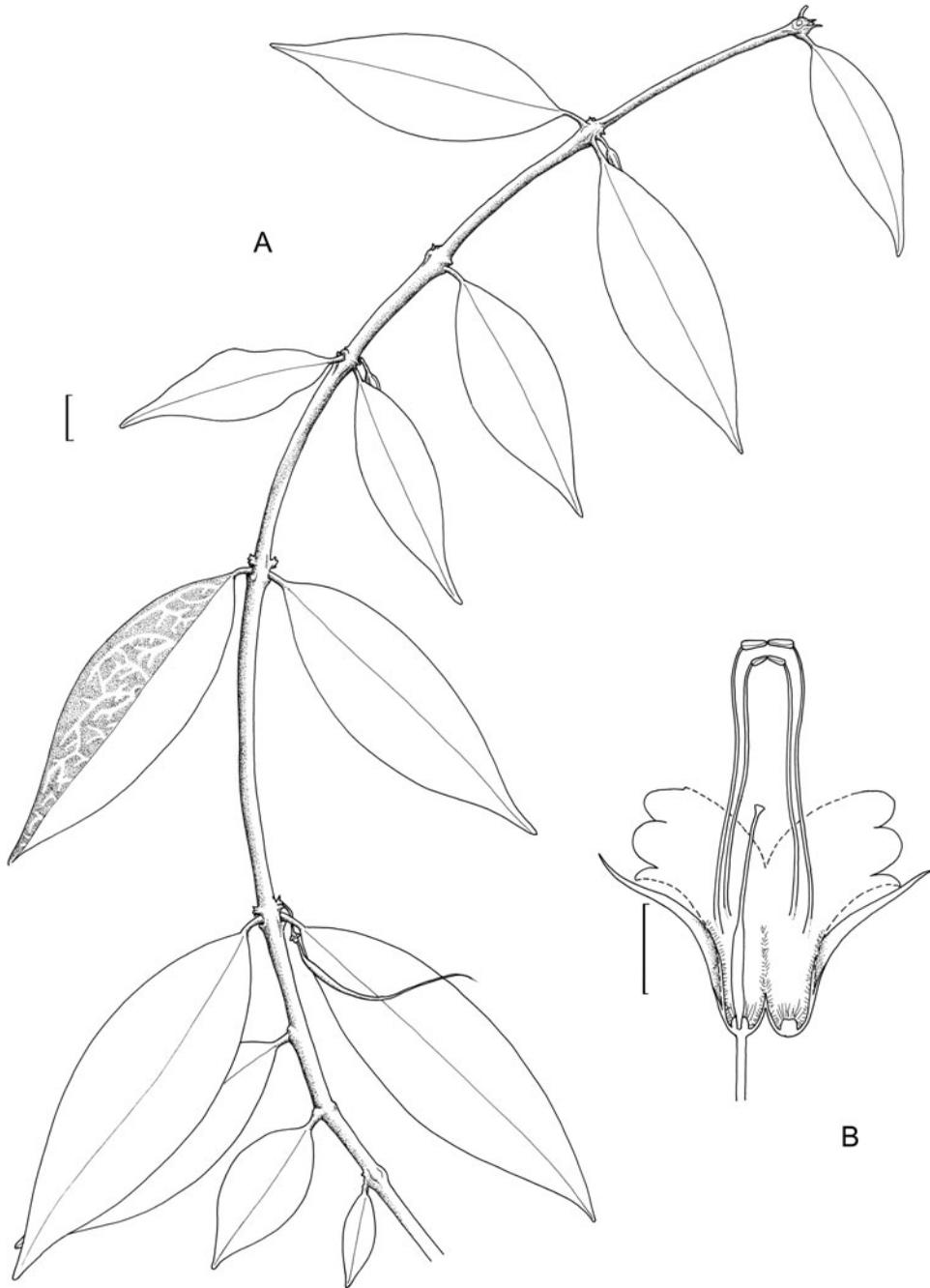


FIG. 6. *Aeschynanthus cambodiensis* D.J.Middleton. A, habit; B, flower dissection. From Middleton 4232 (E). Scale bars: A, B, 1 cm.

This species is only known from the type collection, taken from a plant flowering in the greenhouse at the Royal Botanic Garden Edinburgh which had been grown on from wild-collected material. It is close to *Aeschynanthus mendumiae* with which it shares characters common in *Aeschynanthus* sect. *Polytrichium* (i.e. multicellular hairs in lower corolla tube, mottled leaves, green in the corolla; the seed characters are not known in either species but the seeds have multiple hairs at the hilar end in all other members of the section) as well as the long calyx lobes. They differ in *Aeschynanthus cambodiensis* having less markedly toothed leaf margins, a somewhat broader corolla tube and in the colour of the calyx and corolla tube. In *Aeschynanthus mendumiae* the calyx is red and the outside of the corolla tube is yellowish-green at the base for about 1/3–2/3 of the tube length and red at the top. In *Aeschynanthus cambodiensis* the calyx is green, the outside of the corolla tube is completely green (but with a hint of red coming through from the colour of the inside of the tube), and the lobes are green with an orange margin. There is no doubt that these two species, plus *Aeschynanthus sinolongicalyx* W.T.Wang from China, form a close alliance and may in the future prove to be one very variable species but until further collections from Cambodia, Laos, Vietnam and southern China are made they should be kept separate.

6. *Aeschynanthus chiritoides* C.B.Clarke in A.DC. & C.DC., Monogr. Phan. 5: 28 (1883); Clarke in Hooker, Fl. Brit. Ind. 4: 341 (1884); Hilliard, Fl. Bhutan 2(3): 1300 (2001); Kress et al., Checkl. Myanmar 261 (2003). – *Trichosporum chiritoides* (C.B.Clarke) Kuntze, Revis. Gen. Pl. 477 (1891). – Type: India, Arunachal Pradesh, *Booth in Herb. Nuttall* s.n. (lecto K, designated here). **Figs 7, 8.**

Aeschynanthus pusillus Prain, J. Asiat. Soc. Bengal 67(2): 299 (1898). – Type: Burma, Kachin Hills, i 1898, *Shaik Mokim* s.n. (lecto K, designated here).

Aeschynanthus denticuliger W.T.Wang, Acta Phytotax. Sin. 13(2): 65 (1975); Wang, Phytologia 45: 315 (1980); Li, Acta Bot. Yunnan. 5(1): 31 (1983); Wang, Bull. Bot. Res., Harbin 4(1): 29 (1984); Wang, Fl. Reipubl. Popularis Sin. 69: 519 (1990); Wang et al., Fl. China 18: 383 (1998); Vu Xuan Phuong, Vietnam J. Biol. 26(4A): 39 (2004). – Type: China, Yunnan, Xichou, 1939, *C.W. Wang* 85615 (holo PE; iso IBSC n.v., KUN n.v.).

Epiphyte with stems hanging or creeping, sparsely to densely brown pubescent. *Leaves* opposite or in whorls of 3, often both types on a single branch; petiole 1–6 mm long, green, densely pubescent with long hairs; blade fleshy to papery, elliptic, obovate or orbicular, green above and beneath, not marbled, 0.7–3 × 0.4–1.1 cm, 1–3.5 times as long as wide, apex acuminate to rounded or apiculate, base obtuse to cuneate, sparsely puberulent all over or with few long hairs only near margins above, sparsely to densely pubescent with longish hairs all over beneath, margin entire or dentate towards apex, secondary and tertiary venation obscure. *Inflorescences* axillary, flowers solitary or in pairs; pedicel 3.7–17 mm long, green suffused purple, with dense long hairs. *Calyx* of separate lobes free to base, pale green, with long hairs,

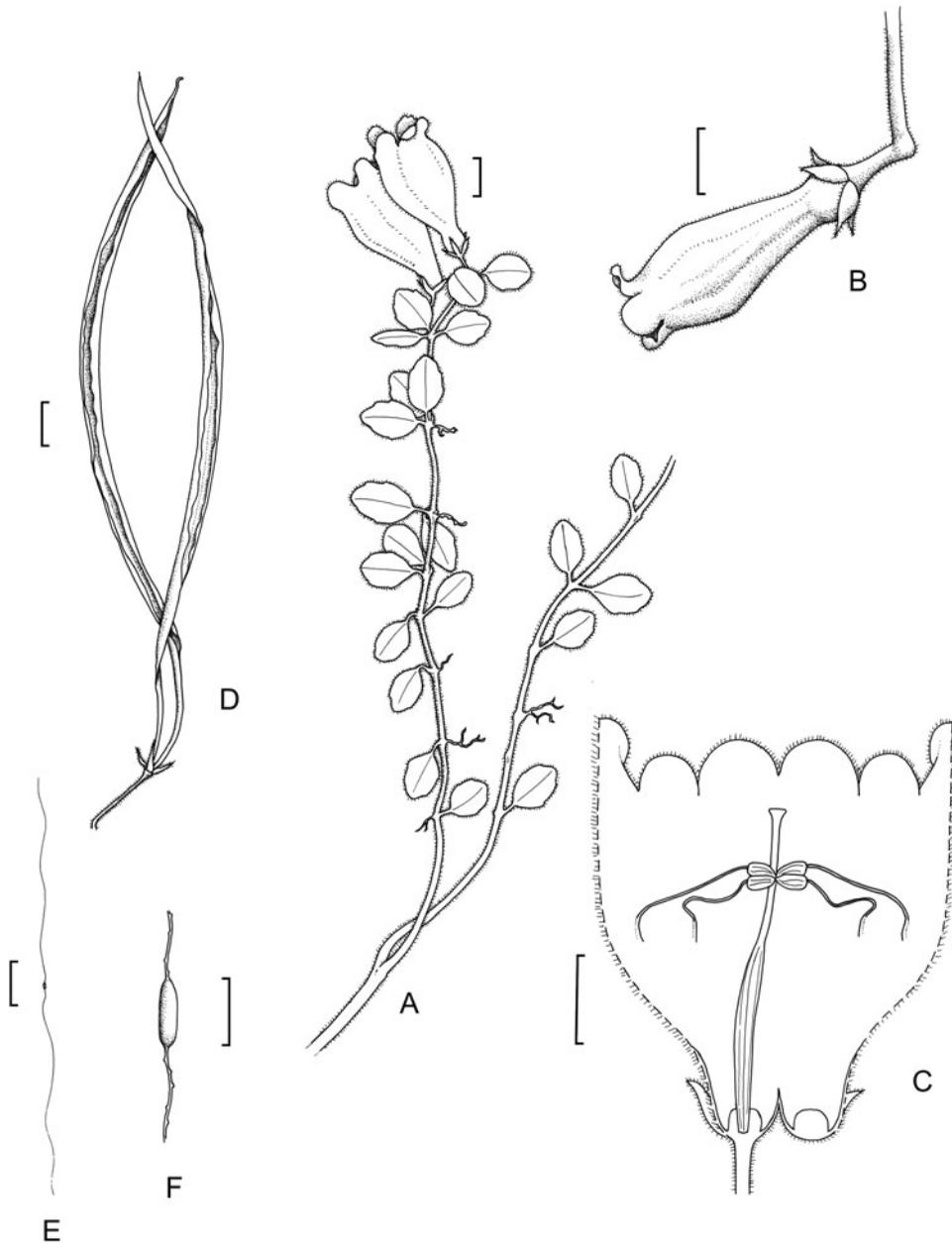


FIG. 7. *Aeschynanthus chiritoides* C.B.Clarke. A, habit; B, flower; C, flower dissection; D, fruit; E, seed; F, seed grain. A–C from Pételot s.n. (E); D–F from Poilane 26366 (P). Scale bars: A–E, 1 cm; F, 1 mm. Drawn by Anna Dorward.

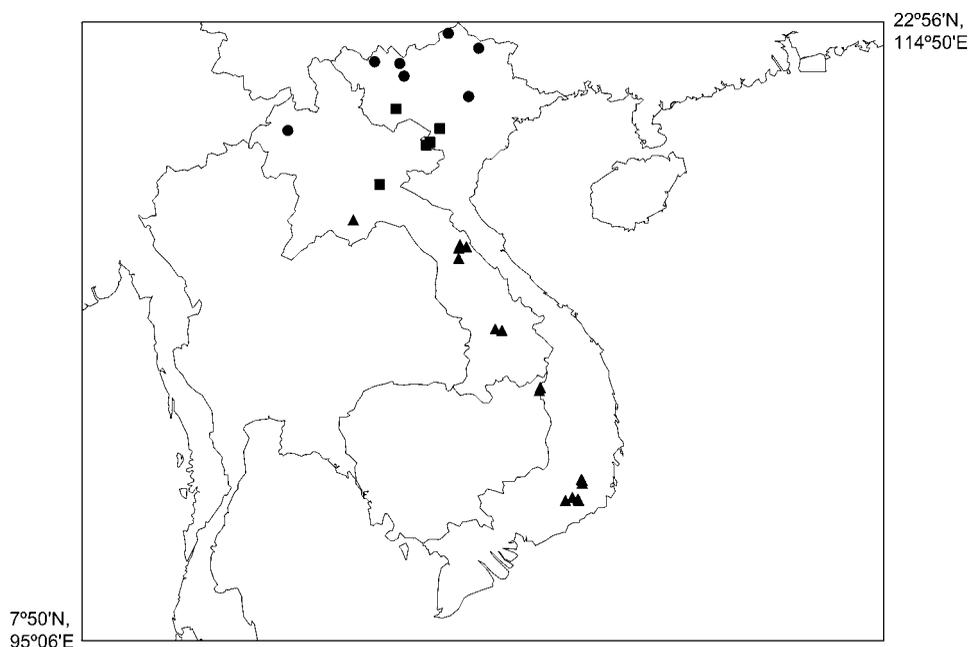


FIG. 8. Distribution of *Aeschynanthus chiritoides* C.B.Clarke (●), *Aeschynanthus fulgens* Wall. ex R.Br. (▲) and *Aeschynanthus humilis* Hemsl. (■) in Cambodia, Laos and Vietnam.

these glandular or eglandular or a mixture of both, lobes narrowly triangular or narrowly ovate, erect or slightly spreading, $4.2\text{--}11 \times 0.6\text{--}3$ mm, apex acute. *Corolla* (20–)32–47 mm long, externally white or slightly yellowish or greenish with a few thin purple lines, lobes white or slightly pale green with pale purplish lines, hairs white, internally tube white or yellowish, sometimes with some pale green on the ventral surface, with dark purple lines down into tube, lobes white with 3 dark purple lines on lower 3 lobes and 2 faint lines on upper 2 lobes none of which reach margin, base of corolla tube gibbose; upper lobes ovate or oblong, spreading, $4.5\text{--}8 \times 4\text{--}9$ mm, sinus $4.7\text{--}8.5$ mm deep, apex rounded; lateral lobes deltoid or ovate, spreading, $4.7\text{--}9.5 \times 5.3\text{--}8$ mm, apex rounded; lower lobe oblong, spreading, $5.7\text{--}10.5 \times 4\text{--}6.7$ mm, apex rounded; sparsely to densely glandular puberulent outside, glabrous inside. *Stamens* not exerted, all 4 fused together; filaments white, few glandular hairs at top, anthers purple; anterior filaments inserted at 18–24 mm from corolla base which is 49–63% of corolla length, filaments 11–13 mm long, anthers $2.2\text{--}4.2 \times 1\text{--}2$ mm; posterior filaments inserted at 21–23 mm from corolla base which is 51–61% of corolla length, filaments 9–14 mm long, anthers $2.7\text{--}4.2 \times 1.2\text{--}1.4$ mm; staminode c.2.2 mm long. *Disk* 1.8–3.6 mm high, 5-crenate or a simple annular ring. *Pistil* 26.5–35 mm long; stipe 8–9 mm long, glandular puberulent; ovary pale purple, 9.5–15 mm long, with subsessile glandular hairs and with or without longer glandular and eglandular hairs; style pale purple, 9–11 mm long,

glandular pubescent; stigma green. *Capsule* 6–16.5 cm long. *Seed* grain c.1.2 × 0.3 mm, warty, bubble cells absent; apical appendage a filiform hair, c.22 mm long; hilar appendage a single filiform hair, c.17 mm long; appendages papillose.

Distribution. Northeastern India, northern Burma, southern China (Yunnan), northern Laos, northern Vietnam.

Habitat and ecology. In evergreen or mossy forest at 610–1500 m altitude throughout its range, 1000–1450 m in Laos and Vietnam.

Proposed IUCN conservation status. Least Concern (LC). Although infrequently collected throughout its range it is very widespread.

Specimens examined. LAOS. **Louang Namtha:** Nam Mai–Vienphoukha, 31 v 1936, *E. Poilane* 26366 (P).

VIETNAM. **Cao Bang:** Bao Lac District, Ca Thanh, 3 km SW of Yen Lac Village, 18 xi 1998, *L. Averyanov et al.* CBL 384 (AAU, MO). **Ha Giang:** Lao Va Cy Commune, RBGE acc. no. 20022519, vouchered as *D.J. Middleton* 3696 (E); Yen Minh, slopes below karst ridges and peaks near Lao Va Cha, 13 xi 2002, *M.F. Gardner et al.* 163 (E). **Lai Chau:** San Tang Ngai, 10 iv 1936, *E. Poilane* 25668 (E, P). **Lao Cai:** Sa Pa, 7 xii 1964, *Sino-Vietnam Expedition* 2625 (HN); Van Ban District, Nam Xe Municipality, Nam Xi Tan Village, 26 ii 2001, *D.K. Harder et al.* 6898 (E). **Vinh Phu:** Massif du Tam-Dao, xii 1930, *A. Pételot* s.n. (E, P).

This is a variable species which now also encompasses *Aeschynanthus pusillus* from Burma and *A. denticuliger* from China. The former differs from typical *Aeschynanthus chiritooides* only in the flower being somewhat smaller (although the single flower on the type may be somewhat immature). *Aeschynanthus denticuliger* is at one end of the range of variation in ovary pubescence and calyx pubescence. Otherwise it is unremarkable. All specimens have subsessile glands on the ovary (never glabrous as described for *Aeschynanthus denticuliger* in Wang *et al.*, 1998), but in many cases these are accompanied by a mixture of longer and shorter glandular hairs and sometimes also with eglandular hairs. These hairs are mostly missing, although not entirely, in material previously placed in *Aeschynanthus denticuliger* from China but not the material placed in this species from Vietnam. The material from India has long and relatively sparse glandular hairs on the calyx. The material from further east tends to have a denser hair covering but the number of glandular hairs is lower.

When in fruit *Aeschynanthus chiritooides* is rather similar to *A. gracilis* Parish ex C.B. Clarke from Nepal, Bhutan, northeastern India, Burma and Thailand. In flower they cannot be confused as *Aeschynanthus gracilis* has bright red flowers of an entirely different shape to the white or near white flowers of *A. chiritooides*. They are currently not known to occur in the same areas but it is very likely they do so given the rather disjunct current distribution of *Aeschynanthus gracilis*.

Booth in Herb. Nuttall s.n. (K) has been chosen as the lectotype of *Aeschynanthus chiritooides* as it is the best specimen of the syntypes listed by Clarke (1883). The label says the plant was collected in Bhutan ('Bootan') but this is likely a mistake for a locality in Arunachal Pradesh in India, east of Bhutan (Ludlow, 1972).

7. *Aeschynanthus fulgens* Wall. ex R.Br., *Cyrtandreae* 115 (1839); Steudel, *Nomencl. Bot.* ed. 2, 1: 32 (1840); Brown in Bennett, *Pl. Jav. Rar.* 115 (1840); A.DC., *Prodr.* 9: 261 (1845); Clarke in A.DC. & C.DC., *Monogr. Phan.* 5: 21 (1883); Clarke in Hooker, *Fl. Brit. Ind.* 4: 338 (1884); Smitinand, *Thai Pl. Names* ed. 2, 14 (2001); Burtt, *Thai For. Bull. (Bot.)* 29: 83 (2001); Kress et al., *Checkl. Myanmar* 261 (2003); Pooma, *Threatened Pl. Thailand* 70 (2005); Middleton, *Edinburgh J. Bot.* 64: 381 (2007). – *Trichosporum fulgens* (Wall. ex R.Br.) Kuntze, *Revis. Gen. Pl.* 477 (1891). – Type: Burma, Tavoy, *W. Gomez in Wallich* 797 (lecto K-W, designated by Middleton (2007b: 381); isolecto BM, CGE, G, G-DC, K). **Fig. 8.**
- Aeschynanthus evrardii* Pellegr., *Bull. Soc. Bot. France* 72: 824 (1926 [‘1925’]); Pellegrin, *Fl. Indo-Chine* 4: 499 (1930); Pham-Hoàng Hô, *Cayco Vietnam* ed. 3, 3(1): 4 (1993); Newman et al., *Checkl. Vasc. Pl. Lao PDR* 146 (2007). – Type: Vietnam, Lam Dong, Ang Kroet, 26 x 1920, *F. Evrard* 358 (lecto P, designated by Middleton (2007b: 381); isolecto P).
- Aeschynanthus stenosphonius* W.T.Wang, *Bull. Bot. Res., Harbin* 3(4): 49 (1983); Smitinand, *Thai Pl. Names* ed. 2, 15 (2001); Burtt, *Thai For. Bull. (Bot.)* 29: 84 (2001). – Type: Laos, Vieng Pa Pow Tha Kaw, 2 xi 1921, *B. Hayata* s.n. (holo TI; iso TI).
- Aeschynanthus macranthus auct. non* (Merr.) Pellegr.: Pellegrin, *Fl. Indo-Chine* 4: 498 (1930), *pro parte*; Barnett, *Fl. Siam.* 3(3): 201 (1962); Burtt, *Thai For. Bull. (Bot.)* 29: 84 (2001).

Epiphyte with stems arching and pendulous or upright, green or dull olive-green, sometimes with purple mottling, glabrous. *Leaves* opposite; petiole 3–20 mm long, glabrous; blade coriaceous to fleshy, elliptic, oblong or ovate, mid to dark green above, paler green beneath, not marbled, 3.3–17 × 1–5.2 cm, 1.7–7.5 times as long as wide, apex acuminate, base cuneate to rounded, glabrous above and beneath, margin entire, 4–8 pairs of secondary veins, obscure to clearly visible, tertiary venation obscure. *Inflorescences* subterminal or axillary, 3–16-flowered, peduncle absent; bracts deep maroon, ovate or linear, 2.1–11 mm long; pedicels 3.5–24 mm long, green, glandular puberulent or glabrous. *Calyx* with a tube at base, lobes free, tube very variable in width from narrow and clasping corolla tube to quite wide and not clasping corolla, yellowish, greenish or brownish, sometimes with reddish lobes, glabrous except for ciliate lobes, or few hairs only on very tips of lobes, to glandular pubescent all over, total length 7–26 mm long; tube 2.4–18.5 mm long which is 34–94% of total length, 3.5–14 mm wide at top of tube; lobes triangular, slightly spreading or erect, 1–11.5 × 1.2–6.5 mm, apex rounded to acuminate. *Corolla* 41–73 mm long, tube narrow at base, externally bright red to darker red or orange-red, sometimes yellowish at base, usually with darker lines on tube, red or orange-red with a black central line on lobes, sometimes yellowish at very base, internally yellowish to pale red in tube, lobes orange-red or red with a dark red or black central line or arrow and pale orange to cream at base; upper lobes slightly falcate, reflexed or not, 3.2–7.5 × 3.3–7 mm, sinus 3.5–10.5 mm deep, apex obtuse or rounded; lateral

lobes deltoid, not spreading or reflexed, 2.8–8 × 5.2–9.5 mm, apex rounded or obtuse; lower lobe oblong or elliptic, reflexed, 5.1–14 × 3–6 mm, apex obtuse or rounded; sparsely to densely glandular puberulent outside or only at top of tube and on lobes or only ciliate on lobes, minutely and sparsely to very sparsely glandular puberulent internally, this sometimes denser towards the upper half, sessile glands present at top of tube. *Stamens* long exserted, fused in 2 pairs or rarely all 4 attached; filaments mostly darker in the upper half and ranging from reddish to purplish and then to white at base, sparsely glandular pubescent to glabrous or with few sessile glands in lower part, anthers dark maroon, purple, yellow, white and purple, or greyish-purple; anterior filaments inserted at 26–48 mm from corolla base which is 50–72% of corolla length, filaments 25–50 mm long, anthers 3–5.6 × 0.9–2.3 mm; posterior filaments inserted at 32–50 mm from corolla base which is 58–82% of corolla length, filaments 25–42 mm long, anthers 2.5–5 × 1–2.1 mm; staminode 0.7–11 mm long. *Pollen* ochre or yellow. *Disk* 0.5–2.5 mm high, a simple annular ring, 5-dentate, 5-crenate or strongly 5-lobed. *Pistil* 15.5–80 mm long; stipe 3–26 mm long, glabrous; ovary green or cream, 8–38 mm long, glabrous or with sessile glands; style cream or white, 4.5–41 mm long, glandular pubescent to glabrous. *Capsule* 15.7–42 cm long, 2–5 mm wide. *Seed* grain 0.8–2 × 0.2–0.5 mm, warty, bubble cells absent; apical appendage a filiform hair, 16–34 mm long; hilar appendage a single filiform hair, 13.5–35 mm long; appendages papillose.

Distribution. Burma, Thailand, Cambodia, Laos, Vietnam, Peninsular Malaysia.

Habitat and ecology. In primary or disturbed evergreen, mixed deciduous or mossy forest at 10–1500 m altitude, 336–1500 m in Cambodia, Laos and Vietnam.

Proposed IUCN conservation status. Least Concern (LC). This species is common and widespread.

Additional specimens examined. CAMBODIA. **Ratanakiri:** Virachay National Park, O'Tayak River, 17 xii 2005, *P. Thomas, Koun Theah, Thon Sokhon, Seth Teng, Srun Sokhon & Yan Bounsoeung* 84 (E); Virachay National Park, O'Tayak River, near Teuk Chrus Bei Chon (Three Steps Waterfall) camp, RBGE acc. no. 20060021, vouchered as *D.J. Middleton* 4212 (E); Virachay National Park, small watercourse running west–east into O'Tayak River along Ho Chi Minh Trail, 19 xii 2005, *P. Thomas, Koun Theah, Thon Sokhon, Seth Teng, Srun Sokhon & Yan Bounsoeung* 131 (E).

LAOS. Keng Meow on Nam Teun, Nong Sa Mek, 16 ii 2005, *M.F. Newman et al.* LAO 248 (E); *ibid.*, 16 ii 2005, *M.F. Newman et al.* LAO 89 (E); Nakai Nam Theun, Kaeng Maew, 21 x 2005, *M.F. Newman et al.* LAO 371 (E); Nong Sa Mek, RBGE acc. no. 20050525, vouchered as *D.J. Middleton* 3703 (E); *ibid.*, 11 ii 2005, *M.F. Newman et al.* LAO 82 (E); Nong Sa Mek, S of Ban Mak Pheuang, 30 x 2005, *M.F. Newman et al.* LAO 746 (E); Phou Thane, *C.J. Spire* 195 (P); *ibid.*, *C.J. Spire* 335 (P); Phou Yang, 25 x 2005, *M.F. Newman et al.* LAO 1017 (E). **Saravan:** Dasia–Ta Teng, 10 ix 1928, *E. Poilane* 15541 (P); L. sung–L. loi, *E. Poilane* 13749 (K, P). **Vientiane:** Nam Ngum Reservoir, 19 x 1974, *J.E. Vidal* 5962 (P).

VIETNAM. **Lam Dong:** *M. Mendum* CULT 173 (E); Dalat, 29 ix 1924, *F. Evrard* 1260 (A, P); *ibid.*, 2 x 1924, *F. Evrard* 1302 (K, P); Di Linh District, Bao Thuan Commune, Briian Massif, Tam Hiep State Forest Enterprise, 9 xi 2003, *P. Thomas & N.D.T. Luu* 40 (E); Djiring, 1952, *Unknown*

21 f183 (P); Lahouan, 21 ix 1940, *E. Poilane* 30438 (P); Langbiang, RBGE acc. no. 20010650, vouchered as *M. Mendum* CULT 174 (E); *ibid.*, 20 ix 2001, *First Darwin Expedition* 239 (E).

This is a widespread and very variable species – for a discussion of the variability see Middleton (2007b). It is illustrated in Middleton (2007b).

8. *Aeschynanthus humilis* Hemsl., *J. Linn. Soc.* 35: 516 (1903); Pellegrin, *Bull. Soc. Bot. France* 72: 823 (1926 [1925]); Pellegrin, *Fl. Indo-Chine* 4: 497 (1930), *pro parte*; Wang, *Phytologia* 45: 315 (1980); Li, *Acta Bot. Yunnan.* 5(1): 31 (1983); Wang, *Fl. Reipubl. Popularis Sin.* 69: 515 (1990); Wang et al., *Fl. China* 18: 382 (1998); Burt, *Thai For. Bull. (Bot.)* 29: 83 (2001); Newman et al., *Checkl. Vasc. Pl. Lao PDR* 146 (2007); Middleton, *Edinburgh J. Bot.* 64: 392 (2007). – Type: China, Yunnan, Simao, 7 xi [year unknown], *A. Henry* 13204 (lecto K, designated by Middleton (2007b: 392); isolecto E, US). **Fig. 8.**

Aeschynanthus persimilis auct. non Craib: *Mendum*, *Gloxinian* 53(1): 8 (2003).

Epiphyte with erect stems, these sometimes somewhat decumbent; stems green or grey-brown, sparsely to densely puberulent. *Leaves* subopposite, opposite or in whorls of 3–5, sometimes densely clustered at stem apex; petiole 1–6 mm long, sparsely to densely puberulent; blade papery to coriaceous, dark to mid green above, sometimes slightly blue-green, paler green beneath, not marbled, obovate to elliptic, 1–5 × 0.5–2 cm, 1.2–4.2 times as long as wide, apex acute to rounded or apiculate, base cuneate; glabrous to sparsely puberulent all over above, sparsely to densely puberulent all over beneath, not punctate beneath, c.4 pairs of secondary veins, but these mostly obscure, tertiary venation obscure. *Inflorescences* axillary or sub-terminal, flowers 1–4, peduncle absent; pedicels 6.5–11 mm long, glabrous to puberulent. *Calyx* pale green, sometimes suffused reddish, fused into a short tube at base, glabrous to eglandular puberulent or with few hairs only on very tips, 1–4.2 mm long; tube 0.3–1.2 mm long, 16–40% of total length, 1.8–2.3 mm wide at apex; lobes triangular or narrowly triangular, erect, 0.6–3 × 0.5–1.6 mm, apex acuminate or acute. *Corolla* 15–28 mm long, externally tube bright red or bright red with darker lines, lobes bright red and with darker lines on lower 3 lobes, hairs red, internally tube cream, lobes cream with darker marks on lower 3 lobes; upper lobes ovate, not spreading or reflexed, 1–2.7 × 0.8–3 mm, sinus 0.9–3.7 mm deep, apex rounded; lateral lobes deltoid, not spreading or reflexed, 1.2–2.2 × 2–5.5 mm, apex rounded or obtuse; lower lobe elliptic, slightly spreading or not, 2.5–6.5 × 0.8–2.3 mm, apex rounded; outside sparsely to densely glandular puberulent, inside with short stiff upward pointing hairs near base. *Stamens* long exserted; filaments white, sometimes pale purple in upper part, with few glandular hairs, anthers grey or pale purple, pollen grey or ochre; anterior filaments inserted at 8.5–12 mm from corolla base which is 40–41% of corolla length, filaments 22–25 mm long, anthers 1.5–2.4 × 0.6–0.8 mm; posterior filaments inserted at 12–16 mm from corolla base which is 49–60% of corolla length, filaments 15–19 mm long, anthers 1–1.5 × 0.5–0.8 mm; staminode 0.5 mm long. *Disk* 0.3–1.3 mm high, 5-crenate or a simple

annular ring. *Pistil* 22–27 mm long; stipe 0–2 mm long, glabrous; ovary 6–10.2 mm long, glabrous; style 8–20 mm long, sparsely glandular pubescent. *Capsule* 3.7–11 cm long, 2.4–3 mm wide. *Seed* grain 1.6–2.3 × 0.4–0.7 mm, smooth, bubble cells absent; apical appendage a filiform hair, c.14 mm long; hilar appendage a single filiform hair, 13–14 mm long; appendages papillose.

Distribution. Southern China, Thailand, Laos, Vietnam.

Habitat and ecology. In evergreen forest at 1000–1690 m altitude.

Proposed IUCN conservation status. Least Concern (LC). This species is fairly widespread.

Specimens examined. LAOS. **Houa Phan:** Sam Neua, Muong Peun–Muang Ho, 14 x 1920, *A.J.B. Chevalier* 2073 (P); Vieng Xai District, 23 xi 2005, *M.F. Newman et al.* LAO 1117 (E); Vieng Xai District, Summit area of Triangle Mountain above village of Ban Hin Pean, RBGE acc. no. 20052544, vouchered as *D.J. Middleton* 4207 (E). **Xieng Khouang:** Ban Phu Phao, 31 xii 1957, *T. Tuyama* L-57238 (TI).

VIETNAM. **Hoa Binh:** Mai Chau, Pa Co, 20 x 2002, *M.F. Gardner et al.* 6 (E). **Son La:** Thuan Chau, Ban Lam, Ban Lam Village, Hua Bay Mountain, 10 xi 2006, *N.T. Hiep et al.* HAL9646 (MO).

A very distinct species in Laos and Vietnam with its erect stems and small red flowers. It is closely related to a number of other species in Thailand and the Himalayas (see Middleton, 2007b).

9. *Aeschynanthus jouyi* D.J.Middleton, **sp. nov.**

Aeschynanthi rhododendroni similis sed staminibus exsertis et stylo glabro differt.
– Type: Vietnam, Lao Cai, Van Ban District, Liem Phu, Hoang Lien Mountain Range, Ta Xa Mountain close to the Nam Qua River, RBGE acc. no. 20022503, vouchered as *D.J. Middleton* 4593 (holo E; iso HN, P). **Figs 5, 9.**

Epiphyte with robust arching and pendulous stems, often erect when young; stems green, glabrous. *Leaves* opposite; petiole 1.7–2.5 mm long, green, glabrous; blade coriaceous, elliptic, dark green above, paler beneath, not marbled, 5–11.5 × 2.5–5.5 cm, 2–2.9 times as long as wide, apex acuminate, base acute to cuneate, glabrous above and beneath, punctate beneath, margin entire to weakly crenate towards apex, c.4 pairs of secondary veins, weakly visible, tertiary venation obscure. *Inflorescence* terminal, 2–7-flowered; peduncle 2–13 mm long; pedicels 12–21 mm long, green, glabrous. *Calyx* with a long tube and free lobes, tube not clasping corolla and erect at top, green, sometimes tinged red on lobes, glabrous, total length 28–35 mm long; tube 18–25 mm long which is 64–75% of total length, c.7.5 mm wide at top of tube; lobes somewhat irregular in size within a flower, narrowly triangular, erect, 8–11 × 2.8–4 mm, apex acute. *Corolla* 76–83 mm long, tube broad at base, externally bright red, internally light yellowish, lobes externally bright red, internally red with darker markings on lower 3 lobes; upper lobes oblong, not spreading or reflexed, almost appearing as a single lobe, each c.16.5 × 10 mm, sinus 6 mm deep, lobes

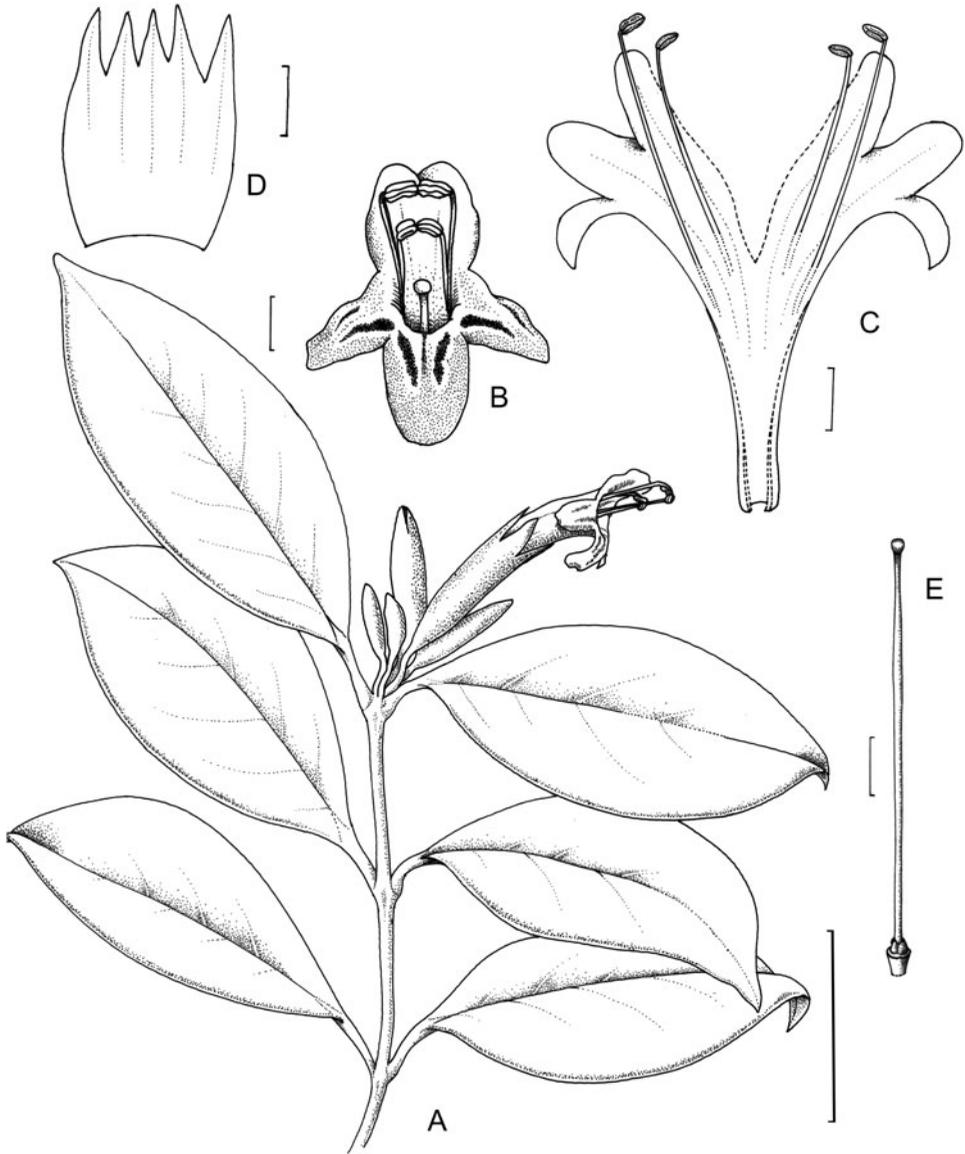


FIG. 9. *Aeschynanthus jouyi* D.J.Middleton. A, habit; B, front view of corolla; C, corolla dissection; D, calyx opened out; E, pistil. From *Middleton* 4593 (E). Scale bars: A, 5 cm; B–E, 1 cm. Drawn by Louise Olley.

overlapping, apex rounded; lateral lobes oblong, spreading to reflexed, 15–15.5 × 10–12 mm, apex rounded; lower lobe oblong, spreading to reflexed, 14–15 × 11.5 mm, apex rounded to truncate; outside with small glandular hairs on top of tube and on lobes, inside with scattered glandular hairs throughout except at base

and becoming more dense in throat. *Stamens* slightly exerted, fused in 2 pairs; filaments orange at base and red higher, sparsely glandular pubescent at base and glabrous higher, anthers orange; anterior filaments inserted at c.38 mm from corolla base which is 46% of corolla length, filaments c.42 mm long, anthers c.4.5 × 2 mm; posterior filaments inserted at c.45 mm from corolla base which is 54% of corolla length, filaments c.32 mm long, anthers c.4 × 2.2 mm; staminode c.2.5 mm long. *Pollen* ochre. *Disk* c.2.3 mm high, 5-crenate. *Pistil* c.75 mm long; stipe c.34 mm long, glabrous; ovary green, c.26 mm long, glabrous; style green, 11.5 mm long, glabrous. *Fruit* unknown.

Distribution. Northern Vietnam.

Habitat and ecology. In forest at 450–1500 m altitude.

Proposed IUCN conservation status. Least Concern (LC). Philip Thomas (pers. comm.) reports that although there has been some logging in the area there is still a very large expanse of forest and the species is not collected for any medicinal or horticultural reasons by local people.

Additional specimens examined. VIETNAM. **Lao Cai:** Van Ban District, Liem Phu, Hoang Lien Mountain Range, Ta Xa Mountain close to the Nam Qua River, 29 x 2002, *M.F. Gardner et al.* 105 (E); Van Ban District, slopes below *Taiwania* population, 18 xi 2003, *N.D.T. Luu* 50 (E). **Vinh Phu:** Tam Dao Municipality, Tam Dao National Park, 17 vi 1999, *Harder et al.* 4529 (E, MO, SING) [see note below].

The type collection is taken from a plant flowering in the greenhouse at the Royal Botanic Garden Edinburgh but grown on from wild-collected material. It is rather similar to *Aeschynanthus rhododendron* Ridl., a species from southern Thailand, Peninsular Malaysia and Sumatra, but differs in the stamens being shortly but distinctly exerted (included in *A. rhododendron*) and the style being glabrous (pubescent in *A. rhododendron*). *Aeschynanthus rhododendron* has very short appendages on the seeds, characteristic for *Aeschynanthus* sect. *Microtrichium* C.B. Clarke, but unfortunately this character is unknown for *A. jouyi*. The only other species of *Aeschynanthus* sect. *Microtrichium* in this region is *Aeschynanthus buxifolius* but that species has calyx lobes free to the base and a much shorter corolla.

Harder et al. 4529 has only one slightly immature flower which is on the MO duplicate. The dimensions of the corolla, stamens and pistil are not included in the description above as it is not clear how much further the corolla would have expanded. The corolla on this specimen is 62 mm long and somewhat more pubescent inside and outside compared with the Lao Cai material.

This species is named after the French botanical artist Mr Alain Jouy.

10. *Aeschynanthus membranifolius* (Costantin) D.J. Middleton, *Edinburgh J. Bot.* 64: 48 (2007); Newman et al., *Checkl. Vasc. Pl. Lao PDR* 147 (2007); Middleton, *Edinburgh J. Bot.* 64: 403 (2007). – *Hoya membranifolia* Costantin, *Fl. Indo-Chine* 4: 133 (1930). – Type: Laos, Champassak, Bassac, iii 1877, *J.H.A.J. Harmand* 1187 (lecto P, designated by Middleton (2007a: 48); isolecto P). **Fig. 5.**

Aeschynanthus longicaulis auct. non Wall. ex R.Br.: Pellegrin, Bull. Soc. Bot. France 72: 822 (1926 [1925]); Pellegrin, Fl. Indo-Chine 4: 492 (1930); Burtt & Woods, Notes Roy. Bot. Gard. Edinburgh 33(3): 481 (1975), *pro parte*.

Epiphyte with hanging stems, glabrous. *Leaves* opposite; petiole 5–11 mm long, glabrous; blade fleshy, dark and pale green above, green to reddish-green beneath, with a distinct marbling on both sides, elliptic, 2.9–12 × 1–3.1 cm, 3.8–7 times as long as wide, apex acuminate to caudate, base cuneate, glabrous above and beneath, margin entire to very weakly crenate, often undulate, venation obscure. *Inflorescences* axillary, 1-flowered although often appearing paired due to presence in the axils of opposite leaves, peduncle absent, bracts minute; pedicels 5–18 mm long, glabrous. *Calyx* fused into a tube at the base, green or yellowish-green with reddish lobes, glabrous, 18.5–26.5 mm long; tube 3.9–5 mm long which is 16–21% of the total length, 5–5.5 mm wide at the top of the tube; lobes narrowly triangular or linear, erect, 18.5–21 mm long, 3 mm wide, acuminate. *Corolla* 24.5–29 mm long, externally yellow or yellowish-green on tube, green tinged with pink on lobes, internally green with red stripes in tube, green with red patches in lobes, tube broad at base; upper lobes ovate, not spreading or reflexed, 3.3–4 × 3–4.2 mm, sinus 3.5–3.7 mm deep, rounded; lateral lobes orbicular or oblong, not spreading or reflexed, 3.2–4 × 4–4.8 mm, rounded; lower lobe squarish or orbicular, not spreading or reflexed, 3.2–5 × 3.5–4 mm, rounded; outside with a few sessile glands around top of tube, inside with 5 dense tufts of multicellular hairs near base and with very sparse glandular hairs in upper half. *Stamens* long exserted, fused in 2 pairs; filaments green, with glandular hairs; anterior filaments inserted at 13–14 mm from corolla base which is 48–52% of corolla length, filaments 21–28 mm long, anthers 2–3.2 × 0.8–1.7 mm; posterior filaments inserted at 15–16 mm from corolla base which is 56–64% of corolla length, filaments 18–24 mm long, anthers 1.7–2 × 0.7–1.1 mm; staminode c.0.9 mm long. *Disk* 0.7–1.3 mm high, 5-crenate. *Pistil* 32–35 mm long; stipe 2.5–3 mm long, glabrous; ovary 11–13.5 mm long, glabrous; style 17–21 mm long, glandular pubescent. *Capsule* 18–22 cm long, 2.7–2.9 mm wide. *Seed* grain 1.7–1.8 × 0.4–0.5 mm, warty, bubble cells absent; apical appendage a filiform hair, c.10 mm long; hilar appendages of many (c.30) filiform hairs, 19–21 mm long; appendages papillose.

Distribution. Southeast Thailand, Cambodia, southern Laos, southern Vietnam.

Habitat and ecology. Growing in evergreen forest, often in shade, epiphytic or on muddy banks or rocks at 100–1500 m altitude.

Proposed IUCN conservation status. Least Concern (LC). This species is common and widespread although much less frequently collected in this region than in neighbouring Thailand.

Additional specimens examined. CAMBODIA. **Koh Kong:** Thma Baing, Ruessei Chrum, 22 xii 2008, *M. Newman et al.* 2167 (E, P, RUPP).

VIETNAM. s.l., *Sigaldi* 233 (P). **Dong Nai:** Bien Hoa, Nui Chua Chan, x 1931, *E. Poilane* 19450 (P); *ibid.*, 6 x 1931, *E. Poilane* 19461 (P); Dinh Mts, vii 1877, *J.B.L. Pierre* 4539 (A, K, NY, P, UC). **Lam Dong:** Nam Cat Tien National Park, *Nguyen Van Du* HNK900 (K).

When the new combination was made and this species typified, *Aeschynanthus membranifolius* was the only species in the region that matched the fruiting type from southern Laos despite the fact that most of the material of the species was known from rather further away in southeastern Thailand and southern Vietnam. Since then the related *Aeschynanthus cambodiensis* has been described from material collected not far from the type of *A. membranifolius* in northern Cambodia. The species of this group, *Aeschynanthus* sect. *Polytrichium*, are mostly fairly similar in fruit but the Lao type still more closely resembles the Thai and Vietnamese material than it does *Aeschynanthus cambodiensis*.

- 11. *Aeschynanthus mendumiae*** D.J.Middleton, Edinburgh J. Bot. 64: 45 (2007); Newman et al., Checkl. Vasc. Pl. Lao PDR 147 (2007). – Type: Laos, Khammouane, Phou Yang, 25 x 2005, *M.F. Newman, P. Thomas, K.E. Armstrong, K. Sengdala & V. Lamxay* LAO 1020 (holo E; iso E, L, P). **Fig. 10.**

Epiphyte with arching and pendulous stems; stems green and speckled red, turning brown with age, glabrous. *Leaves* opposite; petiole 4–8 mm long, purple-brown or purple, glabrous; blade coriaceous to somewhat fleshy, elliptic or slightly obovate, green with paler green or yellow mottling above, pale green with even paler veining beneath, 2.9–10.1 × 1.9–4.8 cm, 1.6–3.5 times as long as wide, apex acuminate to acute, base cuneate, glabrous above and beneath, not punctate beneath, margin weakly crenate to dentate, usually also strongly undulate, 3–4 pairs of secondary veins, these only weakly visible or obscure, tertiary venation obscure. *Inflorescence* axillary or subterminal, 1–2-flowered, peduncle absent; bracts linear, 1.5–5 mm long; pedicels 7–9 mm long, red or green flushed orange, glabrous. *Calyx* of separate lobes free to base, red, glabrous, lobes linear to narrowly ovate, erect or slightly spreading, (10.8–)17–29 × 1.1–4 mm, apex acuminate to acute. *Corolla* 21–28 mm long, externally yellow or greenish-yellow in lower 1/3–2/3 of tube and red above this, hairs red, lobes bright red, internally yellowish-green in tube, lobes bright red or orange and dark red at base; upper lobes squarish or ovate, not spreading or reflexed, 2.8–4 × 3.2–4.5 mm, sinus 2.8–3.8 mm deep, apex rounded; lateral lobes semicircular or deltoid, reflexed or not, 2–3.9 × 4.2–5.5 mm, apex rounded; lower lobe orbicular or squarish, not spreading or reflexed, 2.8–4 × 3.3–4.8 mm, apex rounded, sparsely to densely glandular puberulent around top of tube and on lobes outside, inside with a ring of robust multicellular hairs in lower half, these sometimes in 5 discrete patches. *Stamens* long exserted, fused in 2 pairs; filaments yellowish-green at base, pinkish higher, with glandular hairs, anthers orange; anterior filaments inserted at 12–15.5 mm from corolla base which is 44–55% of corolla length, filaments 24.5–29 mm long, anthers 3–3.5 × 1.1–1.4 mm; posterior filaments inserted at 13.5–17 mm from corolla base which is 56–61% of corolla length, filaments 20.5–22.5 mm long, anthers 2–2.6 × 0.9–1.7 mm; staminode 0.7–1.7 mm long. *Disk* 1–1.5 mm high, 5-lobed or a simple annular ring. *Pistil* 22–43 mm long; stipe 4.5–5 mm long, glabrous; ovary 9–11 mm long, with very few sessile glands;

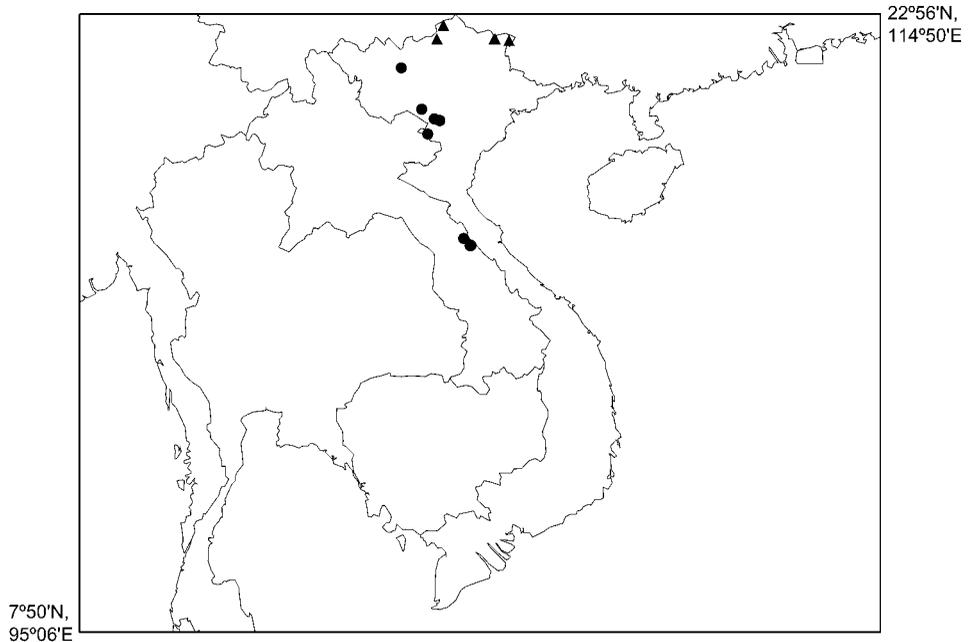


FIG. 10. Distribution of *Aeschynanthus mendumiae* D.J.Middleton (●) and *Aeschynanthus micranthus* C.B.Clarke (▲) in Cambodia, Laos and Vietnam.

style 8.5–27 mm long, glandular pubescent. *Capsule* 14 cm long, 2.8 mm wide. *Seed* grain c.3 × 0.5 mm, papillose, bubble cells absent; apical appendage a filiform hair, c.11 mm long; hilar appendage many filiform hairs, c.10 mm long; appendages papillose.

Distribution. Laos, Vietnam.

Habitat and ecology. In primary or secondary evergreen or lower montane forest at 600–1173 m altitude.

Proposed IUCN conservation status. Least Concern (LC). Although known from relatively few specimens these have been collected in areas of extensive forest over a wide distribution.

Additional specimens examined. LAOS. **Khammouane:** Nakai Nam Theun, 23 v 2006, RBGE acc. no. 20060815, vouchered as *D.J. Middleton* 4592 (E); Nakai Nam Theun, Nam On Catchment, Phou Ak escarpment, RBGE acc. no. 20060838, vouchered as *D.J. Middleton* 4218 (E); Phou Yang, 25 x 2005, *M.F. Newman et al.* LAO 1018 (E, L, P). **Houa Phan:** Vieng Xai District, Ban Hin Pean, RBGE acc. no. 20052547, vouchered as *D.J. Middleton* 4242 (E).

VIETNAM. **Hoa Binh:** Mai Chau, Pa Co, 21 ix 2005, *Vu Xuan Phuong et al.* HNK704 (K). **Lao Cai:** Van Ban District, Nam Xe Municipality, Nam Xi Tan Village, 26 ii 2001, *D.K. Harder et al.* 6960 (E). **Son La:** Moc Chau, Van Ho, Hua Tat Village, 6 x 2000, *D.K. Harder et al.* 5778 (E, SING); Yen Chau, Muong Lum, Lum Village, 2 iii 2001, *D.K. Harder et al.* 7126 (MO).

This species was first described with the specific epithet ‘*mendumae*’ (Middleton, 2007a) but under Art. 60.11 and Rec. 60C.1(b) of the ICBN (McNeill *et al.*, 2006) this has to be corrected to ‘*mendumiae*’.

At the time of publication *Aeschynanthus mendumiae* appeared to be clearly different to the Chinese *A. sinolongicalyx* W.T.Wang although I had no material of the latter species to hand. *Aeschynanthus sinolongicalyx* was described in the literature (Li, 1983 [under the later homonym *Aeschynanthus longicalyx* H.W.Li]; Wang *et al.*, 1998) as having completely red flowers, a longer calyx and a completely glabrous pistil. *Aeschynanthus sinolongicalyx* is only known from the type collection. I have now been able to borrow an isotype from KUN but the specimen has only incompletely mature flowers. The differences to *Aeschynanthus mendumiae* are not as clear in the specimens as are implied in the literature, particularly as the type of *Aeschynanthus sinolongicalyx* does not have as long calyx lobes as published (the calyx lobes reach full maturity long before the corolla), and the two taxa may indeed be conspecific. However, at a similar developmental stage in *Aeschynanthus mendumiae* the densely glandular style is already apparent and the corolla is not known to be completely red. Further collections of *Aeschynanthus sinolongicalyx* are necessary to clarify this issue but for the time being they should be kept separate.

This species is illustrated in Middleton (2007a).

12. *Aeschynanthus micranthus* C.B.Clarke in A.DC. & C.DC., Monogr. Phan. 5: 27 (1883); Clarke in Hooker, Fl. Brit. Ind. 4: 340 (1884); Hilliard, Fl. Bhutan 2(3): 1300 (2001). – *Trichosporum micranthum* (C.B.Clarke) Kuntze, Revis. Gen. Pl. 478 (1891). – Type: India, Meghalaya, Khasia, Cherrapunjee, *J.D. Hooker* 879 (lecto K, designated here). **Fig. 10.**

Aeschynanthus austroyunnanensis W.T.Wang, Acta Phytotax. Sin. 13(2): 63 (1975); Wang, Phytologia 45: 312 (1980); Li, Acta Bot. Yunnan. 5(1): 32 (1983); Wang, Fl. Reipubl. Popularis Sin. 69: 512 (1990); Wang *et al.*, Fl. China 18: 381 (1998); Vu Xuan Phuong, Vietnam J. Biol. 26(4A): 40 (2004). – Type: China, Yunnan, Che-li Hsien, Nan-hsien-ho, x 1936, *C.W. Wang* 79443 (holo PE n.v.; photo E).

Aeschynanthus guangxiensis Chun ex W.T.Wang & K.Y.Pan, Bull. Bot. Res., Harbin 2(2): 146 (1982). – *Aeschynanthus austroyunnanensis* var. *guangxiensis* (Chun ex W.T.Wang & K.Y.Pan) W.T.Wang, Fl. Reipubl. Popularis Sin. 69: 513 (1990); Wang *et al.*, Fl. China 18: 381 (1998). – Type: China, Guangxi, Dar Wan, 27 vii 1928, *R.C. Ching* 6557 (holo IBSC n.v.; iso A; photo of holo E).

Aeschynanthus angustoblongus auct. non W.T.Wang: Vu Xuan Phuong, Vietnam J. Biol. 26(4A): 40 (2004).

Epiphyte with hanging, arching and/or pendulous stems, grey-brown or green, glabrous. *Leaves* opposite; petiole 1–8 mm long, green, glabrous; blade coriaceous or slightly fleshy, elliptic or ovate, mid green above, pale green to mid green beneath, not marbled, 1.4–6.6 × 0.5–2.8 cm, 1.7–4 times as long as wide, apex acuminate or acute,

base cuneate, glabrous above and beneath, margin entire, 4–5 pairs of secondary veins, these weakly visible or obscure, tertiary venation obscure. *Inflorescence* subterminal or axillary, 2–3-flowered, peduncle absent; bracts small, awl-shaped, c.0.6 mm long; pedicels 6.5–11.5 mm long, green, glabrous. *Calyx* of separate lobes free to base, green, sometimes with tips of lobes purple, glabrous, with few eglandular hairs on lobe tips or sparsely covered with long eglandular hairs, narrowly triangular to narrowly elliptic, erect, $2.6\text{--}7 \times 0.6\text{--}1.4$ mm, apex acute. *Corolla* 21.5–34 mm long, externally red, often fairly darkly so, usually also white or yellow at very base, sometimes slightly orange on ventral surface towards apex, lobes dark red or orange suffused red with a darker red or purple margin, hairs colourless, internally tube pale orange, yellowish or pale cream, lobes pale yellow or cream with red margin, base of tube ranging from narrow to broad; upper lobes oblong or ovate, not spreading or reflexed, $2.4\text{--}3.2 \times 2.5\text{--}2.9$ mm, sinus 2–2.8 mm deep, apex rounded; lateral lobes deltoid or orbicular, not spreading or reflexed, $1.7\text{--}3.5 \times 3\text{--}4.2$ mm, apex rounded; lower lobe elliptic or oblong, not spreading or reflexed, $2.4\text{--}4.7 \times 2.7\text{--}3.4$ mm, apex rounded; outside glabrous or with glandular hairs around top of tube and with ciliate lobes or sparsely glandular puberulent all over, inside glabrous or with sparse glandular hairs throughout inside, these often even sparser in upper half or glabrous, sessile glands near corolla throat. *Stamens* slightly to long exerted, fused in 2 pairs; filaments white or white with purple hairs, with few glandular hairs, sometimes papillose at base, anthers grey or purple; anterior filaments inserted at 13–18.2 mm from corolla base which is 50–67% of corolla length, filaments 15–18 mm long, anthers $1.4\text{--}2.3 \times 0.7\text{--}1.1$ mm; posterior filaments inserted at 16–21 mm from corolla base which is 62–78% of corolla length, filaments 10–15 mm long, anthers $1.3\text{--}2 \times 0.8\text{--}1.1$ mm; staminode 0.5–0.9 mm long. *Pollen* grey or greenish-yellow. *Disk* 0.8–1.4 mm high, a simple annular ring to strongly 5-lobed or 5-crenate. *Pistil* 26–32 mm long; stipe 5–10 mm long, with few sessile glands or glabrous; ovary green, 12–16 mm long, with sessile glands; style white or green, 9–12 mm long, glandular pubescent or glabrous; stigma very pale purple. *Capsule* 11–32 cm long, 1.8–3 mm wide. *Seed* grain $0.8\text{--}1.6 \times 0.2\text{--}0.3$ mm, warty, bubble cells absent; apical appendage a filiform hair, 15–22 mm long; hilar appendage a single filiform hair, 15–20 mm long; appendages papillose.

Distribution. Bhutan, northeastern India, northern Burma, southern China, northern Vietnam.

Habitat and ecology. In Vietnam reported from primary semi-deciduous or mixed forest on limestone at 430–800 m altitude.

Proposed IUCN conservation status. Least Concern (LC). Although known from relatively few specimens these have been collected over a wide distribution in areas of extensive forest.

Specimens examined. VIETNAM. **Cao Bang:** Ha Lang District, Thanh Nhat Commune, Lower Slopes of Dinh Ling Not Mountain above village of Xom Soe Quen, RBGE acc. no. 20022354, vouchered as *D.J. Middleton* 4241 (E); *ibid.*, RBGE acc. no. 20022512, vouchered as *D.J. Middleton*

4256 (E); Ha Lang, Duc Quang, near Lung Hoai Village, 28 xi 1998, *L. Averyanov* CBL 766 (AAU, MO); Tra Linh, Quoc Toan, near Lung Tao Village, 14 xii 1998, *L. Averyanov et al.* CBL 1226 (AAU, E, MO). **Ha Giang:** Quan Ba District, Can Ty Community, 12 vii 2002, *H. van der Werff et al.* 17333 (E); Vi Xuyen, Lung Thao Village, along path between Tam Ve Village and Nap Ma Village, 12 ix 2000, *D.K. Harder et al.* 5492 (MO, SING).

This is a widespread but not particularly variable species except in the depth of red on the corolla and the pubescence on the flowers. There are, however, no discernible geographic patterns to these variations. It is likely that when the Chinese *Aeschynanthus austroyunnanensis* and *A. guangxiensis* were described the authors were unaware how similar they were to the Indian *A. micranthus* as no comparisons were made. The characters which were used to distinguish the two Chinese taxa from each other (see Wang *et al.*, 1998) vary across the whole species and cannot be used to distinguish taxa.

Hooker 879 (K) has been chosen as the lectotype of *Aeschynanthus micranthus*. There are a couple of slightly better syntype specimens collected by Griffith but none of those are as precisely located as the Hooker specimen which was collected at Churra (= Cherrapunjee) in the Khasia Hills of Meghalaya, India.

13. *Aeschynanthus parasiticus* (Roxb.) Wall., Num. List 796 (1829); Brown, *Cyrtandreae* 115 (1839); Brown in Bennett, *Pl. Jav. Rar.* 115 (1840); Burt & Davidson, *Notes Roy. Bot. Gard. Edinburgh* 21: 231 (1955); Pham-Hoàng Hô, *Cayco Vietnam* ed. 3, 3(1): 5 (1993); Hilliard, *Fl. Bhutan* 2(3): 1302 (2001); Kress *et al.*, *Checkl. Myanmar* 261 (2003). – *Incarvillea parasitica* Roxb., *Pl. Corom.* 3: 88 (1820). – *Aeschynanthus grandiflorus* var. *parasiticus* (Roxb.) C.B. Clarke in A.DC. & C.DC., *Monogr. Phan.* 5: 22 (1883). – *Trichosporum parasiticum* (Roxb.) Kuntze, *Revis. Gen. Pl.* 477 (1891). – Type: Plate of *Incarvillea parasitica* in *Pl. Corom.* 3: 88, plate 291 (1820), lectotype designated here. **Fig. 11.**

Trichosporum grandiflorum D. Don, *Edinburgh Philos. J.* 7: 85 (1822), nom. superfl.; Nees von Esenbeck, *Flora* 8: 143 (1825). – *Aeschynanthus grandiflorus* Spreng., *Syst. Veg.* 4(2): 238 (1827), nom. superfl.; Steudel, *Nomencl. Bot.* ed. 2, 1: 32 (1840); A.DC., *Prodr.* 9: 261 (1845); Miquel, *Fl. Ned. Ind.* 2: 718 (1858); Clarke in A.DC. & C.DC., *Monogr. Phan.* 5: 22 (1883); Clarke in Hooker, *Fl. Brit. Ind.* 4: 338 (1884). – Type: Bangladesh, Sylhet, *M.R. Smith in N. Wallich* 796 (lecto K, designated here; isolecto CGE, E, G, G-DC, K-W, L, M, MEL, S).

Aeschynanthus macranthus (Merr.) Pellegr., *Bull. Soc. Bot. France* 73: 413 (1926); Pellegrin, *Fl. Indo-Chine* 4: 498 (1930), *pro parte*; Li, *Acta Bot. Yunnan.* 5(1): 34 (1983); Wang, *Fl. Reipubl. Popularis Sin.* 69: 513 (1990); Pham-Hoàng Hô, *Cayco Vietnam* ed. 3, 3(1): 5 (1993); Wang *et al.*, *Fl. China* 18: 381 (1998); Newman *et al.*, *Checkl. Vasc. Pl. Lao PDR* 147 (2007). – *Trichosporum macranthum* Merr., *Univ. Calif. Publ. Bot.* 13: 141 (1926). – Type: Vietnam, Lao Cai, Chapa [Sa Pa], vii 1924, *A. Pételot* 1638 (holo UC; iso A, P).

Aeschynanthus deleiensis C.E.C. Fisch., *Bull. Misc. Info. Kew* 1935: 320 (1935). – Type: India, Arunachal Pradesh, Delei Valley, 14 vii 1928, *F. Kingdon Ward* 8447 (holo K).

Aeschynanthus mimetes B.L.Burtt, Bot. Mag. 162: t.9595 (1940); Wang, Phytologia 45: 310 (1980); Li, Acta Bot. Yunnan. 5(1): 35 (1983); Wang, Fl. Reipubl. Popularis Sin. 69: 522 (1990); Wang et al., Fl. China 18: 384 (1998); Kress et al., Checkl. Myanmar 261 (2003). – Type: India, Nagaland, Mokokchung, *Cultivated* (holo K, not traced). Neotype: India, Nagaland, Vekahomi, *Bor* 5060 (neo K, designated here).

Aeschynanthus dolicanthus W.T.Wang, Bull. Bot. Res., Harbin 2(4): 58 (1982); Wang, Fl. Reipubl. Popularis Sin. 69: 520 (1990); Wang et al., Fl. China 18: 383 (1998). – Type: China, Xizang, Medog, Jiangxiu, 8 vii 1980, *W.L. Chen & B.S. Li* 11008 (holo PE n.v.; photo E).

Aeschynanthus pachytrichus W.T.Wang, Acta Bot. Yunnan. 6(1): 24 (1984); Wang, Fl. Reipubl. Popularis Sin. 69: 523 (1990); Wang et al., Fl. China 18: 384 (1998). – Type: China, Yunnan, Yingjiang, Mangyun, Geduo, 28 viii 1980, *Exped. Lab. Geobot. Univ. Yunnan* 14 (holo YUKU n.v.).

Aeschynanthus andamanensis Goel, Vasudeva Rao & Mehrotra, Bull. Bot. Surv. India 31: 154 (1992 [‘1989’]). – Type: Andaman Islands, South Andamans, Alexandra Island, 26 x 1986, *A.K. Goel* 16636 (holo CDRI n.v.).

Epiphytic or lithophytic with arching and hanging stems; stems glabrous. *Leaves* opposite; petiole 5–12 mm long, glabrous; blade fleshy, orbicular, ovate, obovate or

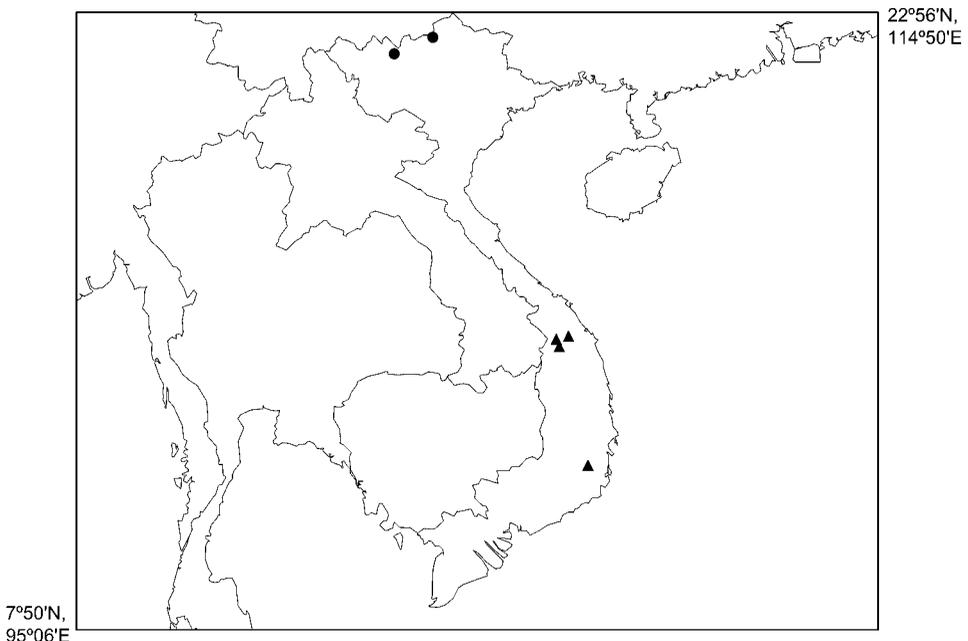


FIG. 11. Distribution of *Aeschynanthus parasiticus* (Roxb.) Wall. (●) and *Aeschynanthus pedunculatus* D.J.Middleton (▲) in Cambodia, Laos and Vietnam.

elliptic, not marbled, 2.2–15 × 0.7–5.5 cm, 1.2–11 times as long as wide, apex apiculate to acuminate, base cuneate to rounded, glabrous above and beneath, not punctate beneath, margin entire, sometimes undulate, 5–6 pairs of secondary veins, these only weakly visible or obscure, tertiary venation obscure. *Inflorescence* axillary or subterminal, 3–12-flowered, peduncle absent; bracts elliptic, 5–14 mm long; pedicels 5–15 mm long, sparsely glandular puberulent to glabrous. *Calyx* with a tube at base and with free lobes, glandular puberulent to glabrous, 11–23.5 mm long; tube 5.5–16.5 mm long which is 35–83% of total length, 3.2–9 mm wide at apex; lobes narrowly triangular, erect, 2.2–10 × 1.8–4.2 mm, apex acute to acuminate. *Corolla* 32–73 mm long, externally tube orange, bright red or orange-red, lobes orange or red with brown or black markings in a central line; upper lobes orbicular or oblong, slightly falcate, not spreading or reflexed, 2.8–7 × 3.4–6 mm, sinus 2.2–4.7 mm deep, apex rounded; lateral lobes deltoid, not spreading or reflexed, 2.8–5.7 × 5–10 mm, apex obtuse to rounded; lower lobe oblong or elliptic, spreading or reflexed, 5.2–9.7 × 2.7–5.8 mm, apex rounded; outside glabrous except for ciliate lobes to densely glandular puberulent, sometimes only papillose, inside with multicellular glandular hairs with a robust base mainly in lower half, sometimes also with scattered small glandular hairs. *Stamens* long exserted, fused in 2 pairs; filaments with glandular hairs or few sessile glands; anterior filaments inserted at 15–36 mm from corolla base which is 46–56% of corolla length, filaments 29–42 mm long, anthers 2.5–4 × 1–1.8 mm; posterior filaments inserted at 19–42 mm from corolla base which is 56–68% of corolla length, filaments 22–32 mm long, anthers 2.2–3.7 × 1.2–1.7 mm; staminode 0.5–2.5 mm long. *Disk* 0.9–1.6 mm high, a simple annular ring or 5-crenate. *Pistil* 24–69 mm long; stipe 3–13 mm long, glabrous; ovary 6.5–36 mm long, with a few sessile glands or glabrous; style 2.8–30 mm long, glandular pubescent. *Capsule* 16–45 cm long, 2.5–4.5 mm wide. *Seed* grain 0.9–1.5 × 0.2–0.4 mm, warty, bubble cells absent; apical appendage a filiform hair, 15–30 mm long; hilar appendages two filiform hairs, 14–31 mm long; appendages papillose.

Distribution. Northeastern India, Nepal, Bangladesh (see note below), Andaman Islands (see note below), Burma, southern China, northern Vietnam. In Indochina known only from two collections.

Habitat and ecology. In forest or scrub at 0–2420 m altitude throughout its range. In Vietnam collected at 1200–1600 m altitude.

Proposed IUCN conservation status. Least Concern (LC). Although this species is only known in this region from two collections it is widespread in the eastern Himalayas, northern Burma and southern China.

Additional specimen examined. VIETNAM. **Ha Giang:** Vi Xuyen, Cao Bo, Tam Ve Village, 12 ix 2000, D.K. Harder et al. 5481 (MO, SING).

This species is known from Vietnam only from the type of *Aeschynanthus macranthus* (see below) and one other collection.

Roxburgh described the basionym of *Aeschynanthus parasiticus*, *Incarvillea parasitica*, as being from the Garrow Hills (= Garo Hills of Meghalaya, India) and having been grown in the Calcutta Botanic Garden. No herbarium material has been found which is likely to have been the material on which Roxburgh based his description. Therefore, the illustration in the protologue is here designated as the lectotype. *Trichosporum grandiflorum* D. Don is a superfluous name as it has *Incarvillea parasitica*, an earlier name that should have been taken up, in synonymy.

The specimen indicated as the type of *Aeschynanthus mimetes* was taken from the cultivated material originally collected in Mokokchung in northeastern India. No specimens could be found that could be this type material. Instead the specimen *Bor* 5060 (K), said to have a similar provenance, has been chosen as a neotype. It is possible that the specimen *M.R. Smith in N. Wallich* 796, recorded as being from Sylhet in Bangladesh, is actually from the hills above Sylhet and, therefore, in India. Note that some specimens under this collection number are actually *Aeschynanthus parviflorus*.

This species is known in Cambodia, Laos and Vietnam by only two collections, *Pételot* 1638, the type of *Aeschynanthus macranthus*, now synonymised into *A. parasiticus*, and *Harder et al.* 5481. *Aeschynanthus parasiticus* also includes all material previously referred to *A. mimetes* from Burma and China. This species had previously been distinguished from *Aeschynanthus parasiticus* by the longer corolla. There is a gradual trend towards a longer corolla from west to east with *Aeschynanthus macranthus* having a corolla longer than any specimens known from the Indian sub-continent. However, there is no point along the distribution from Nepal to northern Vietnam where there is a sharp demarcation in corolla length. The outside of the corolla also tends to be more pubescent in the western populations but again there are no demarcations in pubescence across the range. The type of *Aeschynanthus deleiensis* from northeastern India is unusual only in the pubescence on the calyx. All these populations are united by the general shape of the calyx, the relatively broad corolla tube and the robust multicellular glandular hairs in the lower half of the inside of the corolla tube. These robust hairs are quite clearly illustrated in the protologue of *Aeschynanthus pachytrichus* and the description otherwise contains no elements that do not fall within the range of variation of *A. parasiticus*. Therefore, this species is also included in synonymy despite the fact that I have not seen the type material. I have only seen the type material of *Aeschynanthus dolicanthus* from a photograph but coupled with the detailed description in the protologue containing no elements that fall outside the range of variation of *A. parasiticus* I am confident that it is a synonym.

Note that much of the material previously identified as *Aeschynanthus macranthus* from Thailand and Indochina is now included in *A. fulgens* (see Middleton, 2007b) rather than *A. parasiticus*.

Aeschynanthus parasiticus is rather similar to the somewhat more widespread *A. parviflorus* and they may be easily confused, especially in fruit. The flowering material differs in the coarse hairs on the inside base of the corolla tube and the generally wider corolla of *Aeschynanthus parasiticus*.

This species has a very puzzling distribution which may need to be reinvestigated once more collections are available from Burma and the Andaman Islands. It is mainly distributed in the foothills of the eastern Himalayas and eastwards to northern Vietnam. However, the species is also present, at low altitude, in the Andaman Islands, very far away from the rest of the distribution of the species. This population has been referred to a segregate species, *Aeschynanthus andamanensis*, but in a wide range of characters there is really very little to separate it from typical Himalayan *A. parasiticus*, including the characteristic hairs on the inside of the corolla tube. The only character mentioned by Goel *et al.* (1992) to separate *Aeschynanthus andamanensis* from *A. parasiticus* that stands up to closer scrutiny is the apex shape of the calyx lobes: in continental Asia it is mostly acute, in the Andamans it is mostly, but not exclusively, obtuse. This character, though, does not merit recognition of a separate species and is not consistent in the Andamanese plants. In all other characters mentioned by Goel *et al.* (1992) there is considerable overlap with continental *Aeschynanthus parasiticus*. One specimen from Burma, *Kermode* 7312 (K), has the appearance of a small-flowered *Aeschynanthus fulgens* with its rather narrow lower corolla tube. However, the inside of the corolla has the characteristic hairs of *Aeschynanthus parasiticus*. Its collection locality is rather further south than all other specimens of *Aeschynanthus parasiticus* in continental Asia. It has been placed under this species but further collections from the area may cause this conclusion to be reassessed.

14. *Aeschynanthus parviflorus* (D. Don) Spreng., *Syst. Veg.* 4(2): 238 (1827); Steudel, *Nomencl. Bot. ed. 2*, 1: 32 (1840); A. DC., *Prodr.* 9: 261 (1845); Miquel, *Fl. Ned. Ind.* 2: 718 (1858); Hilliard, *Fl. Bhutan* 2(3): 1303 (2001); Middleton, *Edinburgh J. Bot.* 64: 407 (2007). – *Trichosporum parviflorum* D. Don, *Edinburgh Philos. J.* 7: 85 (1822); Nees von Esenbeck, *Flora* 8: 144 (1825); Sprengel, *Syst. Veg.* 4(2): 238 (1827). – Type: Nepal, *N. Wallich* 799 (lecto K-W, designated by Middleton (2007b: 407); isolecto CGE, G-DC, K, P, W). **Figs 12, 13.**

Aeschynanthus ramosissimus Wall., *Pl. Asiat. Rar.* 1: 55 (1830); Brown, *Cyrtandreae* 115 (1839); Steudel, *Nomencl. Bot. ed. 2*, 1: 32 (1840); Brown in Bennett, *Pl. Jav. Rar.* 115 (1840); A. DC., *Prodr.* 9: 260 (1845); Clarke, *Commelyn. Cyrtandr. Bengal.* t. 50 (1874); Clarke in A. DC. & C. DC., *Monogr. Phan.* 5: 23 (1883); Clarke in Hooker, *Fl. Brit. Ind.* 4: 339 (1884). – Type: Nepal, *N. Wallich* 799 (lecto K-W, designated by Middleton (2007b: 407); isolecto CGE, G-DC, K, P, W).

Aeschynanthus maculatus Lindl., *Bot. Reg.* 27: t. 28 (1841); A. DC., *Prodr.* 9: 261 (1845); Miquel, *Fl. Ned. Ind.* 2: 718 (1858); Clarke in A. DC. & C. DC., *Monogr. Phan.* 5: 24 (1883); Clarke in Hooker, *Fl. Brit. Ind.* 4: 339 (1884); Li, *Acta Bot. Yunnan.* 5(1): 35 (1983); Wang, *Fl. Reipubl. Popularis Sin.* 69: 525 (1990); Burt, *Edinburgh J. Bot.* 55: 487 (1998); Wang *et al.*, *Fl. China* 18: 384 (1998); Hilliard, *Fl. Bhutan* 2(3): 1303 (2001). – *Trichosporum maculatum* (Lindl.) Kuntze, *Revis. Gen. Pl.* 478 (1891). – Type: Without locality information, *Unknown collector* s.n. (holo CGE).

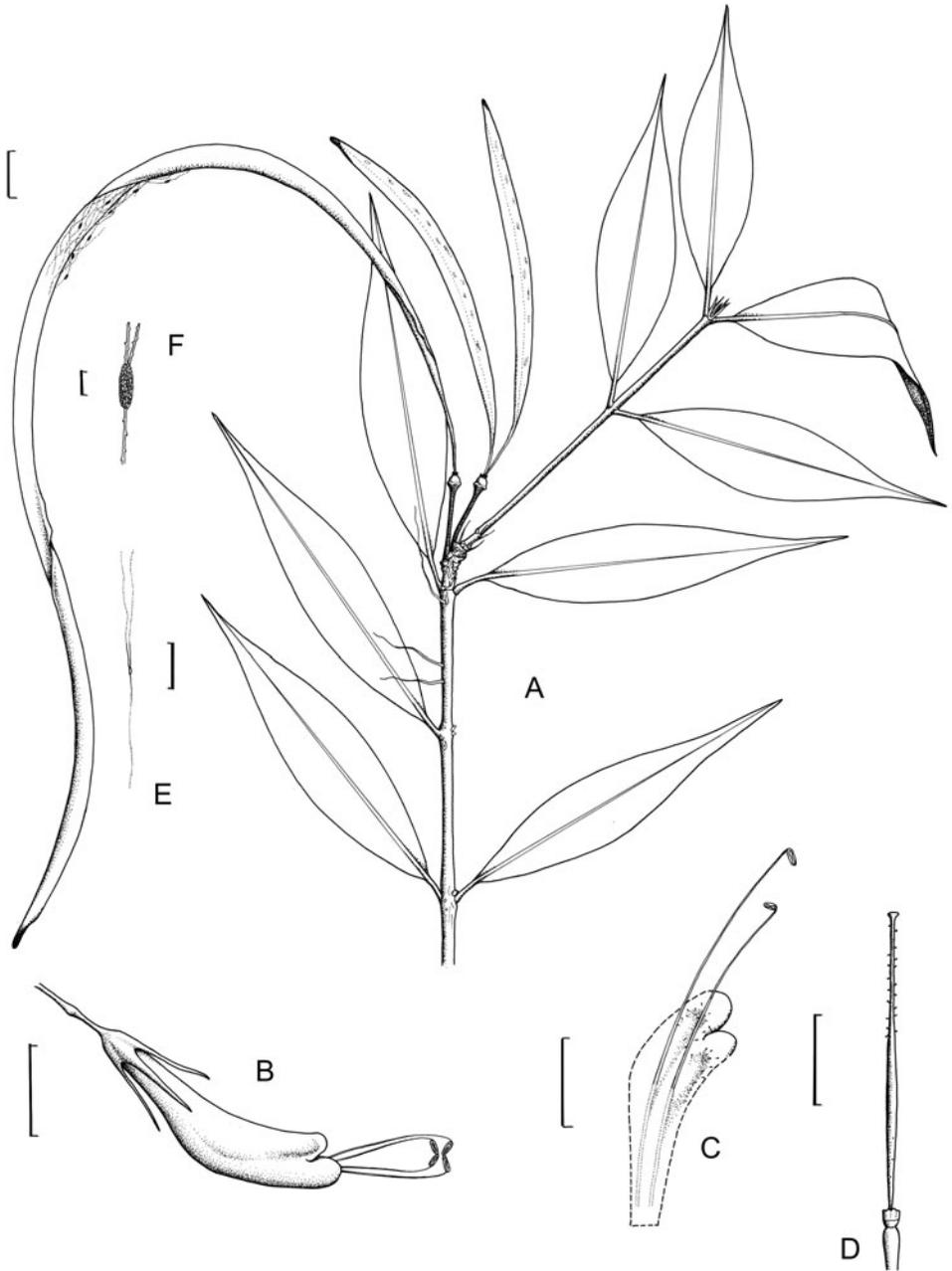


FIG. 12. *Aeschynanthus parviflorus* (D. Don) Spreng., southern form. A, habit; B, flower; C, flower dissection; D, pistil; E, seed; F, seed grain. A, E, F from Averyanov *et al.* VH3129 (MO); B–D from Luu & Chi 226 (E). Scale bars: A–E, 1 cm; F, 1 mm. Drawn by Anna Dorward.

Aeschynanthus maculatus var. *sikkimensis* C.B.Clarke in A.DC. & C.DC., Monogr. Phan. 5: 24 (1883). – *Aeschynanthus sikkimensis* (C.B.Clarke) Stapf, Bot. Mag. 148: t.8938 (1922); Hilliard, Fl. Bhutan 2(3): 1303 (2001). – Type: Sikkim, Balasun, J.D. Hooker s.n. (lecto K, designated by Middleton (2007b: 408); isolecto W).

Aeschynanthus maculatus var. *stenophyllus* C.B.Clarke in A.DC. & C.DC., Monogr. Phan. 5: 24 (1883). – Type: Meghalaya, Khasia, J.D. Hooker & T. Thomson s.n. (lecto K, designated by Middleton (2007b: 408); isolecto BM, G, K, MEL, S, US, W).

Aeschynanthus consobrinus Kraenzl., Repert. Spec. Nov. Regni Veg. 24: 215 (1928). – Type: Unknown collector s.n. (ex Herb. Vindobonensi) (holo W).

Aeschynanthus garrettii auct. non Craib: Pellegrin, Fl. Indo-Chine 4: 497 (1930), *pro parte*.

Aeschynanthus hosseusii auct. non Pellegr.: Barnett, Fl. Siam. 3(3): 200 (1962), *pro parte*.

Aeschynanthus lineatus auct. non Craib: Vu Xuan Phuong, Vietnam J. Biol. 26(4A): 38 (2004).

Epiphyte with arching to pendulous stems; stems glabrous. *Leaves* opposite; petiole 4–17 mm long, glabrous; blade coriaceous to very fleshy, green above and beneath,

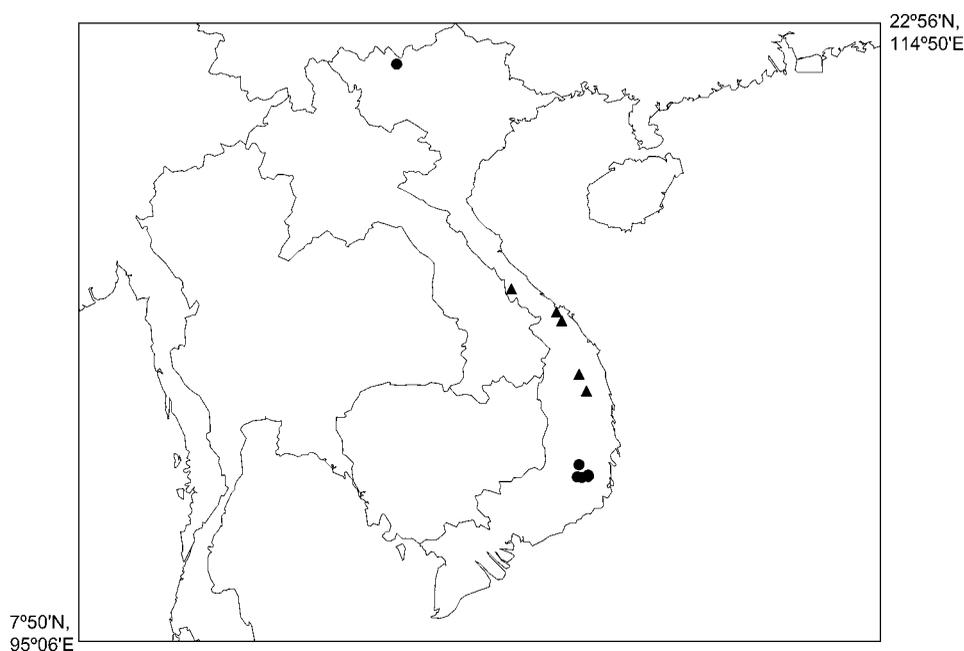


FIG. 13. Distribution of *Aeschynanthus parviflorus* (D.Don) Spreng. (●) and *Aeschynanthus poilanei* Pellegr. (▲) in Cambodia, Laos and Vietnam.

not marbled, elliptic, sometimes narrowly so, $2.4\text{--}19 \times 0.8\text{--}5$ cm, 2.2–12.5 times as long as wide, apex acuminate to caudate, base acute to cuneate, glabrous above and beneath, margin entire or very weakly dentate, 4–5 pairs of secondary veins, these weakly visible or obscure, tertiary venation obscure. *Inflorescences* axillary or subterminal, 1–36-flowered, peduncle absent; bracts linear, 2–11 mm long; pedicels 7–16 mm long, purple or yellow-green, glabrous, sparsely minutely papillose or sparsely glandular puberulent. *Calyx* green or yellow-green, often flushed red, orange or purple, especially on lobes, fused into a tube at base, glabrous to sparsely minutely papillose or with sparse glandular and/or eglandular hairs, 5–16.8 mm long; tube 2.1–8.5 mm long which is 17–63% of total length, 2.3–6 mm wide at top of tube; lobes triangular, often narrowly triangular, or linear, erect, $2.2\text{--}12.9 \times 0.8\text{--}3$ mm, apex obtuse to acuminate, very rarely rounded. *Corolla* 25–38 mm long, tube quite narrow at base, externally tube orange to bright red, sometimes paler on ventral surface, with darker lines starting on lobes running down to top of tube, lobes bright red to orange-red with darker lines, hairs red, internally tube pale red to yellowish, lobes orange or red with red midline; upper lobes squarish, orbicular or ovate, not spreading or reflexed, $2.1\text{--}4.7 \times 2.2\text{--}5.4$ mm wide, sinus 2–4.5 mm deep, apex flat or rounded; lateral lobes oblong, ovate or deltoid, reflexed or not, $1.7\text{--}4.7 \times 3.6\text{--}6.4$ mm, apex obtuse or rounded; lower lobe elliptic, oblong or orbicular, reflexed or not, $3.6\text{--}6.4 \times 2.3\text{--}5.7$ mm, apex rounded; outside sparsely to densely glandular puberulent all over or with glandular hairs only around the top of tube and lobes or in rows down the tube, inside glabrous or with small sparse scattered glandular hairs, sessile glands present inside tube. *Stamens* mostly long exerted, sometimes only slightly so, fused in 2 pairs; filaments white at base and red or purple higher up, glabrous or with glandular hairs, anthers purple, grey or grey-green, pollen pale yellow, greenish-yellow or grey; anterior filaments inserted at 12–25 mm from corolla base which is 43–60% of corolla length, filaments 17–34 mm long, anthers $2.1\text{--}3.7 \times 1\text{--}1.5$ mm; posterior filaments inserted at 11.5–26.5 mm from corolla base which is 46–67% of corolla length, filaments 14–28 mm long, anthers $1.5\text{--}2.9 \times 0.7\text{--}1.3$ mm; staminode 0.6–3 mm long. *Disk* 0.5–1.8 mm high, 5-dentate, 5-crenate or a simple annular ring. *Pistil* 34–47 mm long; stipe 4–11 mm long, with few sessile glands or glabrous; ovary green, 15–22 mm long, glabrous, with sessile glands or minutely papillose; style white, 12–26 mm long, sparsely to densely glandular pubescent; stigma pink or purple, 1.3–2.4 mm across. *Capsule* 10–47.5 cm long, 2.4–5 mm wide. *Seed* grain $0.7\text{--}1.5 \times 0.2\text{--}0.5$ mm, warty, bubble cells absent; apical appendage a filiform hair, 10–35 mm long; hilar appendage two filiform hairs, 10–27 mm long; appendages papillose.

Distribution. Northeastern India, Nepal, Sikkim, Bhutan, southern China, Burma, Thailand, Vietnam.

Habitat and ecology. In primary or degraded evergreen or scrub forest at 610–2420 m altitude throughout its distribution. Recorded from primary evergreen and cloud forest at 1500–2100 m altitude in Vietnam.

Proposed IUCN conservation status. Least Concern (LC). This species is common and widespread.

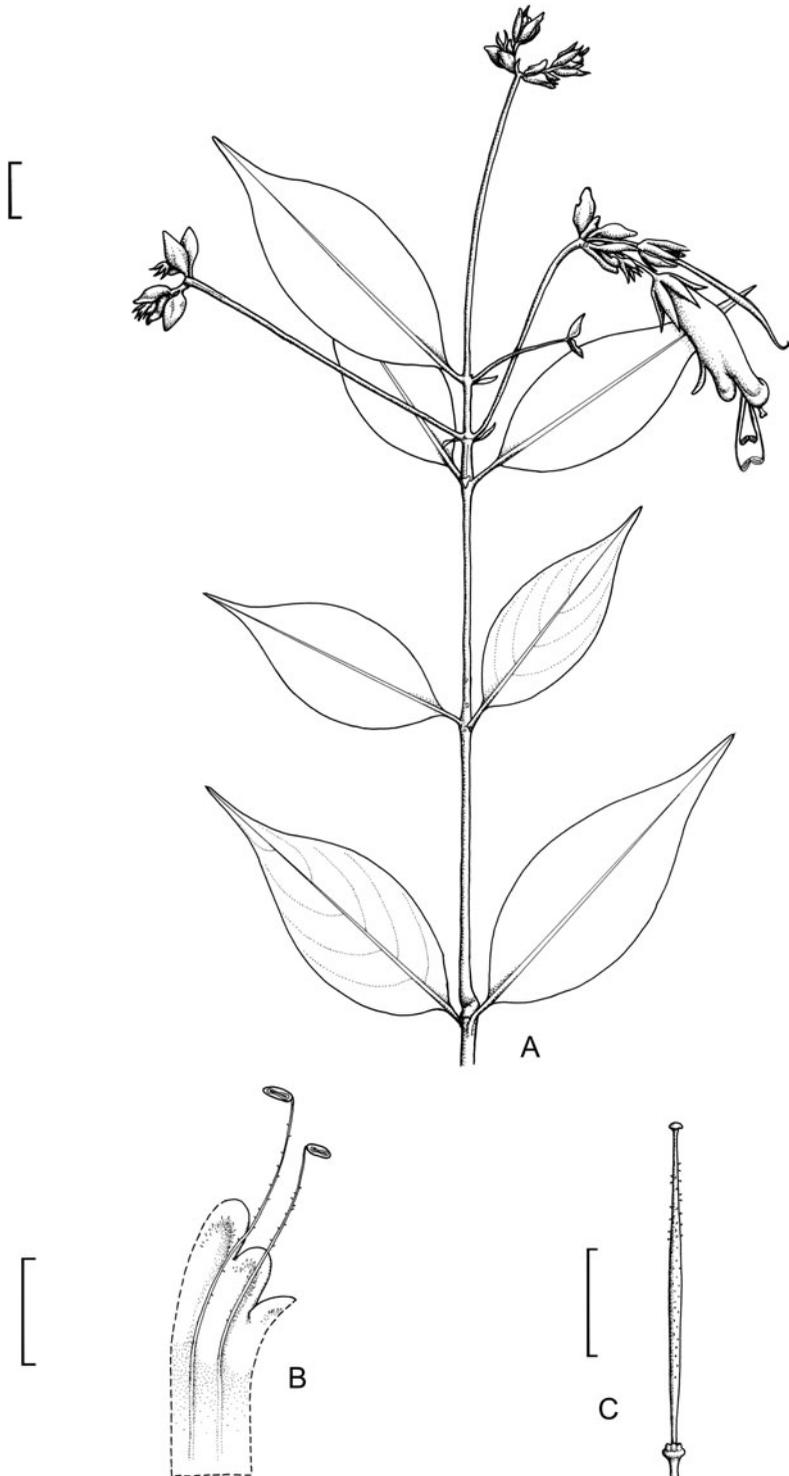
Specimens examined. VIETNAM. **Dac Lac:** Massif du Chu Yang Sinh, 24 iv 1941, *Poilane* 32570 (P). **Lam Dong:** Lac Duong, 31 km NE of Dalat, 15 iii 1997, *L. Averyanov et al.* VH2641 (AAU); Lac Duong, Bi Doup peak area, 20 ix 2001, *N.D.T. Luu & N.V. Chi* 226 (E), 228 (E); *ibid.*, RBGE acc. no. 20010641, vouchered as *D.J. Middleton* 4235 (E); Lac Duong, Da Chay, 29 km NE of Dalat City, 22 iii 1997, *L. Averyanov et al.* VH3129 (AAU, E, MO, P); Langbiang Mountains, 15 ii 1916, *E. Poilane* 30903 (P); Langbiang Mountains, Cong Troi, 6 ix 2001, *M.F. Gardner et al.* 123 (E). **Lao Cai:** Lo Qui Ho, 1943, *A. Pételot* 8480 (E, P); Chapa [Sa Pa]–Ban Khoang, 6 ii 1996, *W. Cherry* s.n. (NSW).

Aeschynanthus parviflorus is a very widespread species in the eastern foothills of the Himalayas through to Thailand. It is known in Vietnam from two widely separated areas: Lao Cai Province in the north and Lam Dong Province in the south. The northern population is fairly typical for the species and similar to much of the Thai material. The southern material, however, is rather distinct and has been included in this species with some reservation. There is known to be considerable variation in leaf shape and calyx shape in this species and several taxa from Nepal and northeastern India, previously distinguished on leaf and calyx characters, have already been synonymised into *Aeschynanthus parviflorus* (Middleton, 2007b). This included placing specimens with short calyx lobes, previously mostly put in *Aeschynanthus sikkimensis*, into *A. parviflorus*. The southern Vietnamese material is distinct because it has particularly long calyx lobes and a very short calyx tube. It is also geographically rather isolated. However, given the known variation in the characters that would otherwise be used to distinguish it from *Aeschynanthus parviflorus*, the southern material should be included in this species.

15. *Aeschynanthus pedunculatus* D.J.Middleton, *sp. nov.*

Ab *Aeschynantho acuminato* corolla rubro ore minus obliquo, lobis calycis longioribus et stylo pubescenti recedit. – Type: Vietnam, Kon Tum, Ngoc Linh Mountain, 23 ii 1995, *L. Averyanov et al.* VH246 (holo P; iso AAU, E). **Figs 11, 14.**

Epiphyte with creeping or hanging stems, reportedly also climbing; stems glabrous. *Leaves* opposite; petiole 3–9 mm long, glabrous; blade papery to coriaceous, elliptic or ovate, not marbled, 4–11.8 × 1.3–5.1 cm, 1.7–5 times as long as wide, apex acuminate, base rounded to cuneate, glabrous above and beneath, faintly to clearly punctate beneath, margin entire, 5–10 pairs of secondary veins, weakly visible to slightly prominent above, tertiary venation obscure or laxly reticulate. *Inflorescence* subterminal, 4–11-flowered; peduncle 2.8–23 cm long; bracts ovate or elliptic, 5–12 × 3.5–9 mm; pedicels 5–17 mm long, glabrous. *Calyx* of separate lobes free to base, glabrous, narrowly elliptic, erect or slightly spreading, 8.5–11.5 × 2–3.3 mm, apex acuminate to acute, more rarely obtuse. *Corolla* 28.5–37 mm long, externally red, tube broad at base; upper lobes oblong, not spreading or reflexed, 5–6.3 × 4.3–4.5 mm,



sinus c.4.5 mm deep, apex rounded; lateral lobes ovate, reflexed, 5.4–6.3 × 4.6–5.1 mm, apex rounded; lower lobe elliptic, reflexed, 6.3–6.7 × 4.4–5.1 mm wide, apex rounded, outside glabrous, inside with sparse glandular hairs near base. *Stamens* long exerted, fused in 2 pairs; filaments sparsely and minutely glandular puberulent; anterior filaments inserted at 12–13 mm from corolla base which is 32–46% of corolla length, filaments c.36 mm long, anthers c.3.2 × 1.3 mm; posterior filaments inserted at 13–14 mm from corolla base which is 38–46% of corolla length, filaments c.29 mm long, anthers c.3 × 1.4 mm; staminode 1.7 mm long. *Disk* 1.5–1.7 mm high, strongly 5-lobed or 5-crenate. *Pistil* c.38 mm long; stipe 11–14 mm long, glabrous or with a few sessile glands; ovary 12–18 mm long, with sessile glands; style c.12 mm long, sparsely glandular pubescent. *Capsule* 17–27 cm long, 2–2.5 mm wide. *Seed* grain 0.7–0.8 × 0.2 mm, papillose, bubble cells absent; apical appendage a filiform hair, 2.3–2.6 mm long; hilar appendage a single filiform hair, 2.3–2.5 mm long; appendages not papillose.

Distribution. Endemic to Vietnam.

Habitat and ecology. In primary or secondary evergreen forest at 500–1900 m altitude.

Proposed IUCN conservation status. Least Concern (LC). Although infrequently collected this species occurs in areas that still have extensive forest over quite a wide distribution.

Additional specimens examined. VIETNAM. **Ninh Thuan:** Ninh Son, Phuoc Binh, Bi Dup–Gia Rin, 3 iv 1997, *L. Averyanov et al.* VH3634 (AAU, E, P). **Quang Nam–Da Nang:** Tra My, 20 ii 1941, *E. Poilane* 31379 (P); near Go Oi village, 22 ii 1941, *Poilane* 31472 (P).

This new species has affinities with *Aeschynanthus acuminatus* and *A. moningeriae* (Merr.) Chun. It differs from *Aeschynanthus acuminatus* by the red rather than greenish corolla tube, the longer corolla, the less oblique mouth of the corolla, the longer calyx lobes and the pubescent style. It differs from *Aeschynanthus moningeriae* in the very much longer calyx lobes with an acute or acuminate (rarely obtuse) apex rather than a rounded apex. Also, most specimens of *Aeschynanthus pedunculatus* have longer and more delicate peduncles than most specimens of *A. acuminatus* and *A. moningeriae* but there is an overlap in this character. In southern Vietnam *Aeschynanthus pedunculatus* and *A. acuminatus* both occur and in fruit could be confused unless there are some remnant calyx lobes. *Aeschynanthus moningeriae* is found only on Hainan and, although affinities between Hainan and Vietnam are common, the Vietnamese material is distinct enough to be recognised as a separate taxon.



FIG. 14. *Aeschynanthus pedunculatus* D.J.Middleton. A, habit; B, flower dissection; C, pistil. A from *Averyanov et al.* VH3634 (P); B, C from *Averyanov et al.* VH246 (P). Scale bars: A–C, 1 cm. Drawn by Anna Dorward.

- 16. *Aeschynanthus poilanei*** Pellegr., Bull. Soc. Bot. France 72: 822 (1926 [‘1925’]); Pellegrin, Fl. Indo-Chine 4: 492 (1930); Burt & Woods, Notes Roy. Bot. Gard. Edinburgh 33(3): 484 (1975); Li, Acta Bot. Yunnan. 5(1): 36 (1983); Wang, Fl. Reipubl. Popularis Sin. 69: 527 (1990); Pham-Hoàng Hô, Cayco Vietnam ed. 3, 3(1): 6 (1993); Wang et al., Fl. China 18: 385 (1998). – Type: Vietnam, Quang Tri, Dent du Tigre, 8 vii 1924, *E. Poilane* 10389 (lecto P, designated here; isolecto P). **Fig. 13.**

Epiphyte with hanging stems; stems glabrous. *Leaves* opposite; petiole 3–7 mm long, purple, glabrous; blade coriaceous to somewhat fleshy, ovate or elliptic, green and purple mottled beneath, 1.3–9 × 0.6–3.2 cm, 1.2–4 times as long as wide, apex acuminate or acute, base cuneate to obtuse, glabrous above and beneath, not punctate beneath, margin weakly dentate, sometimes also strongly undulate, secondary and tertiary veins obscure. *Inflorescences* axillary or subterminal, peduncle absent; bracts c.1 mm long; pedicels 10–12.5 mm long, sparsely to more densely glandular puberulent. *Calyx* of separate lobes free to base, sparsely to densely glandular pubescent, lobes ovate to narrowly so, erect, 3.7–4.5 × 0.9–1.6 mm, apex acute or acuminate. *Corolla* 13–17.5 mm long, tube slightly curved, externally tube salmon pink, brownish or yellowish, lobes yellowish; upper lobes squarish, not spreading or reflexed, 1.2–2.2 × 1.4–2.5 mm, sinus 1.2–2.1 mm deep, apex rounded; lateral lobes deltoid, not spreading or reflexed, 1.5–2.5 × 2–2.5 mm, apex rounded; lower lobe squarish, not spreading or reflexed, 1.1–2.2 × 1–2.3 mm, apex rounded; glandular puberulent outside, inside with 5 dense tufts of multicellular hairs near base. *Stamens* long exserted, fused in 2 pairs (see note below); filaments with glandular hairs; anterior filaments inserted at c.8 mm from corolla base which is 46–61% of corolla length; posterior filaments inserted at c.9 mm from corolla base which is 51–69% of corolla length; staminode 0.6 mm long. *Disk* 0.7–0.9 mm high, a simple annular ring. *Pistil* 10–32 mm long; stipe 2.1–3 mm long, glabrous; ovary 3.5–11 mm long, glabrous or with very few sessile glands; style 4.4–18 mm long, glandular pubescent. *Capsule* 5.1–18.5 cm long, 2.2–3.2 mm wide. *Seed* grain 2–2.7 × 0.4–0.5 mm, warty, bubble cells absent; apical appendage a filiform hair, 7–18 mm long; hilar appendages of many filiform hairs, 8–14 mm long; appendages papillose.

Distribution. Endemic to Vietnam.

Habitat and ecology. In forest at 800–1200 m altitude.

Proposed IUCN conservation status. Least Concern (LC). This species, although infrequently collected, is fairly widespread, including in at least one national park (Mt Bana).

Additional specimens examined. VIETNAM. **Gia Lai Province:** K’Bang District, Soui Miou, 14 v 1998, *F. Willis* 24 (K). **Kon Tum:** Kon Plong District, Hieu Municipality, Mang La, 23 iv 2000, *L. Averyanov et al.* VH5663 (MO). **Quang Nam-Da Nang:** Ba Na, 24 ii 1939, *E. Poilane* 29007 (P); *ibid.*, 13 vii 1923, *E. Poilane* 7137 (P); Mt Bana, v 1927–vii 1927, *J. Clemens & M.S. Clemens* 4178 (P, UC). **Quang Tri:** Dent du Tigre, 7 v 1924, *E. Poilane* 10303 (P). **Thua**

Thien-Hue: Phu Loc District, Bach Ma National Park, Bach Ma Mountain, Hai Vong Dai Peak, 18 iv 2003, *V.X. Phuong et al.* HLF950 (E).

Stamen characters are incomplete in the description above as the only two flowering specimens known are rather scantily flowering and both collections only have flowers in the female phase with somewhat withered stamens.

When in fruit this species could be confused with *Aeschynanthus membranifolius* and *A. cambodiensis*, and to a lesser extent with *A. mendumiae*. It is easily distinguished from all three species by the glandular pubescent pedicel, evident even in fruit.

17. *Aeschynanthus pulcher* (Blume) G.Don, *Gen. Syst.* 4: 656 (1838); A.DC., *Prodr.* 9: 262 (1845); Zollinger, *Syst. Verz.* 3: 56 (1855); Miquel, *Fl. Ned. Ind.* 2: 721 (1858); Clarke in A.DC. & C.DC., *Monogr. Phan.* 5: 43 (1883); Middleton, *Edinburgh J. Bot.* 64: 412 (2007). – *Trichosporum pulchrum* Blume, *Bijdr.* 764 (1826). – Type: Indonesia, Java, *C.L. Blume* s.n. (lecto L [Leiden accession number 903,307-167], designated by Middleton (2007b: 412)). **Fig. 15.**

Aeschynanthus parvifolius R.Br., *Cyrtandreae* 115 (1839); Brown in Bennett, *Pl. Jav. Rar.* 115 (1840); A.DC., *Prodr.* 9: 262 (1845); Miquel, *Fl. Ned. Ind.* 2: 720 (1858); Clarke in A.DC. & C.DC., *Monogr. Phan.* 5: 42 (1883); Ridley, *Fl. Malay Penin.* 2: 500 (1923); Henderson, *Malay. Wild. Fl. Dicot.* 342 (1959); Chin, *Gard. Bull. Singapore* 32: 147 (1979); Stone, *Fed. Mus. J. N.S.* 26(1): 98 (1981); Turner, *Gard. Bull. Singapore* 45: 92 (1993); Turner, *Gard. Bull. Singapore* 47(1): 243 (1997 [‘1995’]); Smitinand, *Thai Pl. Names* ed. 2, 15 (2001). – *Trichosporum parvifolium* (R.Br.) Kuntze, *Revis. Gen. Pl.* 478 (1891). – Type: Indonesia, Sumatra, Pulau Bangka, 1813, *T. Horsfield* s.n. (lecto BM, designated by Middleton (2007b: 413)).
Aeschynanthus boschianus de Vriese, *Ann. Soc. Agric. Bot. Gand* 1: 403 (1845); Van Houtte, *Hort. Vanhoutt.* 1(2): 31 (1846). – *Trichosporum boschianum* (de Vriese) Kuntze, *Revis. Gen. Pl.* 477 (1891); Merrill, *Contr. Arnold Arbor.* 8: 151 (1934). – Type: Cultivated plant grown by Jacob-Makoy in Belgium from plant collected on Mt Gede in Java (untraced).

Aeschynanthus lobbianus Hook., *Bot. Mag.* 72: t.4260 (1846); Miquel, *Fl. Ned. Ind.* 2: 721 (1858); Clarke in A.DC. & C.DC., *Monogr. Phan.* 5: 44 (1883); Clarke in Hooker, *Fl. Brit. Ind.* 4: 343 (1884); Ridley, *J. Linn. Soc. Bot.* 32: 501 (1896); Ridley, *J. Straits Branch Roy. Asiat. Soc.* 44: 16 (1905); Ridley, *J. Asiat. Soc. Bengal* 74(2): 735 (1909). – *Trichosporum lobbianum* (Hook.) Kuntze, *Revis. Gen. Pl.* 478 (1891). – Type: Indonesia, Java, *T. Lobb* s.n. (holo K).

Aeschynanthus javanicus Rollinson ex Hook., *Bot. Mag.* 76: t.4503 (1850); Miquel, *Fl. Ned. Ind.* 2: 721 (1858); Clarke in A.DC. & C.DC., *Monogr. Phan.* 5: 44 (1883). – *Trichosporum javanicum* (Hook.) Kuntze, *Revis. Gen. Pl.* 477 (1891). – Type: Indonesia, Java, *Unknown collector* s.n. (holo K).

Aeschynanthus neesii Zoll. & Moritz in Zollinger, *Syst. Verz.* 3: 56 (1855), nom. nud. – Based on *H. Zollinger* 1546 (P).

- Aeschynanthus lampongus* Miq., Fl. Ned. Ind., Eerste Bijv. 563 (1861); Clarke in A.DC. & C.DC., Monogr. Phan. 5: 42 (1883). – *Trichosporum lampongum* (Miq.) Burkill, Kew Bull. 1935: 319 (1935). – Type: Indonesia, Sumatra, Lampung, Radja-bassa, J.E. Teijsmann HB4482 (lecto U, designated here; isolecto L).
- Aeschynanthus zollingeri* C.B.Clarke in A.DC. & C.DC., Monogr. Phan. 5: 44 (1883). – *Trichosporum zollingeri* (C.B.Clarke) Kuntze, Revis. Gen. Pl. 478 (1891). – Type: Indonesia, Java, H. Zollinger 1512 (lecto BM, designated here; isolecto P).
- Aeschynanthus beccarii* C.B.Clarke in A.DC. & C.DC., Monogr. Phan. 5: 47 (1883). – *Trichosporum beccarii* (C.B.Clarke) Kuntze, Revis. Gen. Pl. 477 (1891). – Type: Indonesia, Sumatra, Sumatera Barat, Padang, O. Beccari 796 (lecto K, designated here; isolecto BM, FI n.v., K).
- Aeschynanthus lanceolatus* Ridl., J. Bot. 62: 299 (1924); Ridley, Fl. Malay Penin. 5: 324 (1925); Turner, Gard. Bull. Singapore 47(1): 243 (1997 [‘1995’]). – Type: Malaysia, Pahang, Fraser’s Hill, 16 ix 1922, H.M. Burkill & R.E. Holtum 8418 (holo K).
- Aeschynanthus lampongus* var. *parvifolius* Ridl., Fl. Malay Penin. 5: 324 (1925); Turner, Gard. Bull. Singapore 47(1): 243 (1997 [‘1995’]). – Type: Malaysia, Pahang, Puku, Kuala Teku, 20 xii 1920, E. Seimund s.n. (lecto K, designated by Middleton (2007b: 413); isolecto SING).

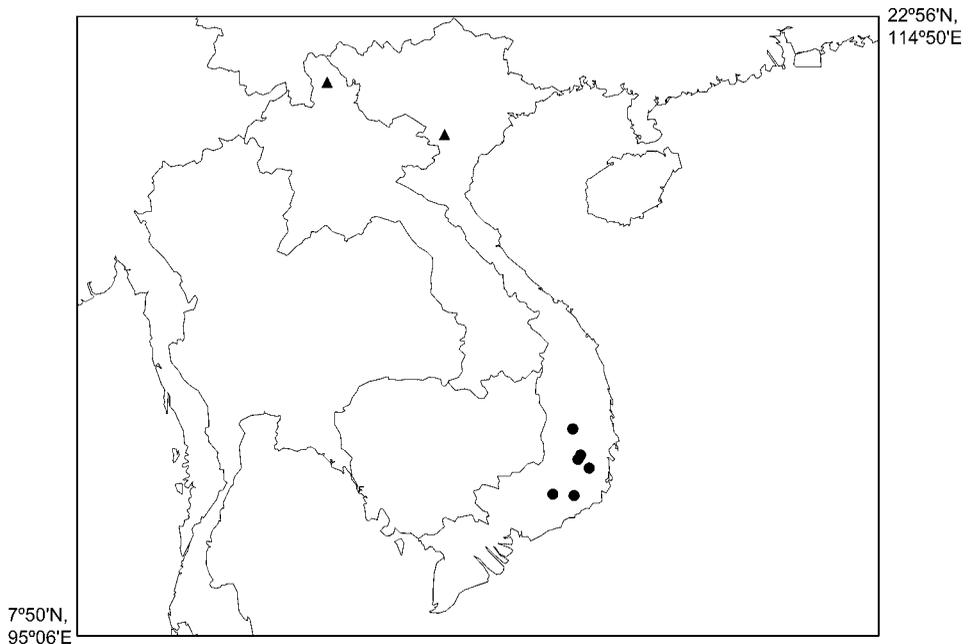


FIG. 15. Distribution of *Aeschynanthus pulcher* (Blume) G.Don (●) and *Aeschynanthus superbus* C.B.Clarke (▲) in Cambodia, Laos and Vietnam.

Lithophytic or epiphytic, hanging or creeping, stems dark purple to green, sparsely puberulent to glabrous. *Leaves* opposite; petiole 2–6 mm long, sparsely puberulent or glabrous; blade coriaceous or slightly fleshy, elliptic or ovate, dark green to purplish above and beneath, not marbled, $0.9\text{--}5.9 \times 0.25\text{--}2.1$ cm, 1.3–5.5 times as long as wide, apex rounded to acuminate, base subcordate to cuneate, glabrous above, glabrous to very sparsely puberulent all over beneath, margin entire, secondary veins weakly visible or obscure, c.3 pairs, tertiary venation obscure. *Inflorescences* subterminal or axillary, 1–2-flowered; peduncle 0–12.5 mm long; bracts elliptic or ovate, $3\text{--}6.5 \times 2\text{--}5.5$ mm; pedicels 6–13 mm long, green, sparsely puberulent to densely long hairy. *Calyx* with a tube for most of length and free lobes, dark red to purplish or purplish-brown, mostly sparsely eglandular puberulent, more rarely densely puberulent, glabrous or with a few hairs only on very tips, 11.5–35 mm long; tube 10–30 mm long, 83–96% of total length, 6–21 mm wide at top of tube; lobes triangular, semicircular or merely a weak curve of the upper rim, slightly spreading or erect, $1\text{--}5 \times 4\text{--}7$ mm, apex rounded or obtuse. *Corolla* 42–65 mm long, inflated at base, externally tube dark or bright red, often white at extreme base inside calyx tube, lobes bright red, internally lobes bright red with cream and dark markings on lower 3 lobes; upper lobes oblong or ovate, spreading or not, $5.7\text{--}12 \times 1.9\text{--}6.5$ mm, sinus 2.2–4.1 mm deep, apex rounded; lateral lobes deltoid or ovate, spreading or not, $6.1\text{--}12 \times 6.5\text{--}12$ mm, apex rounded; lower lobe elliptic or ovate, spreading or not, $7.6\text{--}10.5 \times 5.5\text{--}10$ mm, apex rounded; outside sparsely to densely puberulent, inside glabrous or with scattered papillae or small glandular hairs which are denser in the upper half, sessile glands below lobes. *Stamens* reaching end of corolla or slightly exerted, fused in 2 pairs; filaments red, glabrous or with very few sessile glands or papillose; anterior filaments inserted at 29–47 mm from corolla base which is 54–68% of corolla length, filaments 21–27 mm long, anthers $2.4\text{--}3.3 \times 0.8\text{--}1.6$ mm; posterior filaments inserted at 33.5–41 mm from corolla base which is 60–70% of corolla length, filaments 17.5–21 mm long, anthers $2.3\text{--}2.9 \times 0.8\text{--}1.9$ mm; staminode 0.5–1.6 mm long. *Disk* 0.8–1.5 mm high, strongly 5-lobed, 5-crenate or a simple annular ring. *Pistil* 37–58 mm long; stipe 16–27 mm long, puberulent; ovary pale yellow, 14–30 mm long, minutely papillose or with sessile glands; style pale yellow, 4.5–14 mm long, densely pubescent. *Capsule* 20.5–40 cm long, 3.5–4 mm wide. *Seed* grain $0.6\text{--}0.9 \times 0.2\text{--}0.3$ mm, papillose, bubble cells present at base of hilar appendage; apical appendage a filiform hair, 7–8 mm long; hilar appendage a single filiform hair, 6–9 mm long; appendages not papillose.

Distribution. Extreme south of Thailand, southern Vietnam, Peninsular Malaysia, Sumatra, Java. Further research in Malesia may widen this distribution.

Habitat and ecology. In Vietnam collected in forest at 800–2050 m altitude.

Proposed IUCN conservation status. Least Concern (LC). This species is one of the most common and most widespread species in the genus.

Specimens examined. VIETNAM. **Dac Lac:** Ea Ho District, Earyl Commune, Earyl Nature Reserve, 14 ix 2001, *P. Thomas, N.D.T. Luu & N.V. Chi* 188 (E); Krong Bong District, Cu Pui Municipality, Dak Tour Village to main peak of Chu Yang Sinh Mountain Range along Dak Tour River, 4 v 2000, *L. Averyanov et al.* VH6082 (E); Krong Bong District, Cu Pui Municipality, up from Dak Tour Village along Dak Tour River, 3 v 2000, *L. Averyanov et al.* VH5938 (E). **Lam Dong:** Haut Donai, 27 v 1933, *E. Poilane* 22518 (L); Biao, 16 vi 1933, *E. Poilane* 22691 (L); Lac Duong, 41 km NE of Dalat, Nui Hon Giao ridge, 23 iv 1997, *L. Averyanov et al.* VH4210 (AAU, E), VH4210A (AAU, E).

Aeschynanthus pulcher is an extremely widespread and common species in Malesia, the limits of which have still not been entirely clarified. It is also rather variable across its distribution. The description given here is for the species as a whole as it is known from so few specimens in Vietnam. The presence of this species in Vietnam is rather curious given its isolation from the rest of the distribution of the species. Also, in the rest of its distribution it is confined to the everwet forests of Malesia, extending into Thailand only as far as the limits of this forest type. Despite these observations the Vietnamese material is morphologically unremarkable.

Several previously recognised species have been included in synonymy above but I suspect that once the complex is studied in more detail across western Malesia the list of synonyms will grow. A much fuller discussion of this species will be given in the forthcoming monograph.

18. *Aeschynanthus superbus* C.B. Clarke, *Commelyn. Cyrtandr. Bengal.* t.46 (1874); Clarke in A.DC. & C.DC., *Monogr. Phan.* 5: 32 (1883); Clarke in Hooker, *Fl. Brit. Ind.* 4: 342 (1884); Barnett, *Fl. Siam.* 3(3): 203 (1962); Wang, *Phytologia* 45: 310 (1980); Li, *Acta Bot. Yunnan.* 5(1): 28 (1983); Wang, *Fl. Reipubl. Popularis Sin.* 69: 507 (1990); Wang et al., *Fl. China* 18: 379 (1998); Hilliard, *Fl. Bhutan* 2(3): 1301 (2001); Smitinand, *Thai Pl. Names ed. 2*, 15 (2001); Burt, *Thai For. Bull. (Bot.)* 29: 84 (2001); Kress et al., *Checkl. Myanmar* 262 (2003). – *Aeschynanthus longiflorus* Wall., *Num. List* 795 (1829), nom. nud.; Steudel, *Nomencl. Bot. ed. 2*, 1: 32 (1840), nom. nud.; A.DC., *Prodr.* 9: 263 (1845), nom. illeg.; Miquel, *Fl. Ned. Ind.* 2: 722 (1858), nom. illeg. – *Trichosporum superbum* (C.B. Clarke) Kuntze, *Revis. Gen. Pl.* 478 (1891). – Type: Pundua, *N. Wallich* 795 (lecto BM, designated by Middleton (2007b: 422); isolecto CGE, K-W, M, P, S). **Fig. 15.**

Aeschynanthus bracteatus auct. non Wall. ex A.DC.: Pooma, *Threatened Pl. Thailand* 70 (2005).

Epiphyte with arching and pendulous stems; stems glabrous. *Leaves* opposite; petiole 6–18 mm long, glabrous; blade coriaceous or fleshy, green above and beneath, not marbled, elliptic, 8–22.4 × (1.3–)1.9–10.6 cm, 1.6–4.2(–7.1) times as long as wide, apex acuminate, base cuneate to obtuse; glabrous above and beneath, not punctate beneath, margin entire, 4–12 pairs of secondary veins, these usually at least weakly visible, tertiary venation parallel to secondary veins or obscure. *Inflorescences* subterminal or axillary; peduncle 12–42 mm long; bracts red, ovate or elliptic,

38–60 × 18–48 mm; pedicels 7–13 mm long, glabrous. *Calyx* of separate lobes free to base, red, glabrous; lobes elliptic to obovate, erect, 14–39 × 5.4–13 mm, apex obtuse to rounded. *Corolla* 60–85 mm long; externally bright red with darker lines, internally red with dark red markings on lobes; upper lobes orbicular, oblong or ovate, reflexed or spreading, 11.5–20 × 8.5–12 mm, sinus 5.5–8 mm deep, apex rounded; lateral lobes elliptic, orbicular or ovate, reflexed, 10–20 × 11–14 mm, apex rounded; lower lobe ovate or orbicular, spreading, 10–16 × 9–12 mm, apex rounded; externally corolla glabrous, internally with glandular hairs on base of lobes and in throat and sparse glandular hairs throughout. *Stamens* mostly long exerted, fused in 2 pairs; filaments with few glandular hairs at top or all way along; anterior filaments inserted at 29–39.5 mm from corolla base which is 43–56% of corolla length, filaments 37–41 mm long, anthers 3–4 × 1.4–2.1 mm; posterior filaments inserted at 37–45 mm from corolla base which is 54–63% of corolla length, filaments 25–32 mm long, anthers 3–3.5 × 1.6–1.9 mm; staminode 1.4–4 mm long. *Disk* 1.2–1.6 mm high, 5-crenate or a simple annular ring. *Pistil* 63–78 mm long; stipe 19–34 mm long, glabrous to glandular puberulent; ovary 15–44 mm long, glandular pubescent or with sessile glands; style 8–18 mm long, glandular pubescent. *Capsule* 33–44 cm long, 1.5–3.1 mm wide. *Seed* grains 0.8–1 × 0.15–0.2 mm, papillose, bubble cells absent; apical appendage a filiform hair, 4.5–7.5 mm long; hilar appendage a single filiform hair, 4.5–6.4 mm long; appendages not papillose.

Distribution. Northeastern India, Bhutan, Burma, southern China (Yunnan), northern Thailand, northern Laos, northern Vietnam.

Habitat and ecology. Throughout its range in evergreen forest at 480–2120 m altitude. In Indochina it has been collected at 1000–1550 m altitude.

Proposed IUCN conservation status. Least Concern (LC). This species is common and widespread in the Himalayas, southern China and northern Thailand even though it is known from only two specimens in Indochina.

Specimens examined. LAOS. **Phong Sali:** entre Phinh Ha et Lao Phutai sur piste de Phong Sali a Lai Chau, 27 iv 1936, *E. Poilane* 25913 (P).

VIETNAM. **Thanh Hoa:** Ba Thuoc District, Thanh Son Municipality, Pu Luong Range, 9 x 2003, *L. Averyanov et al.* HAL4206 (E).

The description above is for the species throughout its range as it is known from only two collections in Indochina.

PROBLEMATIC SPECIMEN

Van der Werff et al. 17177 (E, MO) from Vietnam, Ha Giang, Quan Ba District, Can Ty Community, Bat Son Protected Area, has calyces but no corollas. The plant is reminiscent of *Aeschynanthus hosseusii* Pellegr. from Thailand in the long narrow calyx lobes and long calyx tube except that the calyx is slightly larger in the Vietnamese specimen. As this species is otherwise unknown in Cambodia, Laos and

Vietnam I would prefer to confirm its occurrence with additional and flowering material before including it in this revision.

ACKNOWLEDGEMENTS

I should like to thank Martin Pullan for his work on the database and Robert Mill for the Latin diagnoses. Anna Dorward and Louise Olley are thanked for the illustrations, Professor Wei Yi-Gang for translations of Chinese labels and literature, and Dr Gemma Bramley and Dr John Edmondson for their reviews. Steve Scott skilfully grew and nurtured living collections of several species. The European Union SYNTHESYS programme is gratefully acknowledged for funding visits to the herbaria in Paris and Leiden, hosted by Sovanmoly Hul and Peter van Welzen, respectively. The staff of the following herbaria are thanked for their hospitality on visits, their responses to questions on specimens and/or their loan of material: A, AAU, BKF, BM, BR, CGE, E, G, G-DC, HN, HNU, K, K-W, L, M, MEL, MO, NSW, NY, P, PE, S, SING, TI, U, UC, US, W.

REFERENCES

- BROWN, R. (1839). *On Cyrtandreae*. A preprint from BENNETT, J. J. *Plantae Javanicae Rariores*.
- BROWN, R. (1840). In: BENNETT, J. J., *Plantae Javanicae Rariores*. London: W.H. Allen.
- CANDOLLE, A. L. L. P. DE (1845). Cyrtandraceae. *Prodromus* 9: 258–286.
- CLARKE, C. B. (1883). Cyrtandreae. In: CANDOLLE, A. L. L. P. DE & CANDOLLE, A. C. P. DE, *Monographiae Phanerogamarum* 5: 1–303.
- GOEL, A. K., VASUDEVA RAO, M. K. & MEHROTRA, B. N. (1992 [‘1989’]). A new species of *Aeschynanthus* Jack (Gesneriaceae) from South Andamans. *Bull. Bot. Surv. India* 31: 154–156.
- IUCN (2001). *IUCN Red List Categories and Criteria, Version 3.1*. IUCN Species Survival Commission. Gland, Switzerland and Cambridge, UK: IUCN.
- LI, H. W. (1983). *Aeschynanthus*. *Acta Bot. Yunnan.* 5(1): 25–38.
- LUDLOW, F. (1972). Thomas J. Booth and the type localities of his Indian Rhododendrons described by Nuttall. *Trans. Bot. Soc. Edinburgh* 41: 351–363.
- MCNEILL, J., BARRIE, F. R., BURDET, H. M., DEMOULIN, V., HAWKSWORTH, D. L., MARHOLD, K. *et al.* (eds) (2006). *International Code of Botanical Nomenclature (Vienna Code) adopted by the Seventeenth International Botanical Congress, Vienna, Austria, July 2005*. Ruggell: A. R. G. Gantner Verlag KG [Regnum Veg. vol. 146].
- MIDDLETON, D. J. (2007a). A new species and a new combination in *Aeschynanthus* (Gesneriaceae) from Laos. *Edinburgh J. Bot.* 64: 45–50.
- MIDDLETON, D. J. (2007b). A revision of *Aeschynanthus* (Gesneriaceae) in Thailand. *Edinburgh J. Bot.* 64: 363–429.
- NEWMAN, M., KETPHANH, S., SVENGUSUKSA, B., THOMAS, P., SENGDALA, K., LAMXAY, V. & ARMSTRONG, K. (2007). *A Checklist of the Vascular Plants of Lao PDR*. Edinburgh: Royal Botanic Garden Edinburgh.
- PELLEGRIN, F. (1926 [‘1925’]). Les *Aeschynanthus* Jack d’Indo-chine. *Bull. Soc. Bot. France* 72: 821–824.
- PELLEGRIN, F. (1930). *Aeschynanthus*. In: LECOMTE, M. H., *Flore Générale de l’Indo-Chine* 4: 490–500.

- PHAM-HOÀNG HỒ (1993). *Cayco Vietnam: An Illustrated Flora of Vietnam*, ed. 3. Tome 3, Fascicle 1.
- SPRAGUE, T. A. (1929). *Nomenclature Proposals by British Botanists*. London: HMSO.
- STEUDEL, E. G. VON (1840). *Nomenclator Botanicus* ed. 2, 1: 32.
- VU XUAN PHUONG (2004). [*Aeschynanthus* in Vietnam]. *Vietnam J. Biol.* 26(4A): 37–41.
- WALLICH, N. (1828–1849). *A Numerical List of Dried Specimens*. Lithograph.
- WANG, W. T., PAN, K. Y., LI, Z. Y., WEITZMAN, A. L. & SKOG, L. E. (1998). Gesneriaceae. *Flora of China* 18: 244–401.

Received 20 November 2008; accepted for publication 3 June 2009

INDEX OF EXSICCATAE FOR CAMBODIA, LAOS AND VIETNAM

- Averyanov, L. et al.* VH246 (15), CBL 384 (6), VH584 (1), CBL 766 (12), CBL 1226 (12), VH1752 (2), VH1937 (2), HAL2546 (4), VH2641 (14), HAL2948 (3), VH3129 (14), VH3634 (15), HAL4206 (18), VH4210 (17), HAL4258 (2), VH5218 (2), VH5589 (2), VH5663 (16), VH5691 (2), VH5938 (17), VH6082 (17).
- Cherry, R.* s.n. (3), s.n. (14), 123 (3), 153 (3); *Chevalier, A.J.B.* 2073 (8); *Clemens, J. & Clemens, M.S.* 4178 (16).
- Delacour* s.n. (2).
- Eberhardt* 3699 (2); *Evrard, F.* 358 (7), 1260 (7), 1302 (7).
- First Darwin Expedition* 239 (7).
- Gardner, M.F. et al.* 6 (8), 17 (1), 123 (14), 163 (6); *Goodwin, S. & Cherry, R.* 92/117 (3).
- Harder, D.K. et al.* 4529 (9), 5304 (2), 5310 (3), 5481 (13), 5492 (12), 5778 (11), 6649 (2), 6898 (6), 6960 (11), 7126 (11), 7755 (2), 7990 (2); *Harmand, J.H.A.J.* 1187 (10); *Hayata, B.* s.n. (2), s.n. (3), s.n. (7), 200 (14); *Hiep, N.T. et al.* HAL455 (2), HAL762 (2), NTH2676 (3), HAL9646 (8).
- Lecomte, H. & Finet, A.* 445 (3); *Loc, P.K.* P4286 (2), HAL8854 (3); *Luu, N.D.T.* 50 (9); *Luu, N.D.T. & Chi, N.V.* 226 (14), 228 (14).
- Mendum, M.* s.n. (3), s.n. (4), CULT 167 (3), CULT 168 (4), CULT 173 (7), CULT 174 (7), CULT 175 (3), CULT 185 (3); *Middleton, D.J.* 3696 (6), 3703 (7), 4207 (8), 4212 (7), 4218 (11), 4232 (5), 4235 (14), 4241 (12), 4242 (11), 4244 (2), 4256 (12), 4593 (9).
- Newman, M.F. et al.* LAO 82 (7), LAO 89 (7), LAO 371 (7), LAO 746 (7), LAO 1017 (7), LAO 1020 (11), LAO 1117 (8), LAO 1246 (2), LAO 1441 (2), 2167 (10); *Nguyen Van Du* HNK900 (10).
- Pételot, A.* s.n. (2), s.n. (6), 705 (3), 1107 (3), 1638 (13), 2304 (3), 5037 (1), 5178 (4), 5826 (3), 6012 (1), 8479 (4), 8480 (14), 8482 (2); *Phuong, V.X. et al.* HLF950 (16); *Pierre, J.B.L.* 4539 (10); *Poilane, E.* 7137 (16), 10303 (16), 10389 (16), 12615 (3), 12740 (4), 13749 (7), 15541 (7), 19450 (10), 19461 (10), 22518 (17), 22691 (17), 25668 (6), 25913 (18), 26366 (6), 28605 (2), 29007 (16), 30438 (7), 30903 (14), 31379 (15), 31472 (15), 32570 (14), 32750 (2), 35830 (1).
- RBGE 20060838 (11); *Rushforth, K.D.* 3051 (3).
- Sigaldi* 233 (10); *Sino-Vietnam Expedition* 2625 (6); *Smitinand, T. & Abbe, E.C.* 6426 (2); *Spire, C.J.* 195 (7), 335 (7).
- Thomas, P. & Luu, N.D.T.* 14 (3), 40 (7), 68 (2); *Thomas, P. et al.* 84 (7), 131 (7), 188 (17); *Tuyama, T.* L-57238 (8).
- Unknown* 21 f183 (7).
- Vidal, J.E.* 688A (2), 5962 (7); *Vu Xuan Phuong et al.* HNK45 (3), HNK56 (4), HNK704 (11).
- Werff, H. van der* 17177 (see problematic specimen section), 17333 (12); *Willis, F.* 24 (16).

INDEX

In the following index accepted taxa are given in roman, synonyms in italics and new taxa in bold. A number after a name refers to the number of the taxon in the text above, a number followed by a 'd' (e.g. 1d) means that a name is mentioned only in the discussion after that species but is not a synonym of it, (gen) = found in generic section, (int) = found in introduction.

- Aeschynanthus* Jack (gen)
Aeschynanthus acuminatissimus W.T.Wang (1)
Aeschynanthus acuminatus Wall. ex A.DC. (2)
Aeschynanthus acuminatus var. *chinensis* (Gardner & Champ.) C.B.Clarke (2)
Aeschynanthus andamanensis Goel, Vasudeva Rao & Mehrotra (13)
Aeschynanthus angustifolius (Blume) Steud. (gen)
Aeschynanthus angustoblomus sensu Vu Xuan Phuong (12)
Aeschynanthus austroyunnanensis W.T.Wang (12)
Aeschynanthus austroyunnanensis var. *guangxiensis* (Chun ex W.T.Wang & K.Y.Pan) W.T.Wang (12)
Aeschynanthus beccarii C.B.Clarke (17)
Aeschynanthus boschianus de Vriese (17)
Aeschynanthus bracteatus Wall. ex A.DC. (3)
Aeschynanthus bracteatus sensu Bentham (2)
Aeschynanthus bracteatus sensu Pooma (18)
Aeschynanthus bracteatus var. *peelii* (Hook.f. & Thomson) C.B.Clarke (3)
Aeschynanthus buxifolius Hemsl. (4)
Aeschynanthus cambodiensis D.J.Middleton (5)
Aeschynanthus chinensis Gardner & Champ. (2)
Aeschynanthus chiritooides C.B.Clarke (6)
Aeschynanthus consobrinus Kraenzl. (14)
Aeschynanthus deleiensis C.E.C.Fisch. (13)
Aeschynanthus denticuliger W.T.Wang (6)
Aeschynanthus dischidioides (Ridl.) D.J.Middleton (gen)
Aeschynanthus dolicanthus W.T.Wang (13)
Aeschynanthus evrardii Pellegr. (7)
Aeschynanthus fulgens Wall. ex R.Br. (7)
Aeschynanthus garrettii Craib (1d, 4d)
Aeschynanthus garrettii sensu Pellegrin, *pro parte* (1)
Aeschynanthus garrettii sensu Pellegrin, *pro parte* (14)
Aeschynanthus garrettii sensu Pham-Hoàng Hô (1)
Aeschynanthus garrettii sensu Vu Xuan Phuong (1)
Aeschynanthus gracilis Parish ex C.B.Clarke (6d)
Aeschynanthus grandiflorus (D.Don) Spreng. (13)
Aeschynanthus grandiflorus var. *parasiticus* (Roxb.) C.B.Clarke (13)
Aeschynanthus guangxiensis Chun ex W.T.Wang & K.Y.Pan (12)
Aeschynanthus hookeri C.B.Clarke (int)
Aeschynanthus hosseusii Pellegr. (int)
Aeschynanthus hosseusii sensu Barnett, *pro parte* (14)
Aeschynanthus hosseusii sensu Pellegrin, *pro parte* (3)
Aeschynanthus hosseusii sensu Pham-Hoàng Hô (3)
Aeschynanthus humilis Hemsl. (8)

- Aeschynanthus javanicus* Rollinson ex Hook. (17)
Aeschynanthus jouyi D.J.Middleton (9)
Aeschynanthus lampongus Miq. (17)
Aeschynanthus lampongus var. *parvifolius* Ridl. (17)
Aeschynanthus lanceolatus Ridl. (17)
Aeschynanthus lineatus Craib (int)
Aeschynanthus lineatus sensu Vu Xuan Phuong (14)
Aeschynanthus lobbianus Hook. (17)
Aeschynanthus longicaulis Wall. ex R.Br. (int)
Aeschynanthus longicaulis sensu Burt & Woods, *pro parte* (10)
Aeschynanthus longicaulis sensu Pellegrin (10)
Aeschynanthus longiflorus Wall. (18)
Aeschynanthus macranthus (Merr.) Pellegr. (13)
Aeschynanthus macranthus sensu Barnett (7)
Aeschynanthus macranthus sensu Burt (7)
Aeschynanthus macranthus sensu Pellegrin, *pro parte* (7)
Aeschynanthus maculatus Lindl. (14)
Aeschynanthus maculatus var. *sikkimensis* C.B.Clarke (14)
Aeschynanthus maculatus var. *stenophyllus* C.B.Clarke (14)
Aeschynanthus membranifolius (Costantin) D.J.Middleton (10)
Aeschynanthus mendumiae D.J.Middleton (11)
Aeschynanthus micranthus C.B.Clarke (12)
Aeschynanthus mimetes B.L.Burt (13)
Aeschynanthus moningeriae (Merr.) Chun (15d)
Aeschynanthus neesii Zoll. & Moritzi (17)
Aeschynanthus oxychlamys Mendum (gen)
Aeschynanthus pachytrichus W.T.Wang (13)
Aeschynanthus papuanus (Schltr.) B.L.Burt (gen)
Aeschynanthus parasiticus (Roxb.) Wall. (13)
Aeschynanthus parviflorus (D.Don) Spreng. (14)
Aeschynanthus parvifolius R.Br. (17)
Aeschynanthus paxtonii Lindl. (3)
Aeschynanthus pedunculatus D.J.Middleton (15)
Aeschynanthus peelii Hook.f. & Thomson (3)
Aeschynanthus persimilis Craib (int)
Aeschynanthus persimilis sensu Mendum (8)
Aeschynanthus poilanei Pellegr. (16)
Aeschynanthus pulcher (Blume) G.Don (17)
Aeschynanthus pusillus Prain (6)
Aeschynanthus ramosissimus Wall. (14)
Aeschynanthus rhododendron Ridl. (9d)
Aeschynanthus sikkimensis (C.B.Clarke) Stapf (14)
Aeschynanthus sinolongicalyx W.T.Wang (5d, 11d)
Aeschynanthus stenosphonium W.T.Wang (7)
Aeschynanthus superbus C.B.Clarke (18)
Aeschynanthus tubulosus J.Anthony (4d)
Aeschynanthus volubilis Jack (gen)
Aeschynanthus zollingeri C.B.Clarke (17)
Euthamnus Schltr. (gen)
Euthamnus papuanus Schltr. (gen)

-
- Hoya membranifolia* Costantin (10)
Incarvillea parasitica Roxb. (13)
Micraeschynanthus Ridl. (gen)
Micraeschynanthus dischidioides Ridl. (gen)
Oxychlamys Schltr. (gen)
Oxychlamys pullei Schltr. (gen)
Rheitrophyllum Hassk. (gen)
Rheitrophyllum subverticillatum Hassk. (gen)
Trichosporum D.Don (gen)
Trichosporum acuminatum (Wall. ex A.DC.) Kuntze (2)
Trichosporum beccarii (C.B.Clarke) Kuntze (17)
Trichosporum boschianum (de Vriese) Kuntze (17)
Trichosporum bracteatum (Wall. ex A.DC.) Kuntze (3)
Trichosporum chiritoides (C.B.Clarke) Kuntze (6)
Trichosporum fulgens (Wall. ex R.Br.) Kuntze (7)
Trichosporum grandiflorum D.Don (13)
Trichosporum javanicum (Hook.) Kuntze (17)
Trichosporum lampongum (Miq.) Burkill (17)
Trichosporum lobbianum (Hook.) Kuntze (17)
Trichosporum macranthum Merr. (13)
Trichosporum maculatum (Lindl.) Kuntze (14)
Trichosporum micranthum (C.B.Clarke) Kuntze (12)
Trichosporum parasiticum (Roxb.) Kuntze (13)
Trichosporum parviflorum D.Don (14)
Trichosporum parvifolium (R.Br.) Kuntze (17)
Trichosporum pulchrum Blume (17)
Trichosporum superbum (C.B.Clarke) Kuntze (18)
Trichosporum zollingeri (C.B.Clarke) Kuntze (17)