

A taxonomic revision and re-definition of the genus *Gamblea* (Araliaceae)

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ABSTRACT

Comparison of material previously assigned to the east Asian genus *Evodiopanax* (Araliaceae) with that of *Gamblea* from the eastern Himalayas and northern Myanmar shows that they comprise a single genus, with *Gamblea* having priority. A re-evaluation of taxonomic limits within the expanded genus leads to the recognition of four species: *G. ciliata* extending from India across northern Myanmar, southern China and far northern Viet Nam to eastern China, and including the newly recognized var. *evodiaefolia*, previously treated as a distinct species; the Japanese *G. innovans*; *G. malayana* in peninsular Malaysia and northern Sumatra; and *G. pseudoevodiaefolia* restricted to southwestern Guangxi and southeastern Yunnan Provinces in China and adjacent northern Viet Nam and Laos. Four new combinations are made and four names are lectotypified.

KEY WORDS

Gamblea,
Evodiopanax,
Acanthopanax,
Araliaceae.

RÉSUMÉ

Révision taxonomique et redéfinition du genre Gamblea (Araliaceae).

La comparaison entre le matériel attribué jusqu'à maintenant au genre est-asiatique *Evodiopanax* et celui de *Gamblea* de l'Himalaya oriental et du N Myanmar indique qu'ils ne constituent qu'un seul genre, *Gamblea* ayant la priorité. Une évaluation des limites taxonomiques au sein de ce genre élargi permet de reconnaître quatre espèces : *G. ciliata*, distribué de l'Inde, du N Myanmar, du S de la Chine et de l'extrême N du Viêt-Nam à la Chine orientale, qui inclue la var. *evodiaefolia* reconnue ici, considérée auparavant comme espèce distincte ; *G. innovans* du Japon ; *G. malayana* de la Péninsule Malaise et du N Sumatra ; et *G. pseudoevodiaefolia* limité au SW du Guangxi et au SE du Yunnan en Chine et aux régions limitrophes au N du Viêt-Nam et du Laos. Quatre nouvelles combinaisons sont établies et quatre noms sont lectotypifiés.

MOTS CLÉS

Gamblea,
Evodiopanax,
Acanthopanax,
Araliaceae.

INTRODUCTION

The genus *Gamblea*, described by C.B. CLARKE in 1879, originally comprised a single species, *G. ciliata*, known at the time from Sikkim, and subsequently found to occur also in other parts of India, Nepal, Bhutan and Myanmar (formerly Burma). As originally circumscribed, *Gamblea* was distinguished from other Araliaceae by having five valvate petals, five stamens, an ovary with 3-5 carpels and an equal number of styles, and (in contrast to what was then called *Acanthopanax*) by being unarmed. HARMS (1894-97) initially upheld *Gamblea*, but later (HARMS 1918) suggested that it was close to *Acanthopanax* Miq., and especially *A.* sect. *Eleutherococcus* (Maxim.) Harms. Characters used to distinguish *Gamblea* included the absence of spines or prickles and styles divided to the middle or below. The possibility that *Gamblea* was similar to *Acanthopanax* sect. *Evodiopanax* Harms, and in particular to *A. evodiaefolius* and *A. innovans*, was apparently not taken into account by HARMS, presumably because the latter had uniform endosperm, fewer carpels, and generally 4 corolla lobes and stamens.

Several years later, NAKAI (1924) elevated *Acanthopanax* sect. *Evodiopanax* to generic rank,

treating it as distinct from both *Acanthopanax* sensu stricto and *Eleutherococcus*, which he also recognized as a good genus. NAKAI regarded the sulcate shape of the pyrenes of *Acanthopanax* as distinctive — although he may not have known *Gamblea* on account of its perceived extra-East Asian range. Shortly thereafter, HENDERSON (1933) described *Acanthopanax malayanus* based on material from Singapore, and MERRILL (1941) recognized *Gamblea* ? *longipes* from northern Myanmar as a new species. More recently, STONE (1980) transferred *Acanthopanax malayanus* to *Eleutherococcus*, following HU's (1980) clear demonstration that *Eleutherococcus* has nomenclatural priority over *Acanthopanax* when the two genera are united.

Gamblea has long been used as a generic concept, and is widely adopted in floras in South Asia. By contrast, *Evodiopanax*, as well as the segregate genus *Eleutherococcus*, have been applied less widely. Following in particular HARMS (1918), *Evodiopanax* (then recognized at the sectional rank) and *Eleutherococcus* were included by most authorities within a broader *Acanthopanax*, this being widely retained until it was shown to be invalid. However, some early twentieth-century authors in Japan — including MAKINO & NEMOTO (1925) in their Flora of Japan — referred

Acanthopanax innovans to *Kalopanax*, as MIQUEL (1863) had done when he first described that genus. *Evodiopanax* was first revived by OHWI in the original edition of his Flora of Japan (1953) as well as in its successor (1965). For Western readers, use of the name *Evodiopanax* was reintroduced by HUTCHINSON in the second volume of his Genera of Flowering Plants (1967); this was, however, not widely adopted, mostly because HUTCHINSON, like NAKAI before him, was generally regarded as a “splitter”. Most recent workers have instead chosen to retain the number and concepts of HARMS’s genera. However, GRUSHVITZKY et al. (1985, 1990) and WEI (1993), in surveys of Araliaceae respectively in Viet Nam and Guangxi, China, adopted *Evodiopanax*, and shortly thereafter SHANG & HUANG (1993) transferred *Eleutherococcus malayanus* to that genus.

In 1990-91, while examining material of *Eleutherococcus malayanus*, the third author noticed a close resemblance between it and *Gamblea ciliata*. Shortly thereafter, the late Andrew GRIERSON (Edinburgh) suggested to him that both of these species were close to *Evodiopanax*, and that *E. evodiaefolius* might be conspecific with *G. ciliata*. On the basis of overall similarity in several features, including growth, inflorescence form and position, and fruit morphology, FRODIN (1992) placed *Evodiopanax* in synonymy under *Gamblea*. Recognition of the unarmed genus *Gamblea* as distinct from *Eleutherococcus*, which has spines or prickles, was recently confirmed using ITS sequence data (WEN et al., in press).

In preparation of comprehensive revisions of Araliaceae for the Flore du Cambodge, du Laos et du Viêt-nam (SHANG, in press) and the Flora of China (SHANG & LOWRY, in prep.), the first and second authors have examined most of the available collections of Araliaceae from these regions, including material previously ascribed to *Evodiopanax*. Comparison of that material with specimens of the genus from Japan, and also with collections of *Gamblea* from the eastern Himalayas, led us to the conclusion that these plants represent a single reasonably well-defined genus, independently confirming FRODIN’s (1992) interpretation. In this paper, we therefore

combine our efforts here to report the results of a joint re-evaluation of *Gamblea*, making the required nomenclatural changes based on a revised and expanded circumscription of the genus that includes the taxa previously placed in *Evodiopanax*.

TAXONOMIC TREATMENT

GAMBLEA C.B. Clarke

In J.D. Hook., Fl. Brit. Ind. 2: 739 (1879); Hutch., Gen. Fl. Pl. 2: 78 (1967); J.C. Grierson, Fl. Bhut. 2: 340 (1991). — Type: *Gamblea ciliata* C.B. Clarke. *Evodiopanax* (Harms) Nakai, J. Arnold. Arbor. 5: 7 (1924); Ohwi, Fl. Jap.: 834 (1953); S.Y. Hu, J. Arnold Arbor. 61: 111 (1980); C.-B. Shang & J.-Y. Huang, J. Nanj. Forest. Univ. 17: 32 (1993). — *Acanthopanax* sect. *Evodiopanax* Harms, Mitt. Deutsch. Dendr. Ges. 27: 28 (1918); Li, Sargentia 2: 88 (1942); Hoo & Tseng, Fl. Reipub. Popul. Sin. 54: 106 (1978); C.-B. Shang, Fl. Sylv. Sin. 2: 1785 (1985). — Lectotype: *Evodipanax innovans* (Seib. & Zucc.) Nakai [= *Gamblea innovans* (Seib. & Zucc.) C.-B. Shang, Lowry & Frodin], designated by Hutchinson, Gen. Fl. Plants 2: 71 (1967).

Unarmed shrubs or trees, with both long and short shoots; cataphylls linear, with evident parallel veins, caducous. Leaves palmately compound, (1-)3-5-foliolate, leaflets sessile or with short petiolules, margins subentire to serrulate, usually with ciliate-hispid teeth, abaxial surface with domatia in the axils of the secondary veins, petiolule slightly expanded and sheathing at the base, without stipules. Inflorescences terminal on short shoots, simple or more often compound umbels or panicles of umbellules, often with 1-2 lateral umbellules borne on the larger of the primary axes; pedicels unarticulated; calyx rim subentire or 4-5-toothed; petals 4 or 5, valvate; stamens 4 or 5, anthers ovoid; disk flat to conical; ovary 2-4(-5)-carpellate; styles 2-4(-5), free or united for most of their length. Fruit elliptic to globose or slightly obloid, sometimes laterally compressed, pyrenes 2-4(-5), endosperm smooth.

As circumscribed here, *Gamblea* is a genus of four species, extending from the eastern Himalayas to SE and E Asia, including Japan,

and S to the peninsular Malaysia and northern Sumatra.

All four species of *Gamblea* have domatia in the axils of the secondary veins on the abaxial surface of their leaflets, although these structures are somewhat obscure or occasionally absent in some

specimens of *G. malayana* and *G. pseudoevodiaefolia*. The domatia vary in size from ca. 0.2 to 3 mm in diameter, depending on the species, but when present they always appear (in dried material) as a small tuft of dense, short trichomes, presumably associated with secretory cells.

Key to the species of *Gamblea*

1. Central leaflet rhomboid to slightly trullate, 1.2-1.8(-2.5) times as long as wide, with 3-4(-5) secondary veins on each side of midvein, domatia on abaxial surface prominent, (1-)1.5-3 mm long at base of lower secondary veins, tertiary veins weakly raised on abaxial surface; inflorescence a panicle of 2-8 umbellules borne on a single primary axis, occasionally paired with a second shorter, unbranched axis terminating in a single umbellule (Japan) 2. ***G. innovans***
- 1'. Central leaflet narrowly elliptic to elliptic or ovate (often broadly so), usually over 2 times as long as wide, with 5-14 secondary veins on each side of the midvein, domatia on abaxial surface somewhat obscure (rarely absent), 0.5-1 mm long at base of lower secondary veins, tertiary veins distinctly raised on abaxial surface; inflorescence usually a compound umbel or panicle with 2-10 primary axes, occasionally only a single panicle of umbellule 2
2. Fruit 4-5.5(-6) × 4.5-6(-6.5) mm, calyx teeth caducous (occasionally minute and persistent); leaflets broadly elliptic to ovate, (1.8-)2-3 times as long as wide (sometimes narrowly elliptic in material from the eastern Himalayas to northern Viet Nam and eastern China only) 1. ***G. ciliata***
- 2'. Fruit 6-9 × 7-11 mm, with 4-5 usually persistent, triangular calyx teeth; leaflets narrowly elliptic to slightly ovate, 3-4.5 times as long as wide 3
3. Leaflet margins distinctly serrulate, with small, ciliate-hispid teeth 0.2-0.5 mm long, spaced every 3-5 mm; styles free nearly to the base or united to ca. 1/4 of their length; fruit terete in cross-section or occasionally somewhat compressed laterally (northern Viet Nam and Laos, and adjacent Yunnan and Guangxi Prov. in China) 4. ***G. pseudoevodiaefolia***
- 3'. Leaflet margins subentire, with well developed, dense, divaricate, ciliate-hispid teeth (1-)1.5-2.5 mm long, spaced every 1-2 mm; styles united for 2/3-3/4 of their length; fruit ± evidently compressed laterally (Peninsular Malaysia, N Sumatra) 3. ***G. malayana***

1. *Gamblea ciliata* C.B. Clarke

In Hook. f., Fl. Brit. Ind. 2: 739 (1879); Biswas, Pl. Darjeeling Sikkim Himalaya 1: 400 (1966); Hara et al., Enum. Flow. Pl. Nepal 2: 191 (1979); J.C. Grierson, Fl. Bhut. 2: 340 (1991). — Lectotype (here designated): *Gamble* 25A, India, Sikkim, Tonglōo, 2750 m, 5 Oct. 1875, fr. (K!).

Tress or rarely shrubs (1-)2-12(-20) m tall, occasionally epiphytic, trunk ca. 10-60 cm dbh. Leaves (1-)3-5-foliolate, central leaflet broadly elliptic to ovate, sometimes narrowly elliptic, (5-)6-18(-21) × (2.5-)3-7(-8) cm at maturity, (1.8-)2-3 times as long as wide, with 5-14 secondary veins on each side of midvein, domatia obscure on abaxial surface at base of secondary veins, 0.5-1 mm in diam., tertiary veins distinctly raised on abaxial surface, margins entire to minutely serrulate, often with distinct ciliate-hispid teeth to

1.5(-2) mm long. Inflorescence a compound umbel or panicle of umbellules, primary axes (3-)4-10, each (4-)5-18 cm long, terminating in an umbellule and sometimes also with 1-2 lateral secondary axes each bearing an umbellule; calyx a narrow rim, occasionally with 4-5 minute, persistent teeth; styles 2-5, united for 1/4-3/4 of their length. Fruit 4-5.5(-6) × 4.5-6(-6.5) mm, terete in cross section (occasionally slightly compressed laterally), with a narrow, sometimes hyaline rim.

As circumscribed here, *Gamblea ciliata* extends over 3500 km from the eastern Himalayas across northern Myanmar, southern China and extreme northern Viet Nam to Anhui, Zhejiang and Fujian provinces in east-central China. Populations in the western part of the species' range, from India, Nepal, and Bhutan were traditionally ascribed to *G. ciliata*, and are virtually identical to those found

in southeastern Xizang province, China and in northern Myanmar. They are characterized by having flowers and fruits mostly with 3 or 4 style branches, leaves in which the largest leaflet measures (8-)10-20 cm long and has (6-)8-14 secondary veins on each side of the midvein, and fruit surmounted by a disk that is (1-)1.5-3 mm in diameter. By contrast, populations from the eastern part of the range (Guizhou and Guangxi to Anhui, Zhejiang and Fujian provinces), heretofore assigned to *Acanthopanax evodiaefolius*, have flowers and fruits with only 2 (or rarely 3) style branches, leaflets to 5-9(-14) cm in length with 5-8 secondary veins on each side of the midvein, and a disk in fruit that measures 0.8-1.5(-1.7) mm in diameter. However, careful examination of material from the intervening area in Sichuan and especially Yunnan provinces reveals a broad tran-

sition zone within which co-occurring or neighboring populations appear to exhibit a range of character combinations that makes it very difficult to circumscribe well delimited species on the basis of morphology or biogeography. Therefore, despite the rather clear differences that can be seen between plants from the western and eastern portions of the range of *G. ciliata*, we have chosen to recognize these taxa at the rank of variety because of the many specimens from Sichuan and Yunnan that are much less clearly differentiated.

C.B. CLARKE (1879) cited several syntypes for *Gamblea ciliata*, the most complete of which (*Gamble 25A*) contains well developed infructescences and leaves, along with a number of detached fruits, and has therefore been selected as the lectotype.

Key to the varieties of *Gamblea ciliata*

1. Flowers and fruits with (2-)3-4(-5) style branches, largest leaflets (8-)10-20 cm long, with (6-)8-14 secondary veins on each side of the midvein, fruit with a disk (1-)1.5-3 mm in diam. 1a. ***Gamblea ciliata* var. *ciliata***
- 1'. Flowers and fruits with 2 (rarely 3) style branches, largest leaflets 5-9(-14) cm long, with 5-8 secondary veins on each side of the midvein, fruit with a disk (0.8-)1.5-1.7 mm in diam. 1b. ***Gamblea ciliata* var. *evodiaefolia***

1a. *Gamblea ciliata* C.B. Clarke var. *ciliata*

Acanthopanax evodiaefolius Franch. var. *ferrugineus* W.W. Smith, Notes Bot. Gard. Edinburgh 10: 6 (1917). — *Evodiopanax evodiaefolius* (Franch.) Nakai var. *ferrugineus* (W.W. Smith) Nakai, "ferrugineum", J. Arnold Arbor. 5: 8 (1924). — *Evodiopanax ferrugineus* (W.W. Smith) Grushv. & Skvorts., Novosti Sist. Vyssh. Rast. 22: 177 (1985). — Lectotype (here designated): *Forrest 12068*, China, Yunnan, Shweli-Salwin divide, 25°20'N, Aug. 1913, fl. (E!; iso-, E!, K!); **syn. nov.**

Acanthopanax evodiaefolius Franch. var. *gracilis* W.W. Smith, Notes Bot. Gard. Edinburgh 10: 6 (1917). — *Evodiopanax gracilis* (W.W. Smith) Grushv. & Skvorts., Novosti Sist. Vyssh. Rast. 22: 177 (1985). — Type: *Forrest 11282*, China, Yunnan, Lichiang Range, 27°40'N, Sep. 1913, fr. (holo-, E!; iso-, E!, K!); **syn. nov.**

Acanthopanax evodiaefolius Franch. var. *glauca* Feng, Fl. Yunnanica 2: 486 (1979). — Type: *T. T. Yu 19318*, China, Yunnan, Salwin-Kiukian divide, Newahlung, 3500 m, 11 July 1938, fl. (holo-, KUN!; iso-, E!, K!); **syn. nov.**

Flowers and fruits with (2-)3-4(-5) style branches, largest leaflets (8-)10-20 cm long, with

(6-)8-14 secondary veins on each side of the midvein, fruit with a disk (1-)1.5-3 mm in diam.

SMITH (1917) cited two collections when he described *Acanthopanax evodiaefolius* var. *ferrugineus*, which therefore represent syntypes. One of these (*Forrest 12068*) comprises material in full flower, and we have selected the lectotype from among the two specimens of this gathering on deposit in Edinburgh.

MATERIAL EXAMINED. — **NEPAL**: *Beer 25556*, Iswa Khola, 3350 m, 5 Oct. 1975, ster. (BM); *Bowes Lyon 173*, Ankhu Khola, Barang, 2600 m, 5 Apr. 1962, bud (BM), *2012*, Lumding Khola, Dudh Kosi, 3000 m, 8 June 1964, bud (BM); *Dobremez DBR.NEP 1398*, Tapletok, 27°27'N, 87°50'E, 3300 m, 6 Oct. 1971, fr. (BM); *Noshiro et al. 9263208*, Mechi zone, Taplejung Dist., Chairam-Andha Phedi-Dorongen, 27°31'38"-27°35'02"N, 87°54'46"-87°58'11"E, 2890-3720 m, 11 June 1992, bud (BM); *Ohba et al. 54098*, Koshi zone, Sankhuwa Sabha Dist., Milke Danda, Angare Kharka-Chhippon, 27°20'N, 87°30'E, 2930-2980 m, 18 July 1991, y.fr. (BM); *Polunin 430*, Langtang, 3200

m, June 1949, fl. (BM, E); *Stainton 661* Arum Valley, Barum Khola, N of Num, 2730 m (BM, E); *M. Suzuki et al. 8860365*, Koshi zone, Sankhuwa Sabha Dist., Phemathang Kharka-Barun Khola-Numbuk Cha Ding Kharka, 27°40'N, 87°10'E, 3300 m, 29 July 1988, y.fr. (BM), 8880451, Koshi zone, Sankhuwa Sabha Dist., Tashi Gaun, Uttise Kharka-Bhainsi Kharka, 27°35'N, 87°15'E, 2160-2540 m, 14 July 1988, y.fr. (BM); *H. J. Williams 627*, Yiringdham, 27°20'N, 87°57'E, 3230 m, 16 June 1969, fl. (BM), 966, Yamphodin, 27°27'N, 87°57'E, 3050 m, 25 June 1969, fr. (BM). **INDIA: Assam, Kingdon Ward 8171**, Delei valley, 28°20' N, 96°37'E, 2150-2750 m, 6 May 1928, fl. (K). **Manipur, Watt 6889**, Japvo, 3150 m, 15 May 1882, ster. (K). **Sikkim, Cave s.n.**, Tonglu, 2750 m, 15 June 1912, fl. (E), Chowhanjan, 3350 m, 14 Aug. 1925, y.fr. (E [2 sheets]); *C.B. Clarke 25864, 26034A*, Jongri, 15 Oct. 1875, ster. (K), 26034B, Jongri, 3650 m, ster. (BM), 41359, Jakpho, 3020 m, 25 Oct. 1885, ster. (K); *Gamble 25A*, Tongloo, 2750 m, 5 Oct. 1875, fr. (K), 25B, Tonglo, 3050 m, 5 Oct. 1875, fr. (K), 3039, Tonglo, 3050 m, Nov. 1874, ster. (K), 10412, Tonglo, 3050 m, July 1882, fl. (BM, K); *Gammie 614*, Tankra Mt., 3050 m, 5 Aug. 1892, y.fr. (P); *J.D. Hooker s.n.*, without precise locality, 3050 m, bud (K); *G. King 187*, without precise locality, fr. (BM), without precise locality, 1874-5, ster. (P); *O. Kuntze 6954*, without precise locality, 2450 m, Nov. 1875, fr. (NY); *Kurz s.n.*, without precise locality, 14 Oct. 1868, fr. (BM); *Lace s.n.*, Tonglu, 3050 m, June 1902, bud (E); *Leonige 8563*, Tonglo, 3050 m, Oct. 1880, fr. (K); *Ribu & Rhomoo 6344*, Chowbhanjan, 3350 m, 1913, fr. (E); *Rohmoo Lepcha 1230*, Chowbhanjan, 3050 m, 12 Aug. 1913, fl. (E). **West Bengal, Haines 1108**, Pankasari, 2450 m, 1904, fr. (K). **BHUTAN: Cooper 2745**, Parshong Lumpu, 3050 m, 28 July 1914, y.fr. (BM, E), 2962, Dotena Limpu, 2750 m, 1 Oct. 1914, fr. (BM, E), 3992, Kopub Pumthang, 2750 m, 18 June 1995, fl. (BM, E), 4536, Tarkigong, 2750 m, 23 Aug. 1915, fr. (E), 4636, Lashigong Kurmed, 2750 m, 23 Aug. 1915, fr. (BM); *Frei-Pont 3*, Bhumthang Dist., Lami Gompa, 27°33'N, 90°42'E, 30 Aug. 1984, fr. (E); *Grierson & Long 1899*, above Sengor, NW of Mongar, 27°23'N, 91°01'E, 3150 m, 14 June 1979, fr. (E, K); *Ludlow et al. 20487*, Shingbe (Me La), 3350 m, 5 July 1949, fl. (BM); *Sargent 200*, Tongsa Dist., Singkma, 27°30'N, 90°33'E, 13 Aug. 1983, ster. (E). **MYANMAR: Kingdon-Ward 1707**, Naung Chaung, Nwai Dwide, 2750-3050 m, 24 June 1914, fl. (E), 12952, hills E of the Nam Tawai, 27°50'N, 97°50'E, 2750-2900 m, 18 Aug. 1937, fr. (BM), 13057, without precise locality, fr. (BM), 20859, North Triangle, Wing Bum, above Ahkail, 2900-3050 m, 14 May 1953, fl. (BM, E), 21093, same locality, 1 July 1953, fl. (BM); *Cooper et al. 3992*, without precise locality (BM, E), 4536 (BM). **CHINA: Xizang, Chen Shu-zhi et al. 385**, Me Tuo to Bo Mi, 22 Aug. 1982 (PE), *Chen Shu-zhi 739*, Me Tuo (NFU); *Forrest 14940*, Doku-la, Mekong-Salwin divide, Sep. 1917, fr. (E); *Kingdon Ward 19641*, Tha Chu valley, 2750 m, 15 July 1950, fl. (BM, E); *Li Pu-sheng 385*, Me Tuo, 2800 m (NFU), 6726, Bo Mi, 2800 m, (PE), 7164, Cha Yu xian, 2600-3100 m, (NFU); *Qing Zhan Exped. 6982*, Bo Mi, 3150 m, 19 July 1975 (PE), 6986, Jilong, 3150 m, 19 July 1975 (PE), 73613, Cha Yu xian, 3000 m, 1 Aug. 1974 (PE), 751290, Lin Zhi, 3200 m, 4 Aug. 1975 (PE); *Qing Zhan Medicin. Exped. 282*, Jilong, 3300 m, 16 June 1972 (PE); *Rock 22283*, Solo-la, 2750 m, May-June 1932, fl. (E, K), 22652, same locality, Aug.-Oct. 1932, fr. (E); *Shu Feng-qiang 7813*, Lou Lang, 3100-3400 m (NFU); *G. G. Tang 1447, 1599, 10001*, Lou Lang, 3300 m (NFU); *Ying Jun-sheng et al. 65123*, Bo Mi, 27 Aug. 1969 (PE); *Zhang Yong-lian et al. 3532*, Nie La Mu, 18 May 1966 (PE). **Sichuan, Farges 700**, Dist. Tchen-keou-tin, 1400 m, July, fl., fr. (P [3 sheets]), 1400, same locality, fl. (K), *Farges s.n.*, same locality, fl. (P [3 sheets], TCD); *Rock 24394*, Siga Shan, 3350-3650 m, 1932, fr. (E, K). **Yunnan, Bartholomew et al. 1147**, Dali xian, fr. (E); *Delavay s.n.*, same locality, 7 Aug. 1888, fr. (P); *K. M. Feng 7586*, Gon Shan, 7 Sep. 1940 (PE); *Forrest 8887*, Shweli-Salwin divide, 25°20'N, 2150 m, Aug. 1912, fr. (E, K), 11282, same locality, Sep. 1913, fr. (E [2 sheets], K), 12068, same locality, Aug. 1913, fl. (E [2 sheets], K), 15922, same locality, 2150 m, Sep. 1917, fl. (E, K, P), 19722, Mekong-Salwin divide, 27°30'N, 98°56'E, 2750 m, July 1921, fl. (E, K, P), 29037, without precise locality, fr. (E); *Handel-Mazzetti 8329*, Doyonlumba valley, Lu-djiang Riven (Salween), 2500-3450 m, 23 Sep. 1915, fr. (K); *Kingdon Ward 790*, Mekong-Salween divide, 3350 m, 17 July 1913, fl. (E); *Qing Zhan Exped. 7501*, Gon Shan, 25 June 1982 (PE); *Rock 4133*, Yangtze watershed, W slopes of Likiang Snow Range, 3505-3350 m, 6 June 1922, fl. (E), 5106, between Likiang, Youngning and Youngpei, route to Mili, May-June 1922, fl. (A), 9512, Lotue Shan, Labako mountains, W of Yangtze bend at Shiku, June 1923, fl. (E); *Schneider 2471*, Lichiang, 3300 m, 9 Sep. 1914, fr. (K), 3258, near Li Chiang, 3000 m, 6 Oct. 1914, fr. (K); *Sino-Amer. Bot. Exped. 292*, Yangbi Xian, W side of Diancang Shan range, vicinity of Dapingzi, 25°43'N, 100°02'E, 3000 m, 19 June 1984, y.fr. (A, E), 651, same locality, 25°50'N, 99°59'E, 2600-3100 m, 1 July 1984, y.fr. (A, E), 1147, Dali Xian, Diancang Shan range, 25°53'N, 100°01'E, 2900-3300 m, 18 July 1984, fr. (A, E); *Su Sou-gui 4685*, Jin Tong Xian, 2600 m, April 1959 (PE); *S. Ten 508*, Kau ty, near Pe yen tsin, 19 May 1918, fl. (E), *S. Ten s.n.*, same locality, 15 Apr. 1916, fl. (P), 19 May 1917, fl. (P); *H. T. Tsai 51246*, Liang Shan, La'mi, 2200 m, 9 Aug. 1932, fr. (A); *T. T. Yu 7852*, Antuntze, Dokerla, 3100 m, 4 Nov. 1937, fr. (E), 8426, Atuntze, Mt. Kaakerpu, 3200 m, 3 July 1937, fl. (E), 10488, same locality, 3000 m, 27 Sep. 1937, fr. (E), 10558, Antuntze, Mt. Miyetzimu, 3200 m, 16 Oct. 1937, fr. (E), 11766, without precise locality, fl. (A), 15980, Shunning, 2900 m, 26 May 1938, fl. (A); 19318, Salwin-Kiukian divide, Newahlung, 3500 m, 11 July 1938, fl. (E, K, KUN), 19445, Kiukiang Valley (Taron), Chiengen, 1700 m,

26 July 1938, fr. (E), 20258, Salwin-Kiukiang divide, Lunguailakam 3300 m, 14 Sep. 1938, fr. (E).

1b. *Gamblea ciliata* var. *evodiaefolia* (Franch.)

C.-B. Shang, Lowry & Frodin, **comb. et stat. nov.**

Acanthopanax evodiaefolius Franch., J. Bot. (Morot) 10: 306 (1896); Harms, Bot. Jahrb. Syst. 29: 489 (1900); Harms & Rehd. in Sargent, Pl. Wils. 2: 563 (1916); Harms, Mitt. Deutsch. Dendr. Ges. 27: 29, pl. 4 a-c (1918); W.W. Smith, Notes Bot. Gard. Edinburgh 17: 101, 115, 125 (1929); Hand. Mazz., Symb. Sin. 7: 698 (1933); Li, Sargentia 2: 88 (1942); Hoo & Tseng, Fl. Reip. Popul. Sin. 54: 106 (1978); Feng & Y.R. Li, Fl. Yunnanica 2: 484 (1979). — *Evodiopanax evodiaefolius* (Franch.) Nakai, "evodiaefolium", J. Arnold Arbor. 5: 8 (1924); C.-B. Shang & J.-Y. Huang, J. Nanjing For. Univ. 17: 33 (1993). — Lectotype (here designated): *Delavay 2414*, China, Yunnan, les bois de Yang in chan, au-dessus de Mo-so-yn (Lankong), 2800 m, 7 June 1887, fl. (P!; iso-, K!, L!, MO!, NFU!, P [2 sheets]!, TCD).

Flowers and fruits with 2 (rarely 3) style branches, largest leaflets 5.9-(14) cm long, with 5-8 secondary veins on each side of the midvein, fruit with a disk (0.8-)1.5-1.7 mm in diam.

Some populations of *Gamblea ciliata* var. *evodiaefolia* from east-central China resemble Japanese material assigned to *G. innovans*. Although consideration was given to including the latter within *G. ciliata* as well, the observed correlation of morphological differences with geographic distribution is regarded as sufficient to warrant maintaining them as separate species.

FRANCHET (1896) cited three collections when he described *Acanthopanax evodiaefolius*: *Delavay 2414*, *Farges 700* and *Delavay s.n.*, collected on 7 August 1888. The latter two belong to the typical variety of *Gamblea ciliata*, whereas the first is clearly referable to the taxon recognized here as *G. ciliata* var. *evodiaefolia*, and is therefore designated as the lectotype.

MATERIAL EXAMINED. — CHINA: **Sichuan**, *Agric. Inst. Sichuan Exped. 00566*, Tien Qian, Xin Gou, 3 June 1959 (PE); *Dai Tien-lon 102573*, Cheng Kou, (PE); *Economic Plant Exped. 4524*, Pu Xiang, 2800 m, 8 Aug. 1959 (PE); *W.P. Fang 17593*, Omei-hsien, Mt. Omei, 2300 m, 20 Aug. 1941, fr. (A); *W.P. Fang et al.*

31381, E Mei Shan, 30 June 1952 (PE); *Fliegner et al. SICH 1093*, Muli Co., 10 km E of Nongshaliangzhi Pass, Nongsha Shan, 3470 m, 4 Oct. 1992, fr. (K); *Jing Fu Shan Exped. 2151*, Nan Chuan, 5 Sep. 1986 (PE); *Rock 18051*, Siga Shan, 3380 m, July 1929, y.fr. (E), 23869, Mt. Siga, W and overlooking the Yalang River, N of Karadi, 3350-3650 m, May 1932, fl. (E, K), *L.Y. Tai 91*, Chin-lar-tung, 800 m, 3 Aug. 1940, fr. (A); *E.H. Wilson 4204*, Wa-sen country, Wên Chuan Hsien, 2000 m, Oct. 1910, fr. (A, K); *Yao Chong-wu 3820*, E Bien, Sha Pin, 21 Feb. 1938 (PE); *Yao Zhong-chun 3626*, Hong Ya, 18 Oct. 1939 (PE); *T.T. Yu 4026*, Lei Bo (PE); *Yan guan-fei 56750*, E Shan xian, 2000 m, 19 Aug. 1957 (PE); *Xiong Ji-hua et al. 93785*, Jing Shan Xian, 1 Oct. 1957 (PE). **Yunnan**, *Chamberlain et al. SBL 157*, Lijiang Co., Yulong Shan, Heshui, 2850 m, 26 May 1987, fl. (E, K), *SBL 329*, Lijiang Co., Yulong Shan, below Mahuangba, 3300 m, 2 June 1987, fl. (E, K); *R.C. Ching 22629*, Yang pi, Ma Lu, 15 May 1929 (PE); *Chungtien-Lijiang-Dali Exped. CLD-90*, Tsang (Cang) Shan, Xi Shan ridge W of Huadianba, 3450 m, 18 Oct. 1990, fr. (K); *Delavay 2414*, Yang in chan, au-dessus de Mo-so-yn (Lankong), 2800 m, 7 June 1887, fl. (K, L, MO, NFU, P [3 sheets], TCD), *3464*, Kou-toui, au-dessus de Mo-so-yn, 3000 m, 7 June 1888, fl. (P [2 sheets]); *K.M. Feng 5432*, De Qing, 16 July 1940 (PE), 7697, 10 Aug. 1940, (PE), 8993, Lijiang, 14 Aug. 1942, (PE), 20997, Chong Tian, 3 Oct. 1955 (PE); *Forrest 5607*, E flank Lichiang Range, 27°15'N, 3050-3350 m, May 1910, fl. (E, P), *5616*, same locality, May 1910, fr. (E, K, P), *9121*, W flank of Shweli-Salwin divide, 25°20'N, Aug. 1912, fr. (E), *10235*, Lichiang Range, 27°40'N, June 1913, fl. (E, K, P), *15212*, Lei-lung Shan, 28°10'N, July 1917, fr. (E, K); *Hu Zhi-hao 01323*, Xijiang, 15 May 1973 (PE); *Mao Pi-yi 822*, Lu Chuan, 17 May 1952 (PE); *Rock 25404*, Lao-chun shan, SW of Shi-ku and the Yangtze, 3650 m, Nov. 1932, fr. (E); *S. Ten 468*, Mo tao Tsin, Kou ty, near Pe yen, 15 Apr. 1917, fl. (A, E); *H.T. Tsai 56505*, Shang Pa, 18 Sep. 1933 (PE), *59502*, Wei-se Hsien, 2800 m, 22 Sep. 1934, fr. (A), *59841*, same locality, 17 Oct. 1934 (PE); *Yu Ping-hua 922*, Cheng Xiong, 1850 m, 26 Sep. 1957 (PE); *T.T. Yu 16661*, Shunning, Hila Wumulung, 2680 m, 10 July 1938, fr. (E), *17207*, Chengkang, Snow Range, Hsiaoshuishan, 3100 m, 5 Aug. 1938, fr. (E). **Guizhou**, *Jian Zhuo-po et al. 51336*, Lei Shan Xian, 1300 m, 19 July 1965 (PE); *Sino-American Guizhou Bot. Exped. 684*, Jiangkou Xian, between Yuao and Jinding, Fanjing Mts., 1200 m, 30 Aug. 1986, fr. (A, PE); *Steward et al. 478*, Lao Shan, Fan Ching Shan, 2000 m, 29 Sep. 1931, fr. (E, K, P); *Yu Pin-hua et al. 738*, Bi Jie, 11 Sep. 1957 (PE). **Guangxi**, *S.C. Chen 15501*, Da Mua Shan, ster. (MO); *C.Y. Chiao 1640*, without precise locality (NJU); *Z.S. Chung 83451*, Tzu Yuen Dist., 28 July 1937, fr. (A); *Guangxi Plant Exped. 629*, Xin An Xian, June 1953 (PE); *Huang Zhi 39573*, Xiang Xian, 27 June 1936 (PE); *Tsoong Ji-xin 82006*, She Xian,

18 Aug. 1937 (PE). **Hunan**, *Cao Tie-ru 831158*, Chen Pu Xian, 1400 m (NFU, NJTFC); *Z.Y. Li et al. 60*, Xinning, Ziyunshan, 1200 m, 5 Sep. 1984, fr. (E); *Sun Dian-yang 509*, Xin ning, Zhi Yun Shan (NFU, NJTFC); *P.T. Tan 62056*, Ning Yaun, Yang Ming Shan, fr. (MO), 62764, same locality, 1650 m, fr. (MO); *Xi Xian-yin et al. 257*, Zhi Li Xian, 1983 (PE). **Hubei**, *W.C. Cheng & C.T. Hua 903*, without precise locality, 1948, fr. (K); *W.Y. Chun 4060*, Hsin Tientsze, 1750 m, 22 Aug. 1922, fr. (A); *Fu Guo-xun et al. 1365*, En Shi Xian, 29 Aug. 1986 (PE); *J.C. Hua 464*, Lichuan, Mao Pa, 2750 m, 1948, bud (K, MO, NFU, NJTFC); *H.G. Li 10205*, Ying Shan, Tao Hwa Cheng, 27 Oct. 1964, ster. (MO); *Lin Wen-bao 453*, Li Chuan, 22 June 1958 (PE); *Y.M. Wang 1994*, Chaun en, 1300 m, 17 Aug. 1981, fr. (MO); *E.H. Wilson 1142*, Changyang, June 1900, fl. (E [2 sheets], K [2 sheets], P [2 sheets]). **Anhui**, *Anhui Plant Exped. 428*, Yao Xi Xian, 19 May 1959 (PE), 7386, Gui Chi, 26 July 1959 (PE); *W.C. Cheng 3965*, Wangshan, 16 Oct. 1933, fr. (P); *R.C. Ching 2814*, Tien-tai, Chu Hwa Shan, 1200 m, 8 June 1925, fr. (E, K), 3218, Chang Gon Shan, W Wu Yuan, 750 m, 16 Aug. 1925, fr. (E, K); *C.S. Fan & Y.Y. Li 233*, Chu Hwa Shan, 880 m, 15 Aug. 1934, fr. (E, K); *T.W. Wang s.n.*, Huang shan, 15, Sep. 1987 (PE). **Zhejiang**, *H.Z. Biao 3948*, Tong Lu, 700 m, 18 Sep. 1991, fr. (MO); *S.Y. Chang 2925*, Long Qian Xian, 1090 m, 30 June 1958, fr. (MO, PE), 5489, Rui An, 27 June 1959, fr. (MO, PE), 7604, Tien-Tai Tsi, 29 Apr. 1960, fl. (MO), 8506, Tai Chung, 15 July 1966, fr. (MO), 28708, Chang Hua, 26 May 1958, y.fr. (MO), 30102, Chung An, 22 Aug. 1958, fr. (MO); *W.C. Cheng 2150*, W Tien mu shan, 27 June 1932, fr. (P); *W.C. Cheng et al. 4996*, Tien Mu Shan, 17 Aug. 1924, fr. (E, K); *R.C. Ching 2315*, Qing yuan, 900-1200 m, 7 Aug. 1924, fr. (E, K); *R.C. Ching 1488*, Tien Tai Shan, 600-1200 m, 18 May 1924, fl. (E), 2315, King Yuan, 900-1200 m, Aug.-Sep. 1924, y.fr. (P); *Z.H. Ching 601*, Tien Tai Shan, 10 Sep. 1956, fr. (MO); *P.C. Dui 25803*, Shu Chang, 1150 m, 3 May 1959, fl. (MO); *He Xian-you 21976*, 22359, Chang Hua (NFU), 27990, Tian Tai Shan, 11 Sep. 1957 (PE); *Y. L. Keng 1063*, Tien-tai Shan, 450 m, 11 Aug. 1927, fr. (A); *Plant Resources Exped. of Zhejiang 26128*, Kai Hua, 28 May 1959, y.fr. (MO); *Zhejiang Pl. Res. Exped. 29265*, Tian Mu Shan, 29 Aug. 1959 (PE). **Jiangxi**, *R.M. Hao 890168*, Yi Feng, Huang-Gang Shan, 800 m, 4 May 1989, bud (MO); *H.H. Hu 2365*, Lu Shan, Aug. 1934 (PE); *Jiangxi Plant Exped. 400*, Wu Gong Shan, 1300 m, 10 May 1954 (PE), 1098, 8 Sep. 1954 (PE), 2399, Sui Chuan, Jing Gang Shan, 12 Sep. 1958 (PE); *S.S. Lai et al. 509*, Yi Feng, fr. (MO); *Nei Ming-xiang et al. 3071*, Li Chuan, 24 June 1958 (PE); *Niu Min-liang 91350*, Lushan, 800 m, 25 Aug. 1991, fr. (MO); *P.C. Tsoong 431*, Jun Feng shan (PE); *K. Yao 11429*, De-xin County, 900 m, June 1991, y.fr. (NY); *C.S. Ye 2341*, Ching An, 1200 m, 22 Aug. 1996, fr. (MO). **Fujian**, *H.B. Chen 1605*, Shang Hang, 1500 m, 11 Aug. 1987, fr. (MO [2 sheets]),

1633, same locality, 1550 m, 11 Aug. 1987, fr. (MO [2 sheets]); *Lin lei-guan 7499*, Shang Hang, 1300 m, 30 Aug. 1987 (PE); *M.J. Wang 3272*, Wu yi shan (PE); *Wu Gong et al. 2435*, Chong An, 1300 m, 2 May 1981, bud (MO). **VIET NAM: Lao Cai Prov.**, *Pételet 7955*, Chapa, massif du Fan Si Pan, 2400 m, Aug. 1942, fr. (P [2 sheets]); *Lowry et al. 4865*, Fan Si Pan, 22°19'18"N, 103°46'56"E, 2300 m, 19 Apr. 1997, ster. (HN, MO, P), 4874, same locality, 22°19'04"N, 103°46'48"E, 2270 m, 19 Apr. 1997, ster. (HN, MO, P).

2. *Gamblea innovans* (Sieb. & Zucc.)

C.-B. Shang, Lowry & Frodin, **comb. nov.**

Panax innovans Sieb. & Zucc., Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. 4: 198 (1845). — *Kalopanax innovans* (Sieb. & Zucc.) Miq., Ann. Mus. Bot. Lugduno-Batavum 1: 17 (1863). — *Evodiopanax innovans* (Sieb. & Zucc.) Nakai, J. Arnold Arbor. 5: 8 (1924); Ohwi, Fl. Jap.: 835 (1953); C.-B. Shang & J.-Y. Huang, J. Nanjing For. Univ. 17: 34 (1993). — Lectotype: *Buerger s.n.*, Japan (L; iso-, K!).

Small trees. Leaves (1-2-)3-foliolate, central leaflet rhomboid to slightly trullate, (6.5-)8-15.5 × (3-)4.5-6.5 cm at maturity, 1.2-1.8(-2.5) times as long as wide, with 3-4(-5) secondary veins on each side of midvein, domatia prominent on abaxial surface at base of secondary veins, (1-)1.5-3 mm in diam., tertiary veins weakly raised on abaxial surface, margins minutely serrulate, the teeth ca. 1-2 mm apart, each with a ciliate-hispid appendage ca. 0.2-0.5 mm long, oriented toward the apex of the leaflet. Inflorescence a panicle of 2-8 umbellules borne on a single axis, 8-15 cm long at anthesis and in fruit, occasionally paired with a second shorter, unbranched axis terminating in a single umbellule; calyx a narrow rim, without evident teeth; styles 2, united for 1/2-2/3 of their length. Fruit ellipsoid to subglobose, (3.5-)4-6 × 4.5-5 mm, disk ca. 1-1.5 mm in diam., with a thick, entire, often undulate rim.

Gamblea innovans is restricted to Japan, where it occurs on Shikoku, Kyushu, the southern peninsula of Hokkaido, and across Honshu, ranging from near sea level to ca. 600 m elevation. It favors dry sites such as ridges, and can be distinguished from other members of the genus

by its generally rhomboid central leaflets that are rarely more than twice as long as wide, its prominent domatia at the base of the secondary veins on the abaxial surface, and its paniculate inflorescences usually with a single axis bearing 2-8 umbellules.

MATERIAL EXAMINED. — **JAPAN:** *Hokkaido Pref.*, Hakodate, *Maximowicz s.n.*, fl., fr. (K, P). *Miyagi Pref.*, *Boufford et al.* 25407, Yoogai, S side of Okinakura-yama, Mono-gun, Kitakami-machi, 38°36'N, 141°22'E, 80 m, 1 June 1990, fl. (MO); *Y. Tateishi & T. Kurosawa* 15309, Bot. Gard. Tohoku Univ., Aobayama, Sendai-shi, 38°14'15"N, 140°50'51"E, 60-145 m, 12 July 1990, fr. (MO); *Y. Tateishi et al.* 15623, same locality, 6 May 1991, bud (MO); *K. Yonekura* 1054, Kunimi-5-chome, Aoba-ku, Sendai-shi, 38°16'10-20"N, 140°50'10-20"E, 140-150 m, 13 June 1993, y.fr. (MO). *Yamagata Pref.*, *M. Ito* 395, Marumori-one, Oguni-cho, Nishioikitama-gun, Iide Mts., 1400 m, 14 June 1978, ster. (MO). *Niigata Pref.*, *T. Yamazaki* 9804, Zaezan, Arakawa-machi, Iwafune-gun, 400 m, 20 July 1965, fr. (K). *Tochigi Pref.*, *H. Ohashi et al.* 11829, Mt. Kogashi, Utsunomiya-shi, 400-580 m, 28 May 1982, fl. (MO); *H. Takeda s.n.*, Nikko, 14 Oct. 1904, fr. (K). *Shiga Pref.*, *Boufford & H. Koyama* 23550, Hata, Adogawa-cho, Takashima-gun, N end of Hira Mountain Range, 350-500 m, 20 Sep. 1984, fr. (MO). *Kyoto Pref.*, *J. Ohwi* 9070, Kyoto, 12 Sep. 1936, fr. (K); *T. Takahashi* 475, Kami-ike, Ikeziri, Umazi-cho, Kameoka-shi, 100 m, 23 Sep. 1987, fr. (MO), 1996, Kamiyada-cho, Kameoka-shi, 160 m, 11 Aug. 1991, fr. (MO); *T. Takahashi & M. Sawada* 1905, Mt. Kono-yama, Yunohara, Nishibetsuin-cho, Kameoka-shi, 440 m, 27 June 1991, fr. (MO); *M. Togashi s.n.*, Hozukyo, Ukyo-ku, Kyoto-shi, 100 m, 15 Oct. 1965, fr. (K, MO, NY); *S. Tsugaru & T. Takahashi* 14823, Mt. Kunimi-yama, Ohnyu, Nishioura, Maizuru-shi, 80 m, 26 July 1991, fr. (MO), *S. Tsugaru* 14957, Yunohara, Nishibetsuin-cho, Kameoka-shi, 440 m, 4 Aug. 1991, fr. (MO); *Wood & Boufford* 3678, Kyoto City, Sakyo-ku, Yoshida-yama, 13 May 1977, fl. (MO). *Kochi Pref.*, *K. Watanabe s.n.*, Niida, 17 Aug. 1892, fr. (K [2 sheets]); *Faurie* 6234, without precise locality, 1904, fr. (P), 7872, 4 May 1892, ster. (K); *E.H. Wilson* 6998, Honshu (as "Hondo"), without precise locality, 10 June 1914, fl. (K). Without precise locality, *Buerger s.n.* (K).

3. *Gamblea malayana* (M.R. Henderson)

C.-B. Shang, Lowry & Frodin, **comb. nov.**

Acanthopanax malayanus M.R. Henderson, "malayana", Gard. Bull. Straits Settlements 7: 105, pl. 23 (1933); W.R. Philipson, Fl. Malesiana, ser. 1, 9: 103 (1979). — *Eleutherococcus malayanus* (M.R.

Henderson) B.C. Stone, Malaysian For. 43: 395 (1980). — *Evodiopanax malayanus* (M.R. Henderson) C.-B. Shang & J.-Y. Huang, J. Nanjing For. Univ. 17: 34 (1993). — Type: *M.R. Henderson SF 23476*, Malaysia, Pahang, Cameron's Highlands, beyond Tanah Rata, 1430 m, 7 Apr. 1930 (holo-, SING; iso-, K [6 sheets]!, NY!).

Trees 10-15(-25) m tall, 15-100 cm dbh. Leaves 3-5-foliolate, central leaflet narrowly elliptic to slightly ovate, (6.5-)9-17 × (2-)2-5.5 cm at maturity, 3-4.5 times as long as wide, with 8-10 secondary veins on each side of the midvein, domatia occasionally absent or more often obscure on abaxial surface at base of secondary veins, ca. 0.2 mm in diam., tertiary veins distinctly raised on abaxial surface, margins subentire, with evident, divergent, ciliate-hispid teeth (1-)1.5-2.5 mm long, spaced every 1-2 mm. Inflorescence a compound umbel, primary axes (2-)3-7, unbranched, 4.5-11 cm long at anthesis and in fruit, each terminating in an umbellule (rarely also with a single lateral umbellule); calyx a narrow rim, with 4-5(-6) small, triangular teeth; styles 2, united for 2/3-3/4 of their length. Fruit globose to obloid, 6-7 × 7-10 mm, usually somewhat compressed laterally, disk 1.5-2 mm in diam., with a narrow, entire rim and usually 4-5 (-6) persistent calyx teeth.

Gamblea malayana occurs in moist montane forest between about 1400 and 2500 m elevation in the Cameron Highlands of peninsular Malaysia and in northern Sumatra. It is easily distinguished from other species of *Gamblea* by its narrowly elliptic leaflets with subentire margins bearing well developed ciliate-hispid teeth usually 1.5-2.5 mm long, and its laterally compressed, globose to obloid fruit measuring 6-7 × 7-10 mm.

MATERIAL EXAMINED. — **INDONESIA:** *Sumatra*, *de Wilde & de Wilde-Duyffes* 16725, Atjeh, Gunung Leuser Nature Reserve, Gunung Mamas, ca. 16 km SW from mouth of Lau Ketambe, ca. 30 km NW of Kutatjane, 1900 m, 8 May 1975, fl. (K), 16856, same locality, ca. 23 km SW from mouth of Lau Ketambe, 2500-2600 m, 12 May 1975, fr. (K, MO). **MALAYSIA:** *Pahang*, *Carrier SF 27650*, Birchang, Cameron Highlands, 9 Aug. 1933, fr. (K); *W.-L. Chew* 829, Bukit Ruil., Cameron Highlands, 4°30'N, 101°21'E, 1700 m, 6 Oct. 1963, fr. (K); *M.R. Henderson SF 23476*, Cameron's Highlands, beyond Tanah Rata,

1430 m, 7 Apr. 1930 (K [6 sheets], NY, SING); *Holtum SF 31368*, Sungai Burong, Cameron Highlands, 1500 m, 20 May 1936, y.fr. (K [3 sheets]); *Kochunmen KEP FRI 19059*, path to G. Jasar, Cameron Highlands, 1600 m, 23 Aug. 1977, ster. (K); *K. Ogata KEP 110312*, G. Jasar, Cameron Highlands, 1500 m, 2 Mar. 1968, fr. (K); *Stone 14466*, G. Beremban, near summit, Cameron Highlands, 1700 m, 7 Mar. 1980, bud (K); *Symington SF 36080*, edge of Tama Sedia, Cameron Highlands, 6 Apr. 1934, fl. (K [2 sheets]), *SF 36216*, golf course, Cameron Highlands, 11 Apr. 1934, fl. (K [2 sheets]); *K.M. Wong KEP FRI 35250*, Gunung Jasar, Cameron Highlands, 1500 m, 13 Aug. 1986, fr. (K).

4. *Gamblea pseudoevodiaefolia* (Feng) C.-B.

Shang, Lowry & Frodin, **comb. nov.**

Acanthopanax evodiaefolius Franch. var. *pseudoevodiaefolius* Feng, Fl. Yunnanica 2: 485 (1979). — *Evodiopanax evodiaefolius* (Franch.) Nakai var. *pseudoevodiaefolius* (Feng) Ohashi, J. Jap. Bot. 62: 10 (1987). — *Evodiopanax pseudoevodiaefolius* (Feng) F.N. Wie, Guihaia 13: 212 (1993). — Type: C.W. Wang 88748, China, Yunnan, Fu-ning (holo-, KUN!).

Trees 4-15 m tall. Leaves (3-)4-5-foliolate, central leaflet elliptic, 11-17.5 × 3-5 cm at maturity, 3-4.5 times as long as wide, with 7-10 secondary veins on each side of the midvein, domatia obscure on abaxial surface at base of secondary veins, ca. 1 mm in diam., or sometimes absent, tertiary veins evident and strongly raised on abaxial surface, margins distinctly serrulate, the teeth ca. 3-5 mm apart, each with a small ciliate-hispid appendix ca. 0.2-0.5 mm long, oriented toward the apex of the leaflet. Inflorescence a compound umbel, secondary axes 4-6, unbranched, (3-)5-12 cm long in fruit (flowering material unknown), each terminating in an umbellule (rarely also with a single lateral umbellule); styles 2, free nearly to the base or untied to ca. 1/4 of their length. Fruit broadly ellipsoid to globose or slightly obloid, 7-9 × 7-10 mm, terete in cross section to slightly compressed laterally, disk 1-1.8 mm in diam., with a thick, entire, weakly cupuliform rim and often 4-5 persistent, triangular calyx teeth.

Gamblea pseudoevodiaefolia is restricted to mixed forests on mountain slopes between about

1000 and 2000 m elevation in southwestern Guangxi and southeastern Yunnan provinces in China, extreme northern Viet Nam, and adjacent Laos. It is known only from fruiting material and a few sterile specimens.

MATERIAL EXAMINED. — **LAOS:** *Poilane 2034*, Sam Neua, 9 Oct. 1920, fr. (P [3 sheets]). **VIET NAM:** *Lao Cai Prov.*, *Pételot 4568*, Chapa (= Sa Pa), chemin derrière le sanatorium, 1600 m, Sep. 1932, fr. (P [2 sheets]), *4626*, same locality, petit mamelon près de la Cascade, 1400 m, July 1930, fr. (P [3 sheets]); *Frodin 3608*, S of Sa Pa, on S side of Muong Hoa Ho towards Fan Si Pan range, 1660 m, 25 Aug. 1997, ster. (K, HN), *3618*, S of Sa Pa, Fan Si Pan, N fall of range, 1730 m, 26 Aug. 1997, ster. (K, HN). **CAO BANG Prov.**, *Grushvitzky & Arnautov 72-279*, Cao Lang, Lea Pass (Deo Lea), 20 Mar. 1972, ster. (LE, MO). **HA TUYEN Prov.**, *Grushvitzky et al. 66-39*, Ha Giang, mountain SW of Pho Bang, 3 Dec. 1966, ster. (LE, MO). **CHINA:** *Yunnan*, C.W. Wang 88748, Fu-ning (KUN). **Guangxi**, W.T. Tsang 22632, Shap Man Taai Shan, near Hoh Lung village, SE of Shang-sze, Shang-sze Dist., 4 July 1933, fr. (P).

EXCLUDED SPECIES

Gamblea ? longipes Merrill, Brittonia 4: 128 (1941). — Type: *Vernay-Cutting Exped. (Kingdon Ward) 179*, Myanmar, Kachin, Ngawchang Valley, N of Htawgaw, 1350 m, 30 Dec. 1938, fl. (holo-, NY!). — This collection closely resembles material of *Gamblea* in having leaflets with ciliate hispid margins and the presence of both short and long shoots. However, its glabrous pedicels are strongly articulated below the ovary, whereas in *Gamblea* they are consistently unarticulated. Also, the styles of *Vernay-Cutting Exped. 179* are entirely fused, rather than being free at least towards the apex as in specimens of *Gamblea*. A second collection from the summit area of Doi Inthanon, Chiang Mai Prov., Thailand (*E.F. Anderson 4760*, MO) likewise resembles *Gamblea*, but again has articulated pedicels, and differs from the material of "*Gamblea ? longipes*" in leaf shape and the presence of dense indumentum on the pedicels. The placement of these two collections is not clear, but they may represent a new genus. In any case, until additional material becomes available, it seems best to exclude them from *Gamblea*.

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