



New infraspecific taxa and combinations in Malesian *Elaeocarpus*

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Summary. Infraspecific names and combinations are provided for 19 variants of *Elaeocarpus* L. in the *Flora Malesiana* region.

Key Words. Elaeocarpaceae, Indonesia, Malesia, New Guinea, nomenclature, Papua New Guinea, Philippines, taxonomy

Introduction

I began work on the Elaeocarpaceae of New Guinea in about 1968, while employed by the Division of Botany, Department of Forests, in Lae. In 1978 and 1981, now at Kew, I published the results of my work, dealing only with New Guinea. The research was then widened to include all species of *Elaeocarpus* L. in the *Flora Malesiana* area, the intention being to collaborate with the late Dr Raymond Weibel of Geneva (who died in 1990) to finish an account for *Flora Malesiana*. In 1986 I began to build up a Delta matrix of descriptions of all species and variants, with the help of the late Richard Pankhurst, using his PANKEY. This suite of programs only works with DOS (thus in Windows XP and Windows 95), so it is no longer possible to use his Onlin7 inter-active key on any present-day machine. The matrix is now complete for the Flora area, as far as the material up to about 2015 permitted. Traditional keys have been published in the *Flora of Peninsular Malaysia* in Coode 2018; keys have been prepared and sent to the editors of the *Flora of Singapore* and the *Tree Flora of Sabah & Sarawak*, awaiting acceptance. Draft keys for Sumatra, Java, Sulawesi, the Lesser Sunda Islands, Maluku, the Philippines and New Guinea have been prepared and are lodged in Singapore; these can be accessed by anyone. However, printed keys cannot compete with on-line keys if computers and internet access are available. More than one on-line key-building and interactive identification program now exists; the Royal Botanic Garden in Edinburgh offers one.

So I am grateful to the Royal Botanic Garden, and Martin Pullan, for supporting Ms Yiwei Dong (of the People's Republic of China, while in Edinburgh for the 2020 MSc Course), who loaded my DELTA matrix into the RBG Edinburgh's in-house taxonomic data-management system, with the on-line key at <https://padme.rbge.org.uk/elaecarpus> being available now. But she returned home before being able to load the

whole matrix, those variants lacking published names having been omitted. Herewith I provide formal names for 19 of these missing entities. I had not published these before because some belong to species not fully worked out and others are represented by rather few or inadequate specimens. However, I remain hopeful that they will be found to be a useful starting point once better material comes to hand. The destruction of the Berlin Herbarium in 1943, with the consequent loss of so many types from New Guinea, makes interpretation of those species, described by Berlin botanists of the time, particularly difficult in those cases where no duplicates have been found elsewhere (Kew was fortunate to receive from Berlin some duplicates of a few species discovered there in the 1980s). All the likely major herbaria have been searched or have posted scans of duplicates of any type collections in their care. I have grouped them under Schlechter's 1916 sections, while awaiting molecular data. It happens that nearly all of these are from New Guinea.

There remain rather more unpublished entities, which I believe should not yet be formally named. I hope to include these in the key, marked as 'ined.'

Elaeocarpus group (Sect. *Chascanthus* Schltr., Schlechter 1916: 115; A. C. Smith 1944: 225)

Elaeocarpus gigantifolius Elmer (1911: 1182).

DISTRIBUTION. Endemic to the Philippines.

1. Leaves thin, papery, broadly rounded, truncate or cordate at base, glossy above; stone surface smooth or with mostly longitudinal grooves and rounded sculpturing between, sutures on stone surface obviously defined; sepals c. 6.5 mm long

subsp. **gigantifolius**

1. Leaves chartaceous, broadly cuneate at base, dull above; stone surface rugose or ± tuberculate, sutures on stone surface weakly defined; sepals 3.5 – 4 mm long
subsp. **leytensis**

Elaeocarpus gigantifolius subsp. **gigantifolius**. Type: Philippines. Mindanao: Davao Distr., Todaya (Mt Apo), Sibuyan R., 750 m, fruiting July 1909, *Elmer* 11184 (isotypes BM, BO, E, K, L).

NOTES. Known from the type only.

Elaeocarpus gigantifolius subsp. **leytensis** *Coode* subsp. **nov.** Type: Philippines, Leyte, flowering 30 Aug. 1914, *Wenzel* 1084 (holotype BM).

<http://www.ipni.org/urn:lsid:ipni.org:names:77328978-1>

RECOGNITION. Differs from subsp. *gigantifolius* in chartaceous (not thin) leaves broadly cuneate at base (not truncate or cordate), stone rugose to tuberculate (not smooth or slightly grooved) and sepals 3.5 – 4 mm long (not c. 6.5 mm).

DISTRIBUTION. Endemic to Leyte.

SPECIMENS EXAMINED (both in fruit): **PHILIPPINES.** Leyte: *Edano* BS 41797 (BO, K, L); *ibid.*, *Wenzel* 616 (BM).

ECOLOGY. None recorded.

***Fissipetalum* group** (Sect. *Fissipetalum* Schltr., Schlechter 1916: 118)

Elaeocarpus polydactylus Schltr. (Schlechter 1916: 119, fig. 6); Coode (1978: 204; 1981: 97, fig. 22).

NOTES. All but two specimens are from New Guinea (one from Timor, *bb* 27113 [K, L], and another from Seram, *Stresemann* 361 [L: L2351194], perhaps belong here).

1. Leaves ovate, alternate and scattered on elongated twigs. Indonesian New Guinea, Bird's Head Peninsula
var. **divaricativenus**
1. Leaves elliptic to obovate, spirally arranged and ± condensed on often erect twigs
2. Twigs persistently hairy behind current shoot growth; leaves densely woolly-hairy to short-tomentose beneath at least at first, later sometimes ± adpressed hairy
3. Petals with a few straight hairs in lower third outside; midrib and main veins of leaves strongly prominent beneath; sepals c. 3 mm long; dried fruit 1.7 – 1.8 cm long, ± pointed at apex and cuneate at base, stone 1.2 – 1.3 cm

long. Snow Mountains, Indonesian New Guinea
var. **alpestris**

3. Petals glabrous outside, midrib and main veins of leaves moderately prominent beneath; sepals 3.5 – 5 mm long; dried fruit 0.7 – 1 cm long, rounded at apex and base, stone 0.5 – 0.9 cm long. Indonesian New Guinea, Bird's Head Peninsula and western Papua New Guinea (PNG), perhaps also in between

var. **arfakensis**

2. Twigs glabrous or hairy at tip only; leaves glabrous to adpressed-hairy beneath

5. Most leaves 1 – 5 cm long
6. Most leaves 1 – 3 × 0.7 – 1.4 cm; petals 5.5 – 6.5 mm long. Highlands of PNG

var. **microphyllus**

6. Most leaves 2.5 – 5 × 1 – 2.2 cm; petals 4 – 5 mm long. Widespread in New Guinea

var. **polydactylus** in part

5. Most leaves 5 – 12.5 cm long
7. Leaves with 8 – 11 pairs of main veins. Most leaves 5 – 12.5 × 2 – 5 cm

8. Leaves obovate-elliptic to oblong, 2.4 – 3.4 × as long as wide, often rather papery and drying greenish, sometimes acuminate. Jayapura area of Indonesian New Guinea, a few specimens from elsewhere

var. **savannarum**

8. Leaves mostly elliptic, a few obovate, 1.8 – 2.8 × as long as wide, chartaceous (not papery) and drying dark brownish, only rarely short-acuminate. Scattered throughout New Guinea

var. **podocarpoides** in part

7. Leaves with 5 – 7 pairs of main veins
9. Leaves mostly elliptic, a few obovate, mostly 5 – 10 × 2.5 – 5 cm. Scattered throughout New Guinea

var. **podocarpoides** in part

9. Leaves elliptic to obovate, mostly 2.5 – 5.5 × 1 – 2.2 cm. Widespread in New Guinea

var. **polydactylus** in part

Elaeocarpus polydactylus var. **polydactylus**. Type: New Guinea, Sepik Prov., Hunstein Peak in mossy montane forest, 1300 – 1350 m alt., *Ledermann* 11306, 11417, 10924, 11083, 11136 (all B†).

?*Elaeocarpus roseo-albus* Schltr. (Schlechter 1916: 119; Coode 1978: 209). Type: Papua New Guinea, Sepik Prov., Schraderberg, *Ledermann* 11726 (holotype B†).

Elaeocarpus azaleifolius R.Knuth (1940: 72). Type: Papua New Guinea, Central/Northern Prov., ('Mt Victoria') NW of the Gap, *Carr* 13755 (types B†, BM, K, L, SING) & 15086 (types

B† K, L); the BM sheet BM000795336 of *Carr* 13755 is chosen here as lectotype.

Elaeocarpus raphiolepidiifolius Kaneh. & Hatus. (Kanehira & Hatusima 1942: 319) pro parte, as to *Kanehira & Hatusima* 13998 (type FU n.v., BO).

Elaeocarpus mundulus A.C.Sm. (Smith 1944: 239).

Type: Indonesia. Lake Habbema, *Brass* 10496 (holotype A n.v.; isotypes BO, BRI, L, LAE).

DISTRIBUTION. Frequently collected in Papua New Guinea (see Coode 1978: 205 – 6 under ‘infraspecific groups’ 1 & 2), also in Indonesian New Guinea but not, as yet, in the Bird’s Head Peninsula.

ECOLOGY. Forest, 1300 – 3000 m altitude.

NOTES. Schlechter’s figure 6 is here selected as lectotype of the species; this treatment of *Elaeocarpus polydactylus* differs from my previous account (Coode 1978: 201 – 208), when I had only been able to see some types.

***Elaeocarpus polydactylus* var. *alpestris* (A.C.Sm.) Coode comb. et stat. nov.**

<http://www.ipni.org/urn:lsid:ipni.org:names:77328980-1>

Elaeocarpus alpestris A.C.Sm., *J. Arnold Arbor.* 25: 243 (Smith 1944). Type: Indonesia, Lake Habbema, *Brass* 9092 (holotype A n.v.; isotypes BRI, L, LAE).

Elaeocarpus pulleanus O.C.Schmidt (1924: 154). Type: Indonesia, Snow Mountains, *Lam* 2003 (holotype B†; isotype L n.v., L0014026).

DISTRIBUTION. Endemic to Indonesian New Guinea.

SPECIMENS EXAMINED. *Brass* 10434 (A, BM, BRI, L), 10460 (K), 10640 (K); BW 14210 (CANB), 14217 (CANB), 15408 (CANB), 15409 (BRI, CANB); *Docters van Leeuwen* 10908 (K).

ECOLOGY. montane forest, 2510 – 3225 m altitude.

***Elaeocarpus polydactylus* var. *arfakensis* (Schltr.) Coode comb. et stat. nov.**

<http://www.ipni.org/urn:lsid:ipni.org:names:77328981-1>

Elaeocarpus arfakensis Schltr., *Bot. Jahrb. Syst.* 54: 118 (Schlechter 1916). Type: Indonesian New Guinea, Bird’s Head Peninsula, Arfak Mts, *Gjellerup* 1198 (holotype B†; isotype L); Coode 1978: 210.

Elaeocarpus koebrensis Gibbs (1917: 146 fig. 12). Type: Indonesia, Arfak Mts, *Gibbs* 5737 (holotype BM; isotype K).

DISTRIBUTION. Many specimens seen from the Bird’s Head Peninsula and western Papua New Guinea. See Coode (1978: 210) for further discussion.

ECOLOGY. Montane forest and shrubbery, 1800 – 3225 m altitude.

***Elaeocarpus polydactylus* var. *divaricativenus* (Kaneh. & Hatus.) Coode comb. et stat. nov.**

<http://www.ipni.org/urn:lsid:ipni.org:names:77328982-1>

Elaeocarpus divaricativenus Kaneh. & Hatus., *Tokyo Bot. Mag.* 56: 317 (Kanehira & Hatusima 1942). Type: Indonesian New Guinea, Bird’s Head Peninsula, Arfak Mts, *Kanehira & Hatusima* 13439 (holotype FU n.v.).

SPECIMENS EXAMINED. *Kostermans* 2237 (BO), 2432 (BO).

ECOLOGY. Montane forest, 1900 – 2000 m altitude; endemic to Indonesian New Guinea.

NOTES. The ovate leaves scattered along the twigs are distinctive within *Elaeocarpus polydactylus*.

***Elaeocarpus polydactylus* var. *microphyllus* Coode var. nov.** Type: Papua New Guinea, Southern Highlands Prov., Tari Subd., Mt Ambua, *Kalkman* 5133 (holotype K; isotypes CANB, L n.v.).

<http://www.ipni.org/urn:lsid:ipni.org:names:77328983-1>

RECOGNITION. Differs from *Elaeocarpus polydactylus* var. *polydactylus* in its leaves mostly 1 – 3 × 0.7 – 1.4 cm (not 2.5 – 5 × 1 – 2.2 cm) and petals 5.5 – 6.5 mm long (not 4 – 5 mm long).

DISTRIBUTION. Endemic to Papua New Guinea.

SPECIMENS EXAMINED. See Coode (1978: 206) under ‘group 3’ for discussion and listed specimens — c. 25 specimens seen, mostly from the Southern Highlands and Central Provinces of Papua New Guinea.

ECOLOGY. Montane forest and shrubbery, 2700 – 3500 m altitude.

***Elaeocarpus polydactylus* var. *podocarpoides* Schltr.** (Schlechter 1916: 120). Type: Papua New Guinea, Sepik Prov., Lordberg, *Ledermann* 10440 (holotype B†; isotypes K, L).

Elaeocarpus nubigenus Schltr. (Schlechter 1916: 120). Type: Papua New Guinea, Madang Prov., Bismarck Range, *Schlechter* 18791 (holotype B†).

Elaeocarpus florulentus Ridl. (Ridley 1916: 21). Syntypes: Indonesia, Snow Mts, two unnumbered *Boden Kloss* collections (BM).

Elaeocarpus albiflorus R.Knuth (1941: 81). Syntypes: Papua New Guinea, Morobe Prov., *Clemens* 823 (B n.v., K, L) & *Clemens* 2022 (B n.v., K, L).

Elaeocarpus leptopus A.C.Sm. (Smith 1944: 234). Type: Papua New Guinea, Morobe Prov., *Clemens* 2022 (holotype A n.v.; isotypes G, K-scrapy).

SPECIMENS EXAMINED. Many collections of this variety, which is not clearly defined; this treatment differs from what I published in 1978 but see Coode (1978: 207–8) under ‘infraspecific groups’ 4 & 5, omitting those specimens listed below under var. *savannarum*.

ECOLOGY. Forest, 900 – 2250 (– 3000?) m altitude.

***Elaeocarpus polydactylus* var. *savannarum* (A.C.Sm.) Coode comb. et stat. nov.**

<http://www.ipni.org/urn:lsid:ipni.org:names:77328984-1>

Elaeocarpus savannarum A.C.Sm., *J. Arnold Arbor.* 25: 234 (Smith 1944). Type: Indonesian New Guinea, Jayapura, *Brass* 8814 (holotype A n.v.; isotypes L, LAE).

SPECIMENS EXAMINED. INDONESIA: BW 3343 (K), 4060 (K), 4306 (K); *van Royen* 6212 (G, K). **PAPUA NEW GUINEA:** *Conn* 453 (CANB, K); NGF 1389 (CANB, K, L); *Takeuchi* 21894 (K), 22027 (K).

ECOLOGY. Forest, often open savannah-type vegetation; 20 – 900 m, thus at lower altitudes than the other varieties.

NOTES. Sometimes very similar to small-fruited forms of *Elaeocarpus angustifolius* Blume var. *major*; see below.

***Ganitrus* group** (Sect. *Ptilanthus* Schltr., Schlechter 1916: 121)

***Elaeocarpus angustifolius* Blume (1825: 120).**

NOTES. Coode (2010: 364) gives a key to the variants. Blume’s type is of the local Javanese variety, at higher altitude than the very common widespread variety, for which the name *Elaeocarpus sphaericus* (Gaertn.) K.Schum. var. *major* Hochr. is available.

***Elaeocarpus angustifolius* var. *major* (Hochr.) Coode comb. nov.**

<http://www.ipni.org/urn:lsid:ipni.org:names:77328985-1>

Elaeocarpus sphaericus var. *major* Hochr., *Pl. Bogor.* Exs. n. 51 (Hochreutiner 1904). Type: ex hort.

Bogor, 31 Dec. 1904 (originally from Sumatra), *Hochreutiner* 51 (isotype K); the protologue is printed on the specimen label.

NOTES. Several synonyms at specific rank and specimens are listed in Coode (2010: 369) under *Elaeocarpus angustifolius* ‘widespread form’.

***Coilopetalum* group** (Sect. *Coilopetalum* Schltr., Schlechter 1916: 134)

***Elaeocarpus fuscooides* R.Knuth (1940: 48); Coode (1978: 229; 1981: 128, Fig. 30).**

NOTES. Endemic to eastern New Guinea, but perhaps including Japen Island. Knuth described this before the Berlin herbarium was destroyed, so he would have compared his species with the type of *Elaeocarpus fuscus* Schltr., based on *Ledermann* 11930, no duplicates of which are known to have survived; Schlechter’s figure 8 (1916: 141) of *E. fuscus* Schltr. shows a plant of very similar aspect but with branched racemes which are otherwise unknown in New Guinea, although known in certain varieties of the unrelated *E. stipularis* Blume in Borneo.

1. Length:breadth ratio of leaves 1.5 – 2.1, leaves obtuse or broadly obtuse at apex (80° or more) to rounded at apex, domatia on lower leaf-surface absent or rare; terminal buds not gummy-resinous.
2. Bracts persistent to anthesis, 8 – 13 mm long; stipules 2 – 4 mm long; petal divisions 11 – 12; flowering pedicels 3 – 7 mm long
var. **longibracteatus**
2. Bracts caducous, 2 – 3 mm long; stipules 6 – 8 mm long; petal divisions 22 – 32; flowering pedicels 10 – 14 mm long
var. **latifolius**
1. Length:breadth ratio of leaves 2.4 – 3.2, leaves acute at apex (50 – 80°), domatia on lower leaf-surface regularly present along midrib; terminal buds gummy-resinous.
var. **fuscooides**

***Elaeocarpus fuscooides* var. *fuscooides*.** Type: Papua New Guinea, Morobe Prov., Ogeramnang, *Clemens* 4681a (holotype B n.v. B_10_0244808; isotypes A n.v., BRI).

SPECIMENS EXAMINED. INDONESIA: NGF 33085 (CANB, K), 33119 (K) both near border with PNG; Japen, bb 30305 (BO, not a perfect match); **PAPUA NEW GUINEA:** *Brass* 31142 (K), 31331 (K); NGF 15061 (E, K, LAE); LAE 59885 (CANB, E, K) + 23 other collections; see Coode 1978: 229, omitting collections cited below.

ECOLOGY. Montane forest, 1370 – 2200 m (700 m on Japen Island).

***Elaeocarpus fuscooides* var. *latifolius* Coode var. nov.**
Type: Papua New Guinea, Central Prov., near Woitape, Foreman NGF 48360 (holotype K; isotypes L n.v., LAE).

<http://www.ipni.org/urn:lsid:ipni.org:names:77328986-1>

RECOGNITION. Differs from var. *fuscooides* in having generally wider leaves (5.5 – 10 cm wide, not 3 – 5.5 cm) which lack domatia, and non-resinous terminal buds.

DISTRIBUTION. Endemic to Papua New Guinea.

SPECIMENS EXAMINED. Carr 15472 (A, K, L); Craven 1362 (CANB, K); Hartley 12937 (K); NGF 33777 (CANB, E, K, LAE); LAE 52476 (CANB, E, K), 53998 (CANB, K); Schodde 4859 (CANB, K).

ECOLOGY. Montane forest, 1340 – 1650 m altitude.

***Elaeocarpus fuscooides* var. *longibracteatus* Coode var. nov.**
Type: Papua New Guinea, Morobe Prov., Kuper Range E of Wau, Kairo 393 (holotype K; isotypes E, L).

<http://www.ipni.org/urn:lsid:ipni.org:names:77328987-1>

RECOGNITION. Differs from var. *fuscooides* in having leaves 16 – 20 × 9 – 11 cm (not 8 – 13 × 3 – 3.5 cm) with cordate (not cuneate to rounded) bases, in bracts 8 – 13 mm long (not 2 – 3 mm) and petals with 8 – 13 divisions (not 25 – 44 divisions).

DISTRIBUTION. Known only from the type.

ECOLOGY. *Nothofagus* forest; c. 2000 m altitude. Endemic to Papua New Guinea.

***Elaeocarpus sepikanus* Schltr.** (Schlechter 1916: 135; Coode (1978: 240; 1981: 147 – 149 incl. fig. 33).

DISTRIBUTION. Endemic to New Guinea, New Britain, Manus and perhaps New Ireland.

NOTES. Only the most striking variants are keyed out and named here; some others remain ‘swallowed up’ in var. *sepikanus* which may explain why the ‘typical variety’ occurs three times in the key. The species (especially var. *latifolius*) should also be compared with *E. lingualis* R.Knuth from New Guinea and *E. seramicus* Coode from Seram, and in Manus Island with *E. ledermannii* Schltr.

1. Stone somewhat flattened with 2 ridges; flower buds between ovoid and oblong var. *costatus*

1. Stone circular or 6-sided in section; flower buds mostly ovoid, ovoid-globose to broad-ovoid
2. Leaves 2.2 – 2.8 × as long as broad

3. Leaves cuneate at base, with 8 – 15 nerves on each side; small domatia usually present along the midrib beneath; terminal buds not resinous; anthers short-awned var. *polyneurus*

3. Leaves broadly cuneate to rounded at base, with 6 – 9 nerves on each side, usually without domatia; anthers without awns var. *sepikanus* in part

2. Leaves 1.5 – 2.1 × as long as broad

4. Petiole apex clearly or somewhat swollen

5. Leaves 11 – 21 × 5.5 – 11 cm (– 12) cm

var. *latifolius*

5. Leaves (7 –) 8 – 15 (– 16) × (3 –) 3.5 – 7 (– 8.5) cm var. *sepikanus* in part

4. Petiole apex not swollen

6. Fruit ± pointed at apex, stone 0.5 – 0.9 cm long; petals c. 5 mm long; styles 2 – 3 mm long var. *microcarpus*

6. Fruit rounded or obtuse at apex, stone 0.8 – 1.3 cm long; petals 6 – 8 mm long; styles 3.5 – 5 mm long var. *sepikanus* in part

***Elaeocarpus sepikanus* var. *sepikanus*;** see Coode 1981: 148, fig. 14. Type: Papua New Guinea, Sepik Prov., Malu, Ledermann 7809 (holotype B†; isotypes BM, K).

SPECIMENS EXAMINED. Very many specimens, widespread throughout New Guinea, Bismarck Archipelago and Ferguson Island; see Coode (1978: 240 – 1). The present treatment includes some variation not formally recognised.

ECOLOGY. In many forest types, from sea level to c. 800 m altitude, occasionally higher.

***Elaeocarpus sepikanus* var. *costatus* Coode var. nov.**
Type: Indonesia, Bird’s Head Peninsula, Sidei 65 km W of Oransbari, Schram BW 6791 (holotype K; isotype L).

<http://www.ipni.org/urn:lsid:ipni.org:names:77328988-1>

RECOGNITION. Differs from var. *sepikanus* (and the other varieties) in having a slightly flattened, 2-ridged stone; also the flower buds are relatively longer.

ECOLOGY. Primary forest, 5 – 20 m altitude.

NOTES. Known only from the type but should be compared with *Elaeocarpus seramicus*, which has relatively narrower leaves and larger flowers (but is only known from the type in BO).

***Elaeocarpus sepikanus* var. *latifolius* Coode var. nov.**
Type: Papua New Guinea, West Sepik Prov., Frieda R., Henty et al. NGF 42615 (holotype K; isotype L).

<http://www.ipni.org/urn:lsid:ipni.org:names:77328989-1>

RECOGNITION. Differs from var. *sepikanus* in having generally larger or at least wider leaves (11 – 21 × 5.5 – 11 cm (– 12) cm not (7 –) 8 – 15 (– 16) × (3 –) 3.5 – 7 (– 8.5) cm).

SPECIMENS EXAMINED. Many seen, from throughout the New Guinea mainland and Japen Island; see Coode (1978: 240 – 1).

ECOLOGY. Forest, from sea level to 1200 m.

NOTES. The difficulty of definition of this variety is exacerbated by the absence of any flowering specimens because stamen number is useful for identifying varieties. Three are in bud: NGF 42615 (K, L) from West Sepik Prov., *Beccari* 800 (K) from Arfak and bb 30387 (L) from Japen I. — these three have different stamen numbers. The rest are in fruit at best. The variety has also to be distinguished from *Elaeocarpus seramicus* but has wider leaves.

Elaeocarpus sepikanus var. **microcarpus** Coode var. nov.
Type: Indonesian New Guinea, Papua Province, Timika D., Mile 50, *Coode* 8085 *et al.* (holotype K; isotypes A, BO, CANB, Freeport, L seen before distribution).

<http://www.ipni.org/urn:lsid:ipni.org:names:77328990-1>

RECOGNITION. Differs from *Elaeocarpus sepikanus* var. *sepikanus* in having smaller flowers (petals c. 5 mm long, not 6 – 8 mm) and usually pointed (not rounded to obtuse) and smaller fruits (stones 0.5 – 0.9 mm, not 0.8 – 1.3 mm).

SPECIMENS EXAMINED. INDONESIA NEW GUINEA/PAPUA NEW GUINEA border: Ingembit area, *Soegeng Reksodihardjo* 415 (G, K, L) & NGF 31820 (CANB, K, L).

ECOLOGY. Forest, 44 – 540 m altitude.

NOTES. The two specimens from the Indonesia/PNG border were collected under an expedition run jointly by the Forestry Dept of PNG and the Indonesian Government, and their having being collected on the same day suggests that they may even have come from the same tree. But *Soegeng Reksodihardjo* 415 has some traces of indumentum on twigs and petioles, whereas NGF 31820 is glabrous.

Elaeocarpus sepikanus var. **polyneurus** Coode var. nov.
Type: Indonesia, Timika D., Kuala Kencana, *Coode et al.* 7991 (holotype K; isotypes A, BO, CANB, L, MAN seen before distribution).

<http://www.ipni.org/urn:lsid:ipni.org:names:77328991-1>

RECOGNITION. Differs from var. *sepikanus* in having leaves cuneate at base (not broadly cuneate

to rounded) with 8 – 15 nerves (not 6 – 9) on each side; small domatia usually present along the midrib beneath (usually absent in var. *sepikanus*); terminal buds not resinous (usually resinous in var. *sepikanus*).

DISTRIBUTION. Endemic to Indonesian New Guinea.

SPECIMENS EXAMINED. INDONESIA: Bird's Head Peninsula, BW 2962 (CANB, K, L, MAN), *Wanda Ave* 4293 (K) & 4113 (K). Biak Is., near Parieri, *Kostermans & Soegeng* 943 (CANB, K).

ECOLOGY. Forest, 50 – 540 m altitude.

Elaeocarpus trichophyllus A.C.Sm. (Smith 1944: 251); Coode (1978: 229; 1981: 130).

DISTRIBUTION. Endemic to New Guinea.

1. Leaves 1.4 – 2.8 cm wide var. **erianthus**
1. Leaves 3 – 7 cm wide
 2. Leaves broadly rounded to cordate at base, or tapering towards a broadly cuneate base var. **trichophyllus**
 2. Leaves cuneate to broadly cuneate at base, or tapering towards a narrowly rounded base
 3. Twigs persistently hairy behind current shoot growth; stipules 2 – 3 mm long; petioles variously persistently or floccose-hairy; main venation of leaves strongly prominent beneath; petals with 23 – 28 apical divisions; styles 1.5 – 2 mm long var. **cuneatus**
 3. Twigs glabrous or hairy at tip only; stipules 4 – 5 mm long; petioles glabrous or almost so; main venation of leaves only somewhat prominent beneath; petals with 13 – 18 apical divisions; styles 3 mm long var. **eximius**

Elaeocarpus trichophyllus var. **trichophyllus**. Type: Indonesia, Lake Habbema, *Brass & Versteegh* 11118 (holotype A n.v.; isotypes BM n.v., BRI, K, L, LAE).

SPECIMENS EXAMINED. See Coode (1978: 230) under 'infraspecific group' 2; my statement that the typical variety is the one with cuneate leaf-bases was incorrect.

ECOLOGY. Montane forest, 2200 – 2850 m altitude.

Elaeocarpus trichophyllus var. **cuneatus** Coode var. nov.
Type: Papua New Guinea, Western Highlands, *Hoogland* 6259 (holotype K; isotypes BRI, L, LAE).

<http://www.ipni.org/urn:lsid:ipni.org:names:77328992-1>

RECOGNITION. Differs from var. *trichophyllus* in having cuneate or broadly cuneate leaf-bases, not rounded or cordate.

SPECIMENS EXAMINED. See Coode (1978: 230) under ‘infraspecific group’ 1.

ECOLOGY. Montane forest, 1530 – 2650 m altitude.

***Elaeocarpus trichophyllus* var. *erianthus* (A.C.Sm.) Coode comb. et stat. nov.**

<http://www.ipni.org/urn:lsid:ipni.org:names:77328994-1>

Elaeocarpus erianthus A.C.Sm., *J. Arnold Arbor.* 25: 251 (Smith 1944). Type: Papua New Guinea, Central Distr., Murray Pass, *Brass* 4537 (holotype A n.v.; isotypes BRI, K, L, NY).

DISTRIBUTION. Endemic to Papua New Guinea.

SPECIMENS EXAMINED. See Coode (1978: 231) under ‘infraspecific group’ 4.

ECOLOGY. Montane forest, 1890 – 3000 m altitude.

***Elaeocarpus trichophyllus* var. *eximius* (A.C.Sm.) Coode comb. et stat. nov.**

<http://www.ipni.org/urn:lsid:ipni.org:names:77328995-1>

Elaeocarpus eximius A.C.Sm., *J. Arnold Arbor.* 25: 252 Smith (1944); Coode 1978: 229. Type: Papua New Guinea, Central Distr., Mt Tafa (near Woi-tape), *Brass* 4954 (holotype A n.v.; isotypes BRI, K, L, NY).

DISTRIBUTION. Endemic to Papua New Guinea.

SPECIMENS EXAMINED. See Coode 1978: 230 under ‘infraspecific group’ 3.

ECOLOGY. Montane forest, 1500 – 2400 m altitude.

***Elaeocarpus whartonensis* A.C.Sm. (Smith 1944: 254); Coode (1978: 235; 1981: 140).**

DISTRIBUTION. Endemic to Papua New Guinea.

1. Twig hairs felted on current growth; leaves obviously serrate, teeth in apical half 3 – 6 mm apart, midribs only somewhat prominent beneath and primary venation running almost to margin

subsp. ***whartonensis***

1. Twigs pubescent on current growth; leaves weakly serrate, teeth in apical half 1 – 2 mm apart, midrib strongly prominent beneath, primary venation breaking up 1/2 – 7/8 inside margin

subsp. ***cravenii***

***Elaeocarpus whartonensis* subsp. *whartonensis*.** Type: Papua New Guinea, Central Prov., Murray Pass, *Brass* 4559 (holotype A n.v.; isotype BRI).

SPECIMENS EXAMINED. LAE 61603 (CANB, E, K); NGF 20391 (CANB, K), 48410 (E, G, K).

ECOLOGY. Montane forest, 2700 – 2790 m altitude.

***Elaeocarpus whartonensis* subsp. *cravenii* Coode var. nov.** Type: Papua New Guinea, Central Prov. Mt Victoria, *Craven* 2986 (holotype K).

<http://www.ipni.org/urn:lsid:ipni.org:names:77328996-1>

RECOGNITION. Differs from *Elaeocarpus whartonensis* var. *whartonensis* in the characters given in the key.

SPECIMEN EXAMINED. *Hartley* 12957 (K).

ECOLOGY. Low stunted forest, 3400 – 3450 m altitude.

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