



Maesa brevipedicellata (Primulaceae), a new species from Papua New Guinea

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Key words

Ericales
Maesa
Malesia
Myrsinaceae
new species
Papuaasia
taxonomy

Abstract *Maesa brevipedicellata*, a new species of *Maesa* (Primulaceae-Maesioideae) from Papua New Guinea, is described and illustrated based on herbarium specimen observations. The collections of this species resemble *M. rufovillosa* and were previously determined as that species. *Maesa brevipedicellata* is unique with its self-supporting habit, hispid hairs throughout and paniculate inflorescences with very short pedicels. This new species mainly differs from *M. rufovillosa* by the habit (tree/shrub in *M. brevipedicellata* vs climber in *M. rufovillosa*) and the inflorescence structure (panicles in *M. brevipedicellata* vs simple racemes in *M. rufovillosa*).

Published on 11 June 2020

INTRODUCTION

Maesa Forssk., a genus of tropical trees, shrubs or lianas, was traditionally placed in a monogeneric subfamily *Maesioideae* in the *Myrsinaceae*. Its status was once elevated to familial level as *Maesaceae* (Anderberg et al. 2000), but, more recently, it is placed in *Primulaceae* s.lat. which now includes four former families, *Maesaceae*, *Myrsinaceae*, *Primulaceae* and *Theophrastaceae* (APG III 2009); this broader family delimitation is followed here. There are 177 accepted *Maesa* species distributed in the Old World tropics (POWO 2019). Twenty-six species were included in the revision of Sleumer (1987) in the area of New Guinea, the Moluccas and the Solomon Islands, with twenty-one species known from the island of New Guinea. A new species from Papua New Guinea is described here: *Maesa brevipedicellata* Sumanon & Utteridge. Most of the collections of this new species were previously determined as *M. rufovillosa* Mez, but critical examination of the available specimens showed they represent a distinct set of specimens with a suite of diagnostic characters.

***Maesa brevipedicellata* Sumanon & Utteridge, sp. nov. —**

Fig. 1

Unique in the genus *Maesa* is the self-supporting habit of being a shrub or small tree with hispid hairs throughout, lacking scales, the paniculate inflorescence and the very short pedicels, 0.4–1 mm long. This suite of characters also differentiates it from the morphologically similar species, *M. rufovillosa*, a climber, but, in addition, *M. brevipedicellata* differs from that species in more secondary vein pairs per leaf, 10–12 pairs (6–9 pairs in *M. rufovillosa*) and the paniculate inflorescences with more than 100 flowers per inflorescence (unbranched racemose inflorescences with 10–60 flowers per inflorescence, to rarely a panicle in *M. rufovillosa*). — Type: NGF (*Yakas Lelean*) 46396 (holo K; iso AAU, BISH, CANB.00708032, CANB.236149, L.2637084, L.2637085), Papua New Guinea, Central District, Tapini Sub-District, Tapini area, S8°18' E146°48', c. 3000 ft [c. 915 m] alt., 1–4 May 1971.

Etymology. The species epithet '*brevipedicellata*' refers to its very short pedicels (0.4–1 mm long), which sometimes make the flowers seemingly sessile.

Shrubs or small trees, up to 3 m tall. *Indumentum* of simple hairs, up to 1 mm long, ginger-brown, giving a hispid appearance throughout (see description of specific structures for distribution); scales absent. *Branches* drying reddish brown with sparsely scattered lenticels, hispid. *Leaves*: lamina ovate, 11.4–20 by 5–9.3 cm, chartaceous, drying fuscous above, tawny-brown below, adaxial surface sparsely hairy, abaxial surface hairy to densely hairy; base obtuse to cuneate, rarely subcordate; margins serrate, with 14–26 papilliform teeth per side; apex acute to attenuate; midrib drying yellowish to reddish brown, hispid both adaxially and abaxially; secondary veins 10–12 pairs, semicraspedodromous, indumentum as lamina; petiole 1.2–3.2 cm long, hispid. *Staminate inflorescences* and *flowers* not seen. *Pistillate inflorescences* lateral (axillary), panicles, 5–11 cm long, axis hispid; bracts ovate to triangular, 1.1–1.5 mm long, hairy, margins entire, apex acuminate. *Pistillate flowers* pentamerous; pedicels 0.4–1 mm long; bracteoles ± opposite, inserted at the base of hypanthium, 0.8–1 by 0.4–0.75 mm, shape as bracts; calyx lobes ovate, 0.6–0.9 by 0.8–1 mm, hairy, margins entire, apex acute; corolla tube 0.6–1 mm long, lobes 0.5–0.75 by 0.6–1.3 mm; staminodes 5, filaments 0.5–0.7 mm long, anthers 0.16–0.2 mm long; hypanthium 0.5–0.8 mm long, hairy; ovary c. 0.2 by 0.9–1 mm, style c. 0.6 mm long. *Fruits* indehiscent, globose, 2.2–4.2 mm long, 2–4 mm diam; bracteoles remaining ± opposite each other at the base of the fruit; persistent calyx-lobes partly overlapping. *Seeds* many, angular, dark brown.

Distribution & Ecology — New Guinea (Morobe and Central Prov.).

Habitat & Ecology — The species has been collected in regrowth forest at 900–2200 m altitude. Flowering: January, February, May, June; fruiting: January, February, May, June, August.

Conservation assessment — *Maesa brevipedicellata* is assessed here as Vulnerable following the categories and criteria of IUCN (2012). The species is known from six collections from Morobe and Central Provinces in Papua New Guinea with an Extent of Occurrence of 15431.928 km² and an Area of Occupancy

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Fig. 1 *Maesa brevipedicellata* Sumanon & Utteridge. a. Habit, showing stem with scattered lenticels; b. leaf node with base of peduncle; c. detail of stem indumentum; d. abaxial leaf margin; e. branch of inflorescence; f. open flower, side view; g. calyx; h. inner face of corolla opened up; i. branch of infructescence; j. mature fruit, side view; k. mature fruit, apical view; l. off-centre section through fruit (all NGF 46396). — Drawing by Andrew Brown. — Scale bars: a = 5 cm; b, d = 1 cm; c, f–h = 1 mm; e, i = 5 mm; j–l = 2 mm.

of 24 km² calculated using a grid cell of 2 km² in GeoCat (Bachman et al. 2011). Whilst New Guinea remains relatively well forested, habitat conversion in Morobe Province, especially around the Lae area, has been well documented in Pipoly III & Takeuchi (2004), and taking into account this observed decline in quality of habitat, together with the EOO and AOO thresholds, and that the most recent specimens are from the 1970s, we assess this species as Vulnerable: VU B1ab(i, ii, iii) + B2ab(i, ii, iii).

Additional specimens seen. PAPUA NEW GUINEA (PNG), Morobe, vicinity Bulung R., Nomauenem camp, S6°37' E147°33', 3000–5000 ft [c. 915–1525 m] alt., 28 Jan. 1937, *J. Clemens & M.S. Clemens* 5205 (K); Morobe, Kaisenik, S7°20' E146°40', 2200 m alt., 1 Feb. 1978, *Kairo* 51 (K); Morobe, Kasanombe, road to Momsalom Village, Lae, S6°45' E147°10', 1700 m alt., 30 Aug. 1973, *NGF (P. Katik & K. Taho)* 37926 (BISH, CANB, K, M); Central, Goilala, between Kuputivava and Omoretu, S8°20' E147°00', 6500 ft [c. 1980 m] alt., 13 Feb. 1964, *T.G. Hartley* 13036 (CANB, K); Morobe, vicinity Kikiepa Village near Wantoat Patrol Post, southern slope of Finisterre Mts, S6°10' E146°30', c. 5000 ft [c. 1525 m] alt., 2 June 1960, *NGF (J.S. Womersley & R.F. Thorne)* 12721 (A, CANB).

Notes — *Maesa brevipedicellata* is unique in the genus with a diagnostic combination of characters including the self-supporting habit (tree), indumentum of hispid hairs but the absence of scales, the presence of paniculate inflorescences and pentamerous flowers.

Almost all specimens included as the new species described here, except *NGF (J.S. Womersley & R.F. Thorne)* 12721, were determined as *M. rufovillosa* by Sleumer. Sleumer described the habit of *M. rufovillosa* as a 'bushy shrub, often scandent' and included in the description, as noted in specimen collected by Lelean, *NGF* 46396, as 'sometimes starting as a liana, ending in a small tree' (Sleumer 1987). This description makes the identification confusing. Based on our observations, plants in this genus can be clearly divided into two habit types: self-supporting (shrubs or trees) or non-self-supporting (described as scramblers, climbers or lianas). *Maesa rufovillosa* is a non-self-supporting species morphologically very similar to *M. muelleri* Mez (see Utteridge 2013), and, therefore, the specimens previously determined as *M. rufovillosa* by Sleumer, but having a self-supporting habit, are to be excluded from the true *M. rufovillosa* and described as the new species here.

In the revision of Sleumer (1987), many confusing collections were included under the name *M. rufovillosa*; however, field and herbarium observations showed that some collections with a shrub habit are distinctive enough to be a separate species, *M. ruficaulis* S.Moore (detailed in Utteridge 2001: 680, 2013: 683). The morphology of *M. brevipedicellata* is unlikely to be confused with *M. rufovillosa* even though they share the same floral merosity and indumentum with the habit being especially diagnostic, see the diagnostic description for further differences.

Compared to the other self-supporting *Maesa* species in New Guinea, *M. brevipedicellata* is most similar to *M. ruficaulis*, but differs from that species in lacking a flexuous axis of the inflorescences (*M. ruficaulis*: inflorescence axis strongly flexuous), ovate leaf blades with acute to attenuate apex (*M. ruficaulis*: leaf blades elliptic to elliptic-oblong with apex attenuate to acuminate), margin serrate with 14–26 papilliform teeth on each side of leaf (*M. ruficaulis* 6–15 teeth).

Acknowledgements We would like to thank the A, BISH, BO and L herbaria for providing specimens in the study, Dr Andrew Brown for the illustration, a GSST grant from Aarhus University for PhD students to conduct research aboard, and the Royal Thai Government Scholarship for financial support throughout the PhD study of the first author. We would also like to thank the Centre for Australian National Biodiversity Research and National Research Collections Australia (CSIRO) for facilitating the last author's visit to the Australian National Herbarium (CANB) to work on the *Myrsinoideae* collections from New Guinea.

REFERENCES

- Anderberg AA, Ståhl B, Källersjö M. 2000. Maesaceae, a new primuloid family in the order Ericales s.l. *Taxon* 49 (2): 183–187.
- APG III. 2009. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG III. *Botanical Journal of Linnean Society* 161: 105–121.
- Bachman S, Moat J, Hill A, et al. 2011. Supporting Red List threat assessments with GeoCAT: Geospatial Conservation Assessment Tool. *ZooKeys* 150: 117–126.
- IUCN. 2012. IUCN Red List Categories and Criteria: Version 3.1. Second edition. IUCN Species Survival Commission, Gland, Cambridge (UK).
- Pipoly III JJ, Takeuchi W. 2004. New species of Tapeinosperma and Discocalyx (Myrsinaceae) from Morobe Province, Papua New Guinea. *Harvard Papers in Botany* 8 (2): 153–159.
- POWO. 2019. Plants of the world online, the Royal Botanic Gardens, Kew. Available from <http://www.plantsoftheworldonline.org/> (accessed 13 Jan. 2020).
- Sleumer H. 1987. A revision of the genus *Maesa* Forsk. (Myrsinaceae) in New Guinea, the Moluccas, and the Solomon Islands. *Blumea* 32: 39–65.
- Utteridge TMA. 2001. Two new species of *Maesa* (Maesaceae) from New Guinea. *Kew Bulletin* 56: 677–683. <https://doi.org/10.2307/4117694>.
- Utteridge TMA. 2013. A revised circumscription of *Maesa ruficaulis* S.Moore (Primulaceae-Maesioideae). *Contributions to the Flora of Mt Jaya, XVIII*. *Kew Bulletin* 68: 683–686. <https://doi.org/10.1007/s12225-013-9482-9>.