



## A new species of *Myrsine* (Primulaceae-Myrsinoideae) from New Guinea

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### Abstract

*Myrsine exquisitorum* Utteridge & Lepschi (Primulaceae-Myrsinoideae) is described and illustrated as a new species endemic to the Western Highlands Province from Papua New Guinea. The new species is unique in the relatively large, almost orbicular leaves with entire margins, and the tetramerous flowers arranged in axillary fascicles without forming short shoots.

**Keywords:** Papuasia, Malesia, Myrsinaceae, *Rapanea*, taxonomy

### Introduction

*Myrsine* Linnaeus (1753: 196) is a pantropical genus of c. 280 species, and now includes all taxa previously placed in the paleotropical genus *Rapanea* Aublet (1775: 121) and the New World genus *Suttonia* A.Richard (1832: 349). Traditionally, *Rapanea* was considered distinct from *Myrsine* based on the absence of well-defined filaments and style, but these characters have been shown to intergrade between species of the different genera. Pipoly (2007) and Takeuchi & Pipoly (2009) further discuss character variation in the genera in New Guinea, and formally completed the transfer of the eastern Malesian names of *Rapanea* to *Myrsine*.

The family has not been comprehensively revised or monographed since Mez's (1902) treatment in which he recognised only three species of *Myrsine* from New Guinea (as *Rapanea*). Regional treatments described further taxa, including nine taxa described from the Arfak Mts and Nabire districts in western New Guinea by Kanehira & Hatusima (1943), and 12 in the Alpine Flora of New Guinea by van Royen (1982). Many of these were reduced to synonymy when the genus was revised in New Guinea by Sleumer (1986; as *Rapanea*), who still recognised 22 species but at the same time suggested further collecting of taxa currently known from incomplete material could yield new species. An additional species was described by Takeuchi & Pipoly (2009), thus the new species described here brings the total number of species on the island to 24, with several more still to be described (Pipoly 2007).

Important diagnostic characters in the genus were discussed by Sleumer (1986: 246), who noted that the 'shape of the leaves is a main character' for species delimitation. Sleumer (1986) also used the size of the leaves (relatively small vs medium or large), petiole length, the presence or absence of glandular punctations and lines, the inflorescence type (flowers in axillary fascicles vs. on strobiliform axes) and stigma shape, as characters useful for identifying species. The new species described here has a leaf size and shape not found in any other species in New Guinea which, together with sessile leaves with very short petioles and inflorescences in axillary fascicles, readily distinguishes it from all other *Myrsine* taxa in New Guinea.

For his revision, Sleumer did not see material from the Australian National Herbarium (CANB) or the Kyushu University Museum (FU) which holds the Kanehira and Hatusima specimens; he wrote 'n.v.' against FU and CANB types when listing them, for example. The first author has now had the opportunity to study both collections. CANB is particularly important for understanding the plant diversity of New Guinea as it holds significant collections of New Guinea material (approximately 213,000 specimens), especially the 'top set' of specimens collected during land use surveys conducted during the 1950s, 1960s and 1970s by the Commonwealth Scientific and Industrial Research

Organisation (CSIRO) in the Territory of Papua and New Guinea (see Keig *et al.* 2019a, 2019b). Important collectors represented in this series of material include L.A. Craven, R.D. Hoogland, R. Pullen, R. Schodde, as well as several others. Most of the specimens were collected in multiple sets and widely distributed, but some specimens were unicates not distributed outside CANB. In this paper, we describe a unique new species of *Myrsine* based on a CANB unicate over two sheets, collected by Ross Gordon Robbins, plant ecologist with the (then) CSIRO Division of Land Research and Regional Survey from 1957–1960, later becoming Professor of Botany at the University of Papua New Guinea in Port Moresby.

## Materials and methods

Identification of the new species was undertaken with the use of relevant literature: van Royen (1982), Sleumer (1986), Jackes (2005), Takeuchi & Pipoly (2009) and Forster (2013). Specimens of the genus from Malesia, including types of similar taxa, were studied at CANB, FU and K, and specimen images were consulted from Global Plants JSTOR (<http://plants.jstor.org/> - coverage includes A, B, BM, BR, BRI, P etc.) and the BioPortal of Naturalis Biodiversity Center (<http://bioportal.naturalis.nl/> - coverage includes L, U and WAG). All measurements were taken from dried specimens. Terminology and format of the description follows Systematics Association Committee (1962) and Takeuchi & Pipoly (2009). The preliminary conservation status is proposed in accordance with the IUCN Red List Criteria (IUCN 2012).

## Taxonomic treatment

### *Myrsine exquisitorum* Utteridge & Lepschi *sp. nov.* (Fig. 1)

Unique in the genus *Myrsine* on account of the combination of the subsessile leaves with petioles less than 5 mm long, the relatively large, almost orbicular leaves with entire margins, 8.5–11 × 6.4–7.9 cm, lacking distinct glandular lines or punctuations, the tetramerous flowers with papillate hairs only on the petal tips and margins. Although unlikely to be confused with any species of *Myrsine* in New Guinea, *M. exquisitorum* differs from *M. augustae*, *M. leucantha* and *M. warrae*, the other *Myrsine* species in New Guinea with relatively large (> 8 cm long), subsessile leaves and 4-merous flowers in axillary fascicles (inflorescences not forming short-strobiliform axes), in leaf shape and the absence of obvious glandular lines and/or punctuations on the leaf lamina.

Type:—PAPUA NEW GUINEA. Western Highlands District [Western Highlands Province], Wabag Area, slopes of limestone ridge south of Liaagam patrol post [Laiagam Patrol Post: 5°19'52"S 143°47'26"E], 27 August 1960 (fl.), *Robbins 3383* (holotype CANB 88216.1!; isotype CANB 88382.1!).

Shrub to 20 ft [6 m]. Branchlets terete, 2.5–3.5 mm in diameter, surfaces greyish, dull, striate, prominently marked by semi-circular abscission scars, sparse indumentum of scattered peltate scales 0.1 mm in diameter; internodes 0.2–3.5 cm long. Leaves alternate, spiral, crowded, often 2–4-pseudowhorled; petioles 2–5 mm long × 2–3 mm wide, flattened on upper side, rounded beneath, dark brown-black; leaf blades very broadly elliptic to ±circular, 8.5–11 × 6.4–7.9 cm, subcoriaceous; adaxial surface nitid, brown, abaxially dull, tawny-brown, bifacially brown-pusticulate in reflected light, pellucid glands absent under transmitted light, glandular lines absent; base cordate-rounded; margin flat; apex acute-rounded; venation weakly brochidodromous, secondaries 12–14 per side, 3–11 mm apart, conspicuous, at the lamina centre diverging 70–80° from midribs, curving ascending, closing by looping nerves, partial intersecondary veins present; midribs impressed above, strongly raised below, higher-order nervation prominent below, somewhat obscure above. Flowers 4-merous, 5–8 from upper and leafless axils, each pedicel subtended by a scarious, triangular, ciliate bract 1 mm long, forming no proper inflorescence axis; pedicels glabrous, 3.5–6 mm long. Calyx colour not recorded, lobes ovate, 0.8–1.2 mm long, apex acute, ciliate, with a few circular and elongate glands. Corolla colour not recorded, lobes ovate-oblong, acute, glandular-papillate inside on margins and apex, 1.2–1.5 × 1 mm, with few circular and elongate glands toward the apex and margins. Fruits n.v.

**Distribution:**—Endemic to New Guinea, currently only known from the type locality from Western Highlands Province, Papua New Guinea.



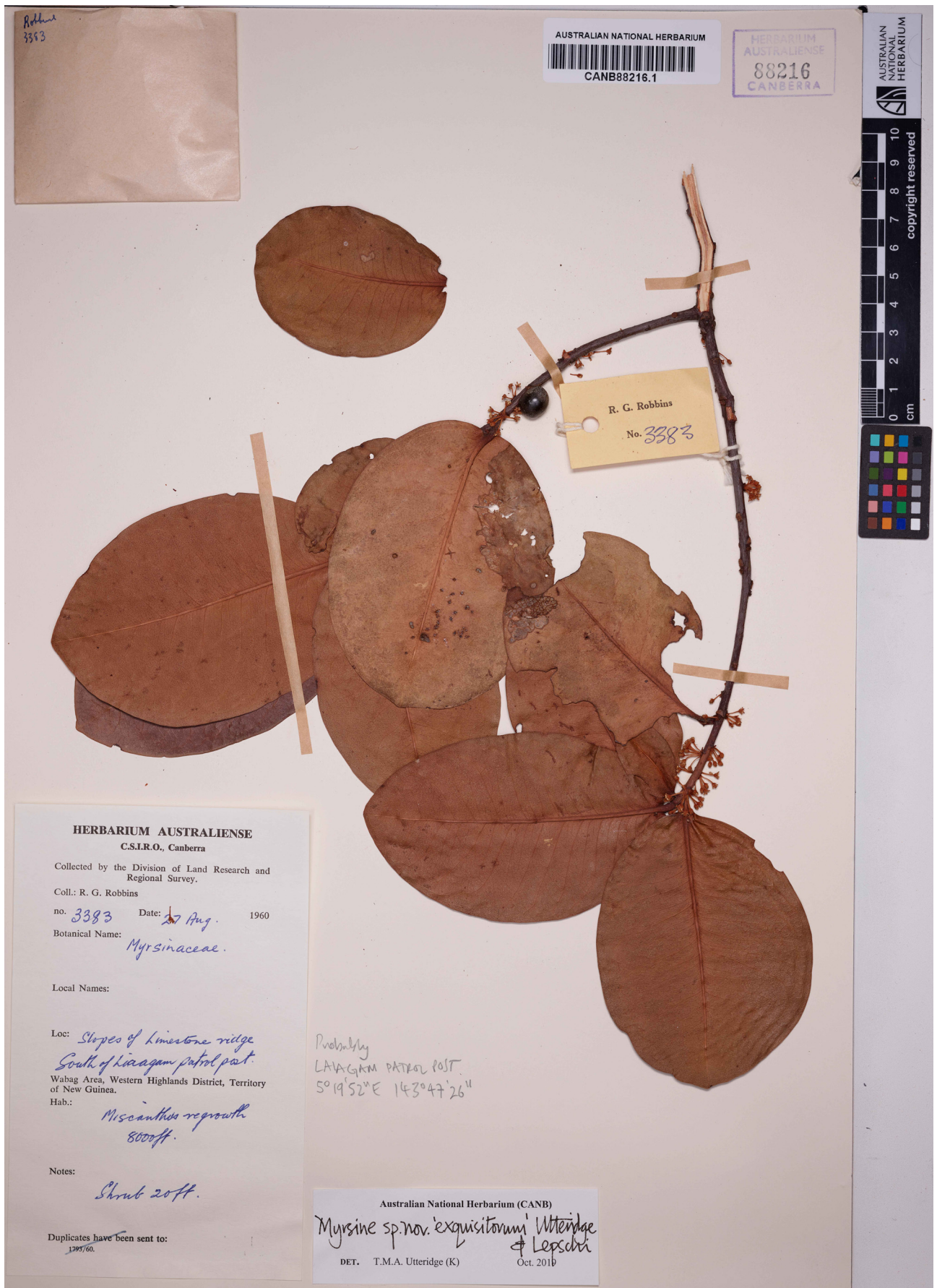


FIGURE 1. *Myrsine exquisitorum*. Image of the holotype CANB 88216.1.

**Habitat:**—Recorded from ‘*Miscanthus* regrowth’ on a limestone ridge; the elevation was recorded as 8000 ft [c. 2400 m], which would place the species in upper montane forest, within the ‘Central Range Montane Rain Forest’ ecoregion of New Guinea (Olson et al. 2001).

**Preliminary conservation status:**—*Myrsine exquisitorum* is only known from the type with no additional data available to estimate range or population size, and the species is assigned as Data Deficient (DD) following the IUCN Red List Criteria. The Highlands of Papua New Guinea have a long history of habitation with an advanced system of agriculture, and the region immediately around Laiagam is a valley of gardens and cultivation, but the ranges to the south and south-west are still forested according to Google Earth imagery from 2010. Further fieldwork is needed to assess population size and structure of this species, as well as habitat quality and threats.

**Phenology:**—Collected in flower in August.

**Etymology:**—From Latin, the genitive plural of ‘exquisitor’ (= searcher, investigator, or researcher) giving a meaning “of the researchers/investigators”, honouring the contribution of the botanical staff of the CSIRO Land Research and Regional Survey Section (and its several successive incarnations 1953–1974; see Keig *et al.* (2019a, p. 87) for a summary). The Section/Division employed several botanists as part of its survey teams working in Australia and New Guinea. During the period 1946–1974, these staff collected many thousands of exceptionally high quality herbarium specimens, usually widely replicated and often with additional supporting information such as black and white photographs, from across northern Australia and within Papua New Guinea. These collections, along with those of the former CSIRO Division of Plant Industry, formed the basis of the present day CANB herbarium upon their amalgamation as one collection in 1973 (L.A. Craven, *pers. comm.*) and remain a rich and important scientific resource, especially where the biota of New Guinea is concerned.

**Discussion:**—The leaf size and shape, being almost orbicular with the acute-rounded apex and cordate-rounded base, leaves arranged in crowded pseudo-whorls, and tetramerous flowers in axillary fascicles, are unique in *Myrsine* in eastern Malesia and Papuasias, and the species will not be confused with any other species from New Guinea. In the revision to New Guinea *Rapanea* by Sleumer (1986), *M. exquisitorum* does not key out to any definitive result but the suborbicular leaf shape would key to a group of species with ‘relatively small’ leaves (all less than 4 cm long). Based on the leaf size and the axillary fascicles, the species is more similar to *M. augustae* (Mez) Pipoly (in Takeuchi & Pipoly 2009: 461), *M. leucantha* (K.Schum.) Pipoly (in Takeuchi & Pipoly 2009: 461), and *M. warrae* Takeuchi & Pipoly (2009: 462), but the leaf shape distinguishes *M. exquisitorum* from all of these species: *M. augustae* (lanceolate leaves with a gradually and acutely narrowed base), *M. leucantha* (usually lanceolate-oblong to elliptic-oblong with an attenuate to cuneate base) and *M. warrae* (elliptic or oblanceolate with a cuneate-attenuate base). In addition, *M. augustae* is only known from the type, now lost, collected from the Sepik region and *M. warrae* is restricted to ultrabasic habitats from Morobe Province below 825 m elevation. *Myrsine leucantha* is a widespread and commonly collected species from a variety of habitats and elevations across the island, and very distinct in the herbarium as the leaves dry a dark brown above contrasting with the paler yellow-brown surface below; *M. exquisitorum* dries a dull brown above and tawny-brown below.

Note, the holotype has a ±spherical, nitid gall on one of the branchlets. This could be confused as a large fruit, but the gall is clearly fused to the branch along its length, lacks any glandular lines or dots and is amorphous without any structural parts such as pedicel, calyx or style remnants.

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