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A new species of *Syzygium* (Myrtaceae) from the Bird's Head Peninsula, western New Guinea

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Abstract

Syzygium oransbariense Mustaqim, Y.W.Low & Heatubun (Myrtaceae) is here formally described. This species is found in the lowlands on the eastern flank of the Arfak Mountains, Bird's Head Peninsula, western New Guinea. The species is similar to *Syzygium longipes* (Diels) Merr. & L.M.Perry but differs based on a set of diagnostic morphological characters. Species description, distribution, a preliminary conservation status assessment, and notes on the new species are presented here.

Keywords: endemic, Myrtaceae, New Guinea, *Syzygium*, taxonomy

Introduction

Syzygium (Myrtaceae) is the most speciose tree genus in the world with over 1200 accepted species (Beech *et al.* 2017; Govaerts *et al.* 2020). The genus occurs throughout the tropical and subtropical regions of the Old World, from West Africa to India, across Southeast Asia and the Pacific Ocean, to Hawaii in the east and New Zealand in the south. The centre of its species diversity is the Malay Archipelago, a region biogeographically known as Malesia (Craven 2001; van Steenis 1950). The most comprehensive account pertinent to New Guinean *Syzygium*, by Hartley and Perry (1973), enumerated 138 species with many taxa unaccounted for, listed at the end of their monograph. Many novelties subsequently have since been discovered and described for New Guinea (see Conn and Damas 2015; Hambali *et al.* 2017; Snow 2010; Takeuchi 2002, 2015), mainly from Papua New Guinea. Recently, a comprehensive specialist-verified checklist of New Guinean vascular plants enumerated 207 *Syzygium* species, the largest tree genus recorded for the island (Cámara-Leret *et al.* 2020). The checklist also highlighted Indonesian New Guinea as poorly explored botanically in comparison to Papua New Guinea (Frodin 2001; Johns 1997; Cámara-Leret *et al.* 2020). A revision of the Bird's Head Peninsula *Syzygium* species was initiated in 2017 in collaboration with the Singapore Botanic Gardens (Singapore), Universitas Papua (Indonesia), BALITBANGDA Papua Barat (Indonesia), Royal Botanic Gardens, Kew (UK), and University of Aberdeen (UK) is on-going (YW Low *pers. comm.*).

On one of the botanical field trips carried out under the *Ekspedisi NKRI Koridor Papua Barat* in 2016 in the eastern coast of the Bird's Head Peninsula, a peculiar *Syzygium* specimen was collected from the undisturbed primary lowland hill forests of Oransbari District, Papua Barat Province, Indonesia. More collecting trips were conducted in surrounding areas, either during the same period or on separate explorations in 2018, and no other morphologically similar individual has been encountered. A thorough herbarium study of collections at BM, BO, CNS, K, MAN, and SING (herbarium abbreviations follow Thiers 2020-continuously updated), as well as surveys on published literature of New Guinean *Syzygium* (Conn and Damas 2015; Diels 1922; Greeves 1923; Hartley and Craven 1977; Hartley and Perry 1973; Merrill and Perry 1942; Ridley 1916; Snow and Craven 2010; Takeuchi 2002, 2015; Warburg 1891) accompanied by type examinations, failed to match the Oransbari taxon to any of the named *Syzygium* taxa for New Guinea. Hence, we concluded that the Oransbari taxon is an undescribed species closely related to *Syzygium longipes* (Diels) Merr. & L.M.Perry but differs based on a set of distinct morphological characters.

Taxonomic treatment

Syzygium oransbariense Mustaqim, Y.W.Low & Heatubun **sp. nov.** (Fig. 1).

Diagnosis: This species is similar to *S. longipes* (Warb.) Merr. & L.M.Perry but differs in having petioles that are 0.5–3.5 mm long (vs. 3–8 mm long in *S. longipes*), 3-flowered cymes, sometimes reduced to 1-flowered inflorescences (vs. thyrsoid racemiform inflorescences with 6 or more flowers in *S. longipes*), inflorescences exclusively shorter than the leaves (vs. inflorescence usually much longer than the leaves in *S. longipes*), peduncles shorter than a pair of bract-like or stipule-like leaves or cataphylls subtending at the base (vs. much longer peduncle in *S. longipes*), hypanthia (not including the stipe) 2–3.5 mm long (vs. 4–5 mm long in *S. longipes*), and shorter styles (9 mm long) (vs. 20 mm long in *S. longipes*).

Type: INDONESIA: New Guinea: Papua Barat Province: Manokwari Selatan Regency, Oransbari District, Wandoki, eastern side of the Arfak Mountains, 280 m asl, 4 Mar 2016, *Mustaqim* 1584 (holo: BO! iso: MAN!).

Etymology: The epithet is derived from the district name where the specimen was collected, namely the Oransbari District, Manokwari Selatan Regency.

Small *tree*, about 6 m tall. Bark smooth, greyish brown. Plants glabrous throughout. *Branchlets* 4-winged, wings gradually widened towards the apex of internodes. *Leaves* opposite, rarely alternate on short lateral branches; petioles 0.5–3.5 mm; blades discolorous, elliptic-lanceolate or slightly obovate, 4.5–12 × 0.9–3.6 cm, c. 3–5 times as long as wide, thickly papyraceous, attenuate or cuneate at the base, margins entire but slightly revolute when dry, apex caudate-acuminate; bract-like or stipule-like leaves or cataphylls associated with new growth and at base of inflorescence ovate-lanceolate, 1.5–2.5 × 0.3–0.5 cm, base cuneate to obtuse, rarely attenuate, apex long acuminate; midrib sunken above, raised beneath; secondary nerves 4–11 on each side of the midrib, diverging at 40–60°, obscure above, raised beneath; inner intramarginal veins 1–6.5 mm from the margin, outer intramarginal veins up to 1 mm from the margin. *Inflorescence* terminal on relatively short branches, 3-flowered cymes, subtended by a pair of reduced bract-like or stipule-like leaves or cataphylls at the base, and longer than the peduncle; peduncle 4-angled, 2–15 × c. 0.4 mm, floral bracts narrowly triangular, c. 1 mm, bracteoles subulate, c. 0.4 mm. *Hypanthium* obconical, 2.5–3 mm, pedicel c. 0.75 mm, whitish in vivo. *Sepals* 4, magenta, ovate-deltoid, c. 1 mm, obtuse at apex. *Petals* not seen (usually correlates to the number of sepals). *Stamens* numerous (over 100). *Style* white, cylindrical, 9 mm at anthesis, stigma truncate at the apex. *Fruit* pendulous, apparently only one developing into fruit, immature fruit creamy white tinged with red, sub-mature fruit red in the lower half whitish upward, sub-globose, c. 2.4 cm across when fresh, c. 1.5 cm across when dry, crowned by persistent sepals, style persistent, accrescent.

Distribution: New Guinea: Endemic to the Bird's Head Peninsula, Manokwari Selatan Regency, Oransbari District. Known only from the type locality (Fig. 2).

Habitat: On clayey soils, c. 280 m in humid and shaded valley forests.

Phenology: Flowers unknown. Fruits have been collected in March.

Conservation status: This species is here classified as Data Deficient (DD) based on the recommendations proposed under IUCN (2012). *Syzygium oransbariense* is known so far only from the type locality. The forests where this species was collected are undisturbed with no human activities recorded. However, this status requires reassessment as the surrounding areas have not been explored botanically.

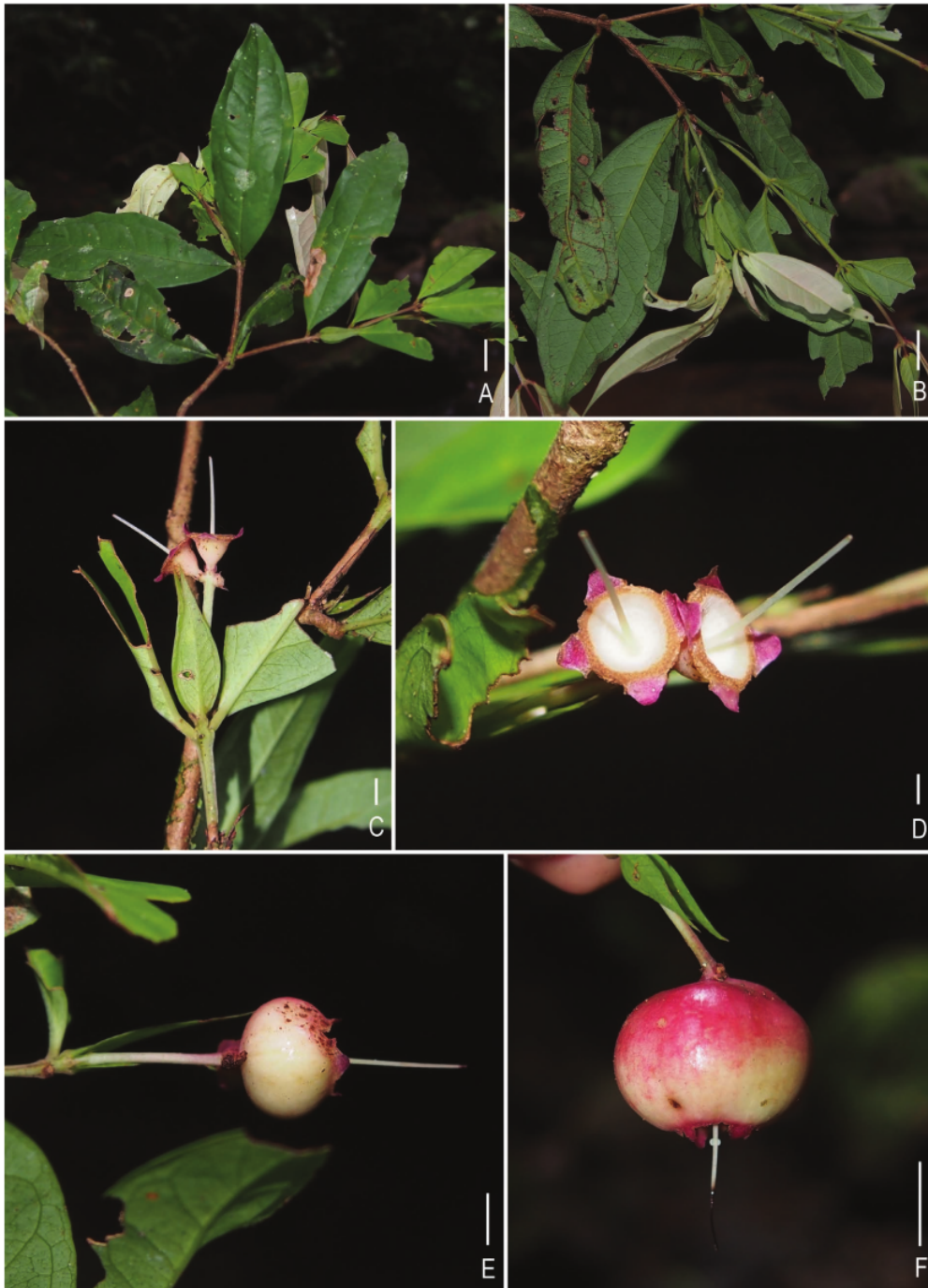


Fig. 1. *Syzygium oransbariense* Mustaqim, Y.W.Low & Heatubun. **A.** leafy twigs; **B.** leafy twigs showing the abaxial surface of the leaves; **C.** inflorescence showing flowers with stamens and corolla already detached; **D.** flowers showing the inner side of hypanthium, calyx lobes, and style; **E.** immature fruit; **F.** mature fruit. Scale: A–B = 1 cm, C = 2 mm, D = 1 mm, E = 5 mm, F = 1 cm. Photos: W.A. Mustaqim.

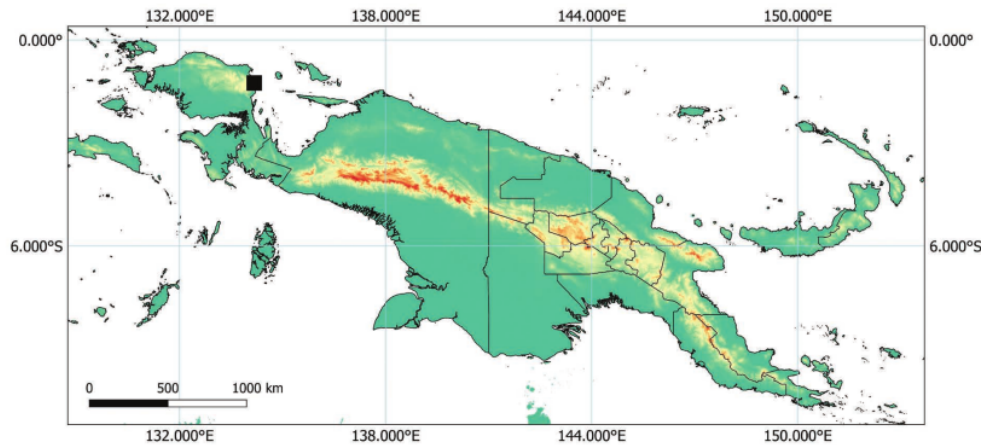


Fig. 2. Geographic distribution of *Syzygium oransbariense* (■).

Notes: *Syzygium oransbariense* is a member of the *Gelpkea* Blume (Blume 1850) group, here informally recognised, that includes a handful of congeners readily recognised by the presence of a pair of reduced bract-like or stipule-like leaves or cataphylls at the base of an inflorescence or new growth, as also noted by Hyland (1983) in *S. puberulum* Merr. & L.M.Perry. This trait is restricted to a few species in Eastern Malesia, namely New Guinea and Australia. *Syzygium oransbariense* differs from *S. longipes* in having 3-flowered or rarely reduced 1-flowered cymose inflorescences, shortly stalked hypanthia 2.5–3 mm, sepals *c.* 1 mm, and styles *c.* 9 mm. Another closely related species is *S. aeoranthum* (Diels) Merr. & L.M.Perry, it has a long-peduncled inflorescence with many flowers, similar to *S. longipes*. Both *Syzygium aeoranthum* and *S. longipes* are widespread in New Guinea, occurring in the lowland particularly under humid conditions to the foothill rainforests (Hartley and Perry 1973).

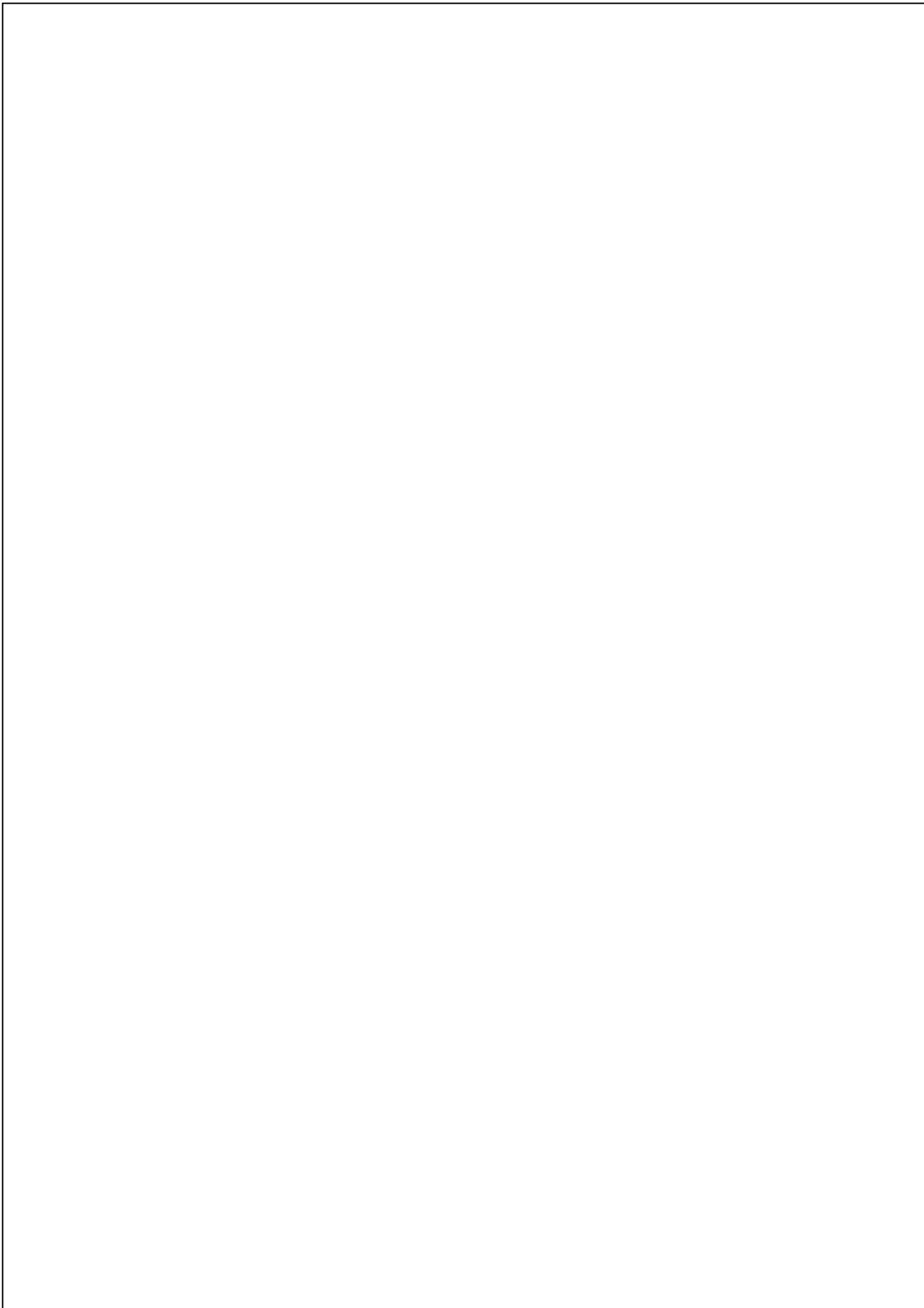
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