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# Flora of Singapore precursors, 10. Validation of *Mangifera paludosa* (Anacardiaceae) and notes on its distribution, ecology and conservation status in Singapore

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ABSTRACT. The name *Mangifera paludosa* Kosterm. ex S.K.Ganesan is validated and described. Notes on distribution, ecology and conservation status are given.

***Keywords.*** New species, nomenclature, valid publication

## Introduction

*Mangifera* L. comprises about 70 species of trees distributed throughout tropical Asia (Kostermans & Bompard, 1993). Its centre of diversity is Sundaland, with particularly high numbers of species in Peninsular Malaysia, Borneo and Sumatra. Twelve species are considered native to Singapore. These are extant in patches of primary lowland forests in Bukit Timah Nature Reserve and Central Catchment Nature Reserve. In addition, some of the species with more palatable fruits (e.g. *Mangifera caesia* Jack, *Mangifera foetida* Lour. and *Mangifera griffithii* Hook.f.) are found in areas associated with human habitation (i.e. former *kampung* lands). In preparing the account of *Mangifera* for the Flora of Singapore it was found that the name *Mangifera paludosa* Kosterm. had not been validly published. From the description of this species in Kostermans & Bompard (1993), and from examination of the available specimens, it is clear that *Mangifera paludosa* is nevertheless taxonomically distinct from other species of *Mangifera* and does require a name, a conclusion also reached by a number of other authors (i.e. Turner et al., 1997; Laumonier 1997). Here this name is validated and described, and notes on distribution, ecology and conservation status are given.

## Taxonomy

***Mangifera paludosa*** Kosterm. ex S.K.Ganesan, **sp. nov.**
This species is similar to *Mangifera parvifolia* Boerl. & Koord. in its small leaf size and in the flower having only one fertile stamen. However, it differs in that its inflorescence is glabrous (versus pubescent in *Mangifera parvifolia*) and its leaf apex is usually obtuse, emarginate or occasionally blunt acuminate (versus sharp acuminate or caudate in *M. parvifolia*). – TYPE: Singapore, Jurong, 5 March 1933, *E.J.H. Corner SFN 26193* (holotype SING [SING0045428]; isotypes A [0093751], K [K001315672],

L [L0686158], SING [SING0045427, SING0045429, Timber specimen no. 26193, Spirit specimen 2680 [SING0060149]). (Fig. 1,2)

***Tree*** up to 20 m tall; buttresses absent. ***Bark*** grey, cracked, slightly scaly with scattered pale lenticels (Fig. 2). ***Twigs*** slender, terete, grey, glabrous. ***Leaves*** spirally arranged, widely spaced; petiole concave above, 0.5–1.2 cm long, glabrous; blade coriaceous, usually elliptic, occasionally obovate, 4.5–6 × 2–3 cm, base obtuse or cuneate, apex usually obtuse, emarginate or occasionally blunt acuminate, margin entire, sub-revolute, midrib visible and prominent above and below, slender, c. 1 mm wide, with longitudinal lines when dry, secondary veins 7–9 pairs, slender, with short intermediary veins, reticulations faint, upper and lower surface glabrous. ***Inflorescences*** terminal and axillary, lax, up to 3 orders of branching, flowers sparse; peduncle slender, up to 10 cm long, c. 1 mm wide, with longitudinal lines when dry, glabrous, drying light brown; inflorescence branches with longitudinal lines when dry, glabrous, drying light-brown, up to 2 cm long; bracts early caducous, not seen but scars present; pedicels 2–3 mm long; flowers male or bisexual on same tree. ***Bisexual flowers*** fragrant; sepals 4, pubescent outside, glabrous inside, lobes triangular or awl-shaped, 2.5–3 × 1–1.5 mm; petals 4, cream-white when fresh, drying light-brown, lanceolate, 4.5–5 × 1–1.5 mm, glabrous, margin entire, strongly reflexed at mid-point, with 3 ridges inside; fertile stamen 1, protruding from the corolla, filament glabrous, free, 3–3.5 mm long, anther dorsifixed, oblong, 0.6–0.8 mm long, staminodes absent; disk pulvinate, slightly 4-lobed, glabrous, c. 1 mm long, c. 2.5 mm wide; ovary 1, glabrous, globose, c. 1 mm diameter, style eccentric, 3–3.5 mm long, stigma 1, capitate, style and stigma protruding from corolla. ***Male flower*** as above except pistil rudimentary, c. 1 mm long. **Drupe** [not seen, the following description is from Kostermans & Bompard, 1993] narrowly obovoid to ovoid, glabrous, up to 4 × 2 cm, ripening pale yellow.

*Distribution*. Southern Peninsular Malaysia, Singapore, Sumatra, Riau Islands, Bangka Islands (including distribution from Kostermans & Bompard, 1993).

*Ecology*. In Singapore in brackish swamp near mangrove. In Sumatra reported from freshwater swamp.

*Etymology*. *paludosa* (Latin) = swampy; probably alluding to the swampy habitat that the type specimen was collected from.

*Vernacular name.* None recorded.

*Provisional conservation assessment. Mangifera paludosa* has been assessed globally as Endangered A1c+2c ver 2.3 (World Conservation Monitoring Centre, 1998). In Singapore, it is only known from the type that was collected in Jurong in 1933. This locality is now mainly built up with no original habitat left. This species is most likely Nationally Extinct (NE) in Singapore.

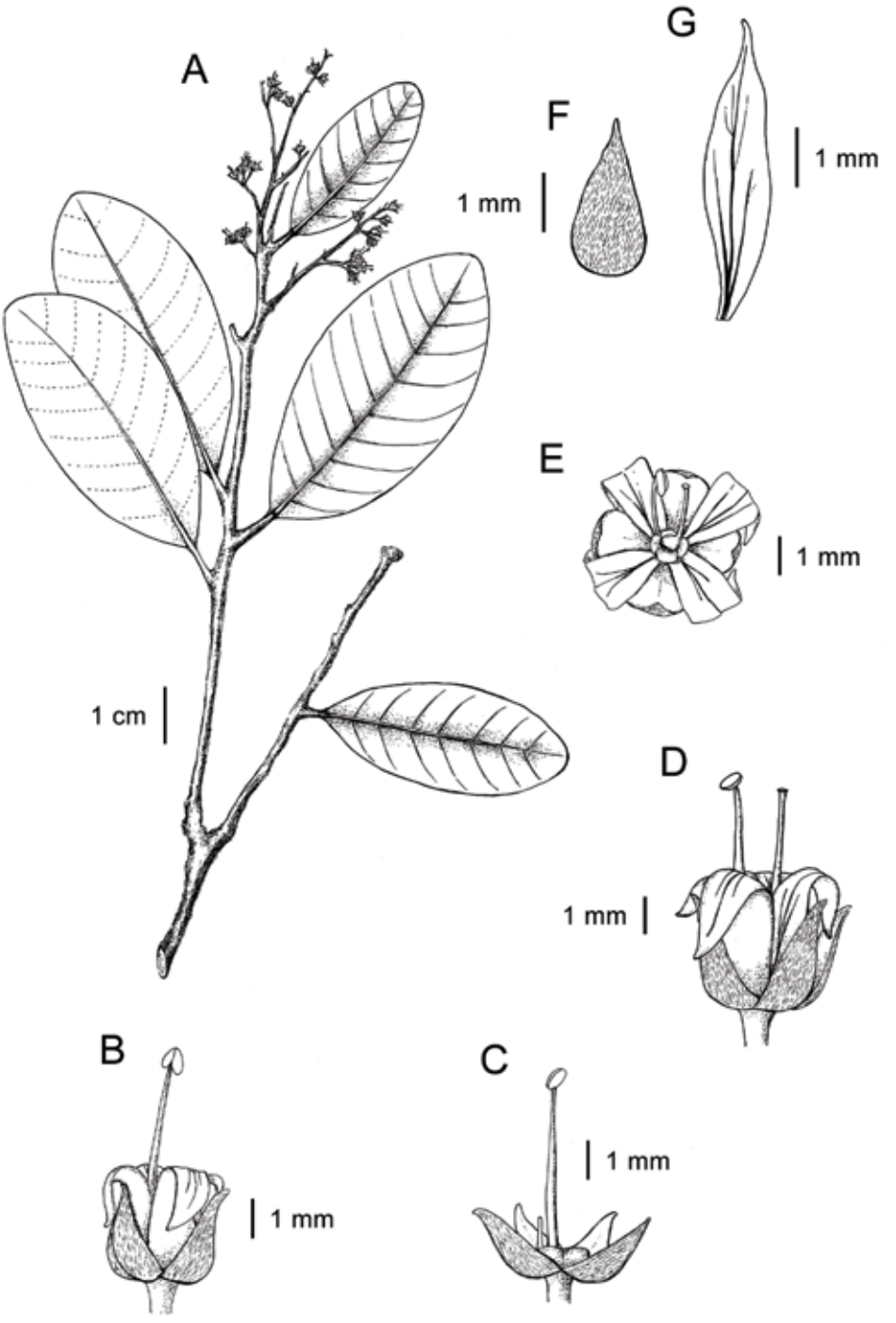


**Fig. 1.** *Mangifera paludosa* Kosterm. ex S.K.Ganesan. **A.** Flowering Twig. **B.** Male flower **C.** Male flower with petals removed. **D.** Bisexual flower. **E.** Bisexual flower (top view). **F.** Sepal (outside). **G.** Petal (inside). Drawn by Violette Chye from *E.J.H. Corner SFN 26193* (holotype, SING).


**Fig. 2.** Bark of *Mangifera paludosa* Kosterm. ex S.K.Ganesan, from timber specimen *Corner SFN 26193* (SING) isotype. (Photo: S.K. Ganesan)

*Additional specimens examined*. INDONESIA: **Sumatra:** Indragiri, Belimbing, 1 Jul 1939 (ster), *Neth. Ind. For. Service, bb. 28489* (SING [SING0251373]); ibid., Pagaroembei, 25 Oct 1938 (ster), *Neth. Ind. For. Service, bb. 26089* (SING [SING0251372]).

*Notes*. In Singapore, *Mangifera paludosa* can be confused with *Mangifera gracilipes* Hook f. However, the latter has leaves that are elliptic-lanceolate in shape, leaf apices that are sharply acuminate and fruits that are oblique in shape.

In the species description of *Mangifera paludosa* in Kostermans & Bompard (1993), Kostermans wrote "typus Corner SFN 26193 K, L, SING", i.e. designating duplicate specimens from the same gathering conserved in three herbaria without indicating which specimen was the holotype and which were the isotypes. This is contrary to Article 40.7 of the *International Code of Nomenclature for algae, fungi, and plants* (Turland et al., 2018), which requires that the single herbarium where the [holo]type is conserved be specified, and means that the name was not validly published. This name is validated here through the designation of a specimen in SING as the holotype.

There are three herbarium sheets of *Corner SFN 26193* in SING. All three bear the collector's (Corner) annotation "3 sheets" and "duplicates". I consider these duplicates rather than a single specimen over three sheets. In addition, the sheet SING0045427

contains reference by the collector to flowers in spirit and sheet SING0045429 contains reference to a timber specimen. These spirit and timber specimens are also isotypes.

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## References

Kostermans, A.J.G.H. & Bompard, J. (1993). *The Mangoes: Their Botany, Nomenclature, Horticulture and Utilization*. London/San Diego: International Board for Plant Genetic Resources/Linnean Society of London/Academic Press.

Laumonier, Y. (1997). *The Vegetation and Physiography of Sumatra.* Netherlands: Springer.

Turland, N.J., Wiersema, J.H., Barrie, F.R., Greuter, W., Hawksworth, D.L., Herendeen, P.S., Knapp, S., Kusber, W.-H., Li, D.-Z., Marhold, K., May, T.W., McNeill, J., Monro, A.M., Prado, J., Price, M.J. & Smith, G.F. (eds.) (2018). *International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code) adopted by the Nineteenth International Botanical Congress Shenzhen, China, July 2017*. Regnum Vegetabile 159. Glashütten: Koeltz Botanical Books. DOI https://doi.org/10.12705/Code.2018

Turner, I.M., Tan, H.T.W., Seah, E.E.L, Loo, A.H.B. & Ali Ibrahim (1997). Additions to the Flora of Singapore III. *Gard. Bull. Singapore* 49: 1–5.

World Conservation Monitoring Centre. (1998). *Mangifera paludosa. The IUCN Red List of Threatened Species 1998*: e.T32060A9678194. http://dx.doi.org/10.2305/IUCN.UK.1998.RLTS.T32060A9678194.