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VOLUME 1

P.S. Short & I.D. Cowie (eds)



MYRISTICACEAE

C.P. Mangion

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MYRISTICACEAE

C.P. Mangion

Evergreen *trees*, shrubs or rarely lianas, commonly dioecious, producing coloured sap. *Leaves* alternate, petiolate, simple, alternate and entire, occasionally with gland dots; stipules absent. *Flowers* unisexual, pedicellate, small, solitary or in axillary, extra-axillary or terminal inflorescences; bracts and bracteoles usually present. *Perianth* of 1 whorl only, with 2–5 fused sepaloïd segments, valvate in bud, urn-shaped or tubular. *Male flowers* lacking a vestigial gynoecium; fertile stamens 2–many; staminal filaments fused into a short column; anthers distinct or laterally connate, bisporangiate, unithecal, each dehiscing by an outward-opening, single longitudinal slit. *Female flowers* lacking staminodes; gynoecium a superior, sessile, 1-locular ovary with a sessile, bilobed stigma, the single ovule usually anatropous. *Fruit* with a fleshy or leathery pericarp, dehiscing along 2 sutures. *Seeds* usually large, endosperm copious; aril well developed.

Pantropical family variously stated to contain *c.* 15–20 genera and *c.* 400–500 species. In Australia two genera and four species are recognised, with both genera in the D.R.

The family includes the nutmeg tree, *Myristica fragrans*, from which the spices nutmeg (ground or entire seeds) and mace (the ground aril) are obtained. This, and seemingly the Australian species dealt with below, are dispersed by fruit-eating birds.

Taxonomic references: Cronquist (1981); Verdcourt (1997); Thiele & Adams (1999); de Wilde (2000); Wilson (2004); Jessup (2007).

- 1 Aril entire, totally covering white seed; flowers in axillary panicles
1: Aril web-like, not totally covering brown seed; flowers in fascicles

Horsfieldia
Myristica

HORSFIELDIA Willd.

Dioecious *trees*; twigs lenticellate. *Leaves* distichous; venation lax, never forming small reticulations. *Inflorescence* axillary, paniculate, flowers numerous. *Flowers* small, mostly with short pedicels; bracteoles absent; perianth 2–4-cleft. *Male flowers* with 2–many stamens; filaments connate and forming a short androphore with a central apical depression; anthers free or connate and adnate to the column. *Female flowers* slightly larger than male; ovary glabrous or pubescent; stigma small, sessile, deeply bilobed. *Fruit* globose or ellipsoid; pericarp leathery or somewhat fleshy, with or without lenticel-like tubercles; perianth sometimes persistent. *Seed* completely covered by an aril; endosperm with oil but no starch.

A genus of *c.* 100 species and distributed from India and Sri Lanka east to southern China, Malesia, the Caroline and Solomon islands and northern Australia. Represented in Australia by *H. australiana*.

Taxonomic references: de Wilde (2000); Jessup (2007).

H. australiana S.T. Blake

Tree to 20 m tall, slightly buttressed at the base, with brown closely fissured bark; branchlets at first slightly compressed and very minutely puberulous, soon becoming terete and glabrous, at length brown and finely fissured. *Petioles* 0.5–1.0 cm long. *Lamina* elliptic, 6–25 cm long, 2.8–8 cm wide, tapering gradually to the base and somewhat decurrent, apically obtuse to subacuminate; discolorous, glossy green above when fresh but dull and brownish on the dried specimens, paler beneath; veins obscure on the upper surface, midrib strongly raised on the lower surface, lateral veins in *c.* 12–15 pairs. *Flowers* in

clusters; glabrous or nearly so except for the obovate, concave bracts which are 1.5–3 mm long and to 2.4 mm wide; peduncles about 1–1.5 mm thick; pedicels 0.5–1.5 mm long. *Male inflorescence* *c.* 30–60 mm long; pedicels filiform; flowers rounded, 2–2.5 mm long, 2.2–2.5 mm wide, perianth bilobed to about the middle; staminal column nearly sessile; anthers *c.* 12, inflexed at the tips. *Female inflorescence* usually 15–25 mm long; pedicels thicker than in the male inflorescence; flowers nearly globular, 2.5–3 mm diam.; ovary ovoid, glabrous. *Fruit* ellipsoidal, *c.* 40 mm long and 25 mm wide when fresh; pericarp yellowish when ripe, dehiscent and exposing an orange to

red aril totally covering the white seed. *Flowering*: Aug.–Nov. *Fruiting*: Aug.–Feb.

Fig. 1 (*Booth* 220; *Wightman* 162); Pl. 1 (unvouchered).

Endemic to northern Australia (N.T., Qld). Localities in the D.R. included Holmes Jungle, Berry Springs, Channel Point and Fogg Dam.

Common in wet monsoon and gallery forest on a variety of soils.

Seeds can be eaten raw, having a mild coconut taste. As well as eating the fruit some Aboriginal people use the bark for making baskets (e.g. *Puruntatameri et al.* 2001).

MYRISTICA Gronov.

Dioecious *trees*; twigs lenticellate. *Leaves* usually distichous and discolorous. *Inflorescence* axillary, subumbellate cymes or fascicles. *Flowers* pedicellate; bracteole mostly persistent, often apical and embracing the perianth; perianth 3-cleft. *Male flowers* with 8–30 stamens; filaments connate and forming an androphore; anthers connate and adnate to the column and forming a synandrium. *Female flowers* larger and more swollen than the male; ovary glabrous or hairy; stigma sessile and minutely bilobed. *Fruit* globose to oblong or pyriform; pericarp thick, firm and leathery. *Seeds* covered with an orange or red, lacinate (web-like) aril which is nearly divided to the base; endosperm with oil and starch.

A genus of *c.* 80 species; distributed from southern India east to Malesia, Australia and Fiji, with the greatest diversity in New Guinea. Three native species in Australia, with two in the N.T. The commercial nutmeg, *M. fragrans*, is also cultivated in Australia.

Taxonomic references: Jessup & de Wilde (1993); de Wilde (2000); Jessup (2007).

- 1 Perianth with persistent tomentum; fruit with persistent tomentum, hairs 0.1–1 mm long; areoles on underside of leaf less than 2 mm diam. **M. insipida** var. **insipida**
- 1: Perianth with sparse hairs 0.1 mm long or less, usually largely glabrescent; fruit mostly glabrescent, with minute tomentum, hairs 0.1 mm long or less; areoles on underside of leaf not less than 2 mm diam. **M. lancifolia** subsp. **australiana**

M. insipida R. Br. var. **insipida**

Tree 6–20 m tall. *Leaves* distichous. *Petioles* 0.6–1.4 cm long, glabrous. *Lamina* ovate to broadly lanceolate, 5–20 cm long, 2–7 cm wide, discolorous, base attenuate, tip acute to acuminate, with minute scattered greyish appressed hairs, glabrescent; nerves 6–14 pairs, nerves above faint, flat or sunken, raised beneath, mostly alternate to sub-opposite. *Male inflorescence* 2–10-flowered; pedicels 2–4 mm long; bracteoles to 1.5 mm long, persistent or late caducous; perianth 4.5–6 mm long, 2–3 mm wide, with persistent tomentum; androphore glabrous. *Female inflorescence* 1–4-flowered, flowers and pedicels mostly with persistent tomentum; pedicels to 1 mm long; perianth *c.* 4 mm long, 3 mm wide. *Fruit* broadly ellipsoid, 25–40 mm long, 15–20 mm wide, base rounded, apex acute or with beak up to 1–2.5 mm long, hairs to 1 mm long and forming a dense, sometimes woolly, tomentum but becoming glabrescent with hairs only left in the depressions of dried fruit. *Seed* ellipsoid, 20–25 mm long,

the brown coat visible through the web-like orange to red aril. *Fruiting*: all months.

Fig. 1 (*Booth* 85; *Tracey* 14044); Pl. 2 (unvouchered).

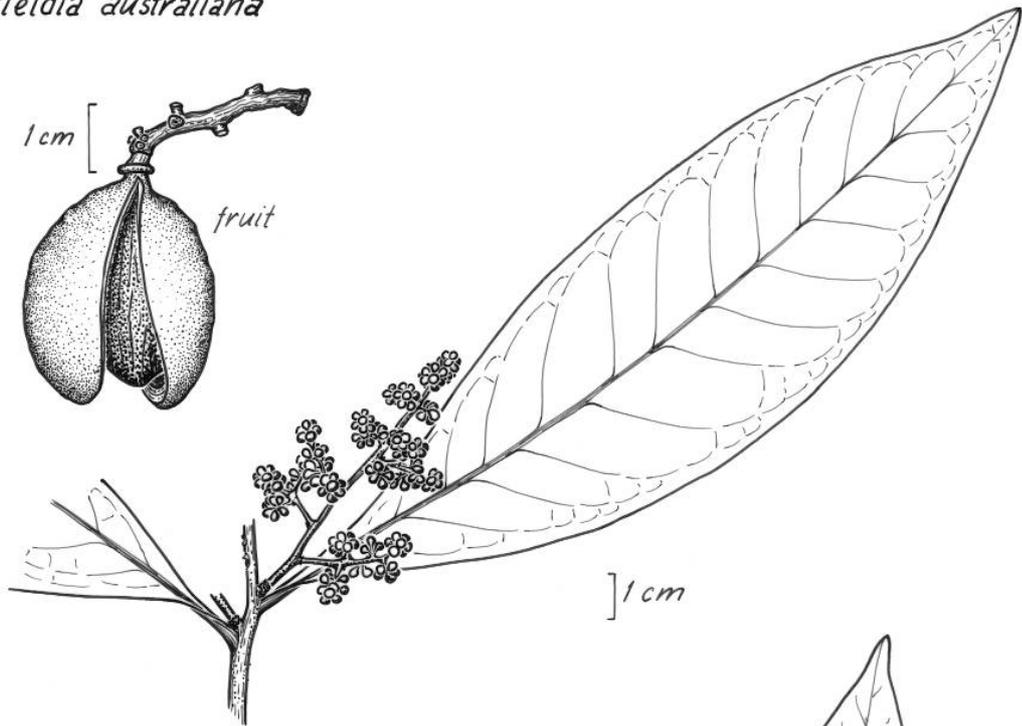
Northern Australia (W.A., N.T., Qld). Localities in the D.R. include Snake Bay, Berry Springs and coastal cliffs around Darwin Harbour. Occurs in a variety of fire-protected habitats, including evergreen monsoon forest, sandstone scree slopes and coastal thickets on sand or laterite. Seeds can be used as substitute for nutmeg.

M. lancifolia subsp. **australiana**

Jessup & W.J. de Wilde

Tree 6–20 m tall. *Leaves* distichous. *Petioles* 0.6–1.2 cm long, glabrous. *Lamina* ovate to lanceolate, 5–24 cm long, 2–8 cm wide, widest at or usually below the middle, discolorous, base attenuate, tip acute to acuminate, with minute scattered greyish appressed hairs, glabrescent; nerves 13–20 pairs, nerves above faint, flat or sunken, only slightly raised beneath, mostly sub-opposite to opposite,

Horsfieldia australiana



Myristica

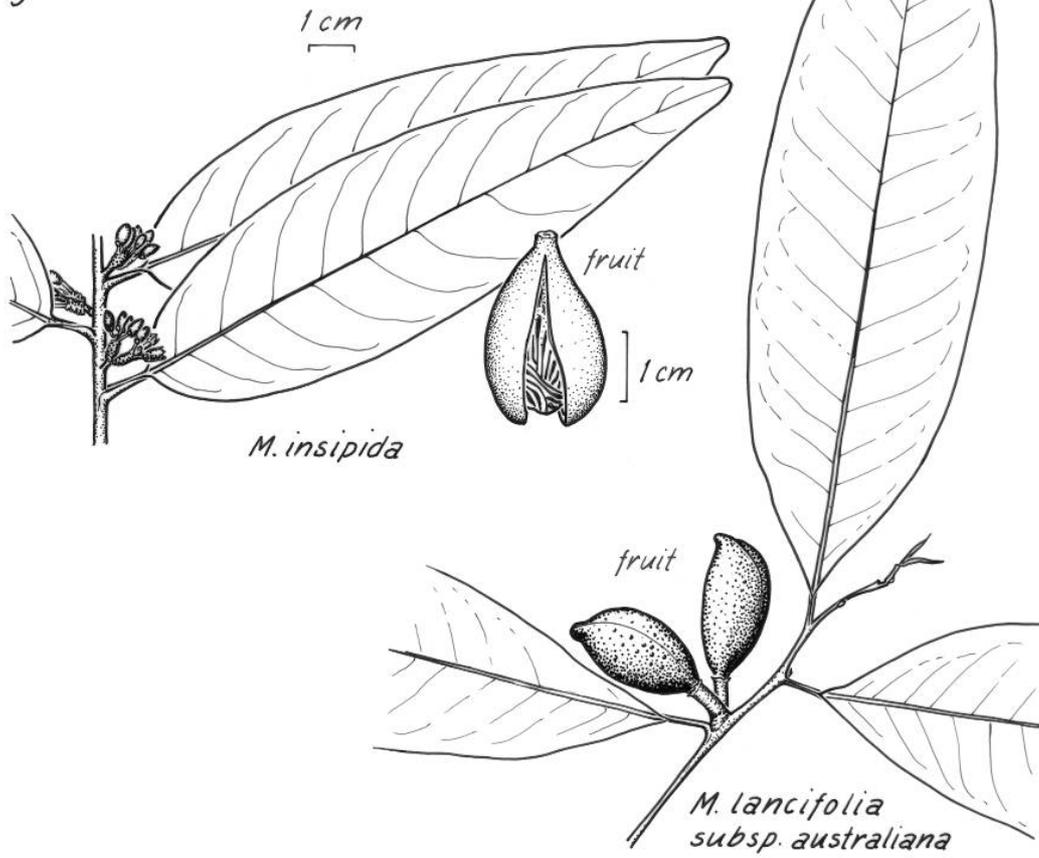


Fig. 1

tertiary venation and marginal arches faint or invisible. *Male inflorescences* 2–10-flowered, bracts minute, caducous; pedicels slender, 3–5 mm long; bracteole rounded; perianth 5–6 mm long, 2–2.5 mm wide; androphore glabrous. *Female inflorescences* 1–4-flowered, flowers mostly glabrescent but with minute hairs remaining towards the top of the perianth and on the pedicel, bracteole small, persistent, minutely pubescent; pedicels 2–5 mm long, 0.8–1 mm wide and nearly as long as the perianth, bracteole broadly rounded, 0.5–1 mm long; perianth ovoid, narrowed towards the top, *c.* 4.5 mm long, 3 mm wide, densely and minutely appressed pubescent with pale hairs. *Fruit* broadly ellipsoid, 22–30 mm long, 15–17 mm wide, base rounded, top narrowly rounded or acute or the remnant stigma forming a beak up to 1.5 mm long; pericarp largely glabrescent, with a minute

tomentum of rusty scurfy scales and with some longer hairs persisting at apex. *Seed* ellipsoid, 17–20 mm long, the brown seed coat visible through the web-like orange to red aril. *Flowering*: Feb.–June. *Fruiting*: May–Nov.

Fig. 1 (Russell-Smith 5821; Wightman 305).

Endemic to the N.T, where it is confined to the western Top End. Localities include Black Jungle, Jarong Spring and Tarracumbie Falls. Occurs in perennially moist, monsoon rainforest on a variety of soils.

Myristica lancifolia, as revised by de Wilde (2000), consists of four subspecies, with only subsp. *australiana* in Australia and the remaining three in Malesia.

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Pl. 1 *Horsfieldia australiana* (Photo: J. Brock)



Pl. 2 *Myristica insipida* var. *insipida* (Photo: J. Brock)