A taxonomic revision of Sapotaceae for mainland Australia

L.W. Jessup

Summary

Jessup, L.W. (2019). A taxonomic revision of Sapotaceae for mainland Australia. ***Austrobaileya* 10(3): 321–382.** A taxonomic account of Sapotaceae for mainland Australia is provided along with descriptions and keys to the genera and species of native and naturalised taxa of the family. Australia has ten genera (*Amorphospermum* F.Muell., *Donella* Pierre ex Baillon, *Manilkara* Adans., *Mimusops* L., *Niemeyera*, *Palaquium* Blanco, *Planchonella* Pierre, *Pleioluma* (Baill.) Baehni, *Sersalisia* R.Br., *Van-royena* Aubrév.) with 36 native species, including one subspecies and one variety, and one introduced and naturalised genus (*Chrysophyllum* L.) with two species.Three new species from Queensland are described and illustrated: *Pleioluma ferruginea* Jessup, *P. pilosa* Jessup and *Niemeyera discolor* Jessup, and two new combinations made, *Planchonella myrsinifolia* subsp. *howeana* (F.Muell.) Jessup and *Sersalisia obpyriformis* (F.M.Bailey) Jessup. Lectotypes are chosen for the names *Achras brownlessiana* F.Muell., *A. xerocarpa* F.Muell. ex Benth. and *Bassia galactoxyla* F.Muell. and a neotype for *Lucuma obpyriformis* F.M.Bailey.

Key Words: Sapotaceae; Australia flora; *Amorphospermum*; *Chrysophyllum*; *Donella*; *Manilkara*; *Mimusops*; *Niemeyera*; *Niemeyera discolor*; *Palaquium*; *Planchonella*; *Planchonella myrsinifolia* subsp. *howeana*; *Pleioluma*; *Pleioluma ferruginea*; *Pleioluma pilosa*; *Sersalisia*; *Sersalisia obpyriformis*; *Van-royena*

Laurence W. Jessup, c/o Queensland Herbarium, Department of Environment and Science, Brisbane Botanic Gardens, Mt Coot-tha Road, Toowong, Queensland 4066, Australia. Email: laurence.jessup@des.qld.gov.au

Introduction

The taxonomy of the family Sapotaceae at the level of genus and above has for a long time been the subject of much disagreement, mainly due to morphological character variation. Pennington (1991) summarised the taxonomic history of the family which included work by Lam (1925, 1939), Baehni (1942, 1965), van Royen (1957), Herrmann-Erlee & van Royen (1957), Vink (1958) and Aubréville (1964). Pennington (1991) collaborated with others who examined and reviewed the cytology, palynology and chemistry of a significant representative cross section of the family and presented a classification of the family based on five tribes and 53 genera. More recent phylogenetic analyses using molecular data have shown that morphological homoplasy is common throughout the family but analyses using both molecular data and selected morphological characters (Anderberg & Swenson 2003; Swenson & Anderberg 2005) have identified three subfamilies, two of which, the *Sapotoideae* Eaton and the *Chrysophylloideae* Luerss., are represented by species in Australia. The *Sapotoideae* are represented by the genera *Mimusops* L. and *Manilkara* Adans. in the tribe *Sapoteae* Rchb. and *Palaquium* Blanco in the tribe *Isonandreae* Hartog. These are distinguished by the presence of a biseriate calyx (Gautier *et al*. 2013). The *Chrysophylloideae* have been extensively studied in recent years (Swenson *et al*. 2007a, 2007b, 2008a, 2008b, 2013; Triono *et al*. 2007) with the result that several genera in Australia and the Western Pacific (including New Caledonia) have been reinstated following their previous inclusion in *Pouteria* Aubl., a genus of the New World tropics. The Australian representatives of this group include the genera *Planchonella* Pierre, *Pleioluma* (Baill.) Baehni, *Sersalisia* R.Br. and *Van-royena* Aubrév. The genus *Donella* Pierre ex Baillon was reinstated by Mackinder *et al*. (2016) and is recognised here as distinct from New World *Chrysophyllum* L. It was represented as Clade D in Swenson *et al*. (2008b) in their Bayesian majority-rule consensus tree which was based on

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combined sequence data from the chloroplast and nuclear genomes and morphological data. *Amorphospermum* F.Muell. was included in *Niemeyera* by Pennington (1991) and both genera were earlier placed under *Chrysophyllum* by Vink (1958). Based on molecular data, *Amorphospermum* is strongly supported as the sister taxon to *Niemeyera* F.Muell. and is here recognised as a distinct genus, following the work of Swenson *et al*. (2013).

This account is restricted to Sapotaceae that occur on mainland Australia and associated islands, but excludes those found only in Australian territories or Oceanic islands (i.e. *Planchonella costata* (Endl.) H.J.Lam and *P. nitida* (Blume) Dubard), that have been previously covered in *Flora of Australia* accounts by Du Puy (1993) and Green (1994). One subspecies in *Planchonella* (*P. myrsinifolia* subsp. *howeana* (F.Muell.) Jessup) from Lord Howe Island, is however, dealt with here as part of the account for that species.

Materials and methods

This account is based on specimens in herbarium collections in BM, BRI, CANB, CNS (previously QRS), DNA, E, G, K, L, MEL, NSW, P, PERTH and US and some field observations by the author. All specimens cited have been seen by the author or in a few cases as high resolution images. Descriptions of flowers were prepared from material preserved in FAA or 70% alcohol and glycerol or reconstituted by briefly boiling in water. The descriptions of fruit were prepared from both dried and alcohol preserved material. The seed length is measured in the same direction as the fruit length i.e., from the basal or pedicel end to the stylar end, next the seed width is measured from the adaxial or ventral surface to the abaxial or dorsal surface and this is followed by the width at right angles to the other two.

Common abbreviations in the specimen citations are FR (Forest Reserve), LA (Logging Area), Mt (Mountain), NP (National Park), SFR/SF (State Forest Reserve/State Forest), TR (Timber Reserve). Apart from types, only additional specimens from the Australian occurrence of non-endemic species are cited. Rainforest typology largely follows the classification scheme of Webb (1978).

Bibliographic information pertaining to generic synonyms that have not been applied to Australian taxa can be sourced in Govaerts *et al*. (2001). Vernacular names that are commonly listed for taxa (e.g. Francis 1951; Harden *et al*. 2013) are provided where there is clear application.

Taxonomy

Sapotaceae A.Juss., *Gen. Pl*. 151 (1789).

Trees or shrubs with latex. Indument of 2-branched hairs, variously prostrate to erect. Leaves alternate or (not in Australia) opposite, coriaceous or subcoriaceous, mostly entire; venation (in Australia) mostly brochidodromous or eucamptodromous, or a combination of the two; stipules present or absent. Flowers solitary or in axillary cymose fascicles, rarely paniculate, regular, hypogynous, often bracteolate; sepals (4–)5(–12), (imbricate) usually quincuncial, or sometimes in 2 cycles of 2, 3, or 4; corolla sympetalous, with 4–8 imbricate lobes; stamens epipetalous, in 1–3 whorls, staminodes present or absent; anthers with longitudinal slits, extrorse; gynoecium of 2–14 (–30) carpels, syncarpous, ovary plurilocular with axile or axile-basal placentation; style single, undivided, frequently with small stigmatic surfaces at the tip or simple without visible stigmatic areas; ovules 1 per carpel, anatropous to hemitropous, apotropous. Fruit a fleshy or sclerenchymatous berry; seeds with a shiny and usually thick and hard testa and a small basal or larger lateral scar of attachment (hilum) which may be narrow and elongate or broad and extending over much of the seed surface and extending from less than 80% to 100% of the seed length; embryo large, with exserted radicle, thin and flat cotyledons, enclosed in a well-developed, oily, fleshy or hard endosperm, or with included radicle, thickened cotyledons and without endosperm at maturity. x = 7, 9–13.

The family includes approximately 60 to 80 genera and at least an estimated 1300 described species (Swenson, pers. comm.; Faria *et al*. 2017), widespread in tropical and subtropical parts of both the Old and the New World. Australia has ten genera with 36 native species, including one subspecies and one variety, and one introduced and naturalised genus (*Chrysophyllum*) with 2 species. The genera are arranged by subfamily and tribe in this account to emphasize the morphological characters defining these groups. An overall key to genera based primarily on floral characters is provided.

Key to Subfamilies of Sapotaceae in Australia

1 Calyx biseriate in 2 whorls of 2–4 sepals; corolla lobes divided . . . **Subfam. Sapotoideae**
1. Calyx a single whorl of 4, 5 or 6 sepals; corolla lobes and stamens mostly same number as sepals (up to 8 in *Amorphospermum*); corolla lobes undivided . . . **Subfam. Chrysophylloideae**

Key to genera of Sapotaceae in Australia

1 Calyx biseriate; stipules frequently present . . . **2**
1. Calyx uniseriate; stipules absent . . . **4**

2 Staminodes present; corolla a single whorl, lobes usually with appendages or divided into segments . . . **3**
2. Staminodes absent; corolla lobes without appendages or distinct segments . . . **3. Palaquium**

3 Sepals 8 in 2 whorls; corolla lobes 8, each divided into 3 segments; stamens and staminodes 8 each, pilose; seed scar circular or elliptic . . . **1. Mimusops**
3. Sepals usually 6 in 2 whorls; corolla lobes usually 6 and divided to the base into 3 segments; stamens and staminodes usually 6 each, staminodes glabrous; seed scar elongate . . . **2. Manilkara**

4 Corolla with spreading, recurved or revolute lobes; stamens exserted; style without discrete stigmatic areas . . . **5**
4. Corolla with more or less erect lobes; stamens included; style with more or less discrete stigmatic areas . . . **6**

5 Venation eucamptodromous; tertiary leaf venation oblique between secondaries or from a secondary vein running more or less perpendicular to the midvein; quaternary venation reticulate and mostly visible below; seed testa papery . . . **4. Niemeyera**
5. Venation brochidodromous, tertiary leaf venation descending from margin, parallel to secondary veins; quaternary venation ± obscured below by persistent indumentum; seed testa woody or bony . . . **5. Amorphospermum**

6 Staminodes present, each inserted at the sinus between the corolla lobes . . . **7**
6. Staminodes absent . . . **10**

7 Tertiary and higher order venation finely areolate (**Fig. 1**) . . . **8**
7. Tertiary venation often parallel to and reticulate between secondary veins, never areolate (**Fig. 2**) . . . **9**

8 Stamens inserted at or below the middle of the corolla tube; cotyledons foliaceous, endosperm present . . . **7. Pleioluma**
8. Stamens inserted in or just below the corolla tube orifice; cotyledons plano-convex, endosperm absent . . . **9. Sersalisia**

9 Stamens inserted near middle of corolla tube . . . . . **6. Van-royena**
9. Stamens inserted above the middle of the corolla tube and usually just below the corolla tube orifice . . . . . **8. Planchonella**

10 Leaves glabrescent to glabrous below; stamens inserted in the lower half of the corolla tube . . . . . **10. Donella**
10. Leaves densely and permanently rufous-tomentose below; stamens inserted at the top of the corolla tube . . . . . **11. Chrysophyllum**

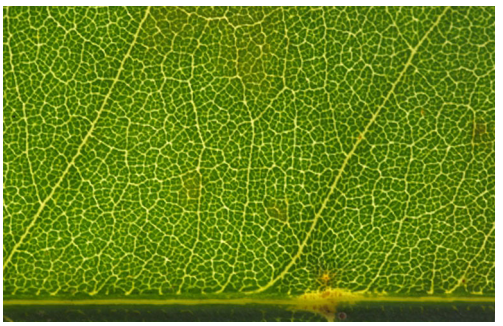

Fig. 1. Areolate tertiary and higher order venation in ***Pleioluma queenslandica*** (no voucher).

Fig. 2. Parallel and reticulate tertiary venation in ***Planchonella australis*** (no voucher).

Subfamily Sapotoideae Eaton, *Bot. Dict.*, ed. 4: 35 (1836).

Tribe Sapoteae Rchb., *Handb. Nat. Pfl.-Syst.* 214 (1837).

Calyx of 2 whorls of 2, 3 or 4 free sepals; corolla lobes divided; stamens 6, 8 or 12; staminodes present.

1. MIMUSOPS

Mimusops L., *Sp. Pl.* 349 (1753). **Type species:** *M. elengi* L. (lecto: *fide* Britton & Millspaugh 1920: 324).

Trees or shrubs. Leaves spirally arranged; venation brochidodromous; stipules often present, caducous. Flowers bisexual, axillary, solitary or fasciculate. Calyx of 2 whorls of 4 free sepals, the outer whorl valvate. Corolla tube much shorter than the corolla lobes; lobes 8, divided to the base into 3 segments; median segment clasping the stamen, sometimes inflexed against the style; lateral segments spreading, entire or deeply divided. Stamens (7–)8, in a single whorl, inserted at top of corolla tube; filaments free or partially fused to the staminodes; anthers extrorse. Staminodes 8, alternating with the stamens, inflexed and often forming an envelope round the gynoecium. Ovary (7–)8-locular, style exserted or not. Fruit with 1 to several seeds, seed scar small, basal, often circular or elliptic. Cotyledons foliaceous, radicle exserted, endosperm copious.

The genus consists of about 20 species in Africa, 15 in Madagascar, four in the Mascarenes, one in the Seychelles, and one in Asia, the Pacific Islands and Australia.

Mimusops elengi L., *Sp. Pl.* 349 (1753). **Type:** not designated.

Mimusops parvifolia R.Br., *Prodr. Fl. Nov. Holland.* 531 (1810); *M. elengi* var. *parvifolia* (R.Br.) H.J.Lam, *Bull. Jard. Bot. Buitenzorg*, sér. 3, 7: 236 (1925). **Type:** [Queensland. Cook District]: Carpentaria, Coen River [Pennefather River], 6 November 1803, *R. Brown* [*Bennett no. 2826*] (syn: BM); North Coast, East Coast, *s.dat.*, *R. Brown s.n.* (syn: E, K, P).

***Illustrations*:** Cooper & Cooper (2004: 506); Hyland *et al.* (2010).

Shrubs or trees to 25 m. Twigs tomentose. Leaves with petiole 10–20(–25) mm long, tomentose; lamina elliptic or oblanceolate, 3–10 cm long, 1.6–6 cm wide, apex acuminate, obtuse or acute, base shortly attenuate or acutely cuneate, glabrous above, glabrescent or persistently hairy below; midvein raised above leaf blade; secondary veins 10–20 pairs. Flowers in fasciculate inflorescence; pedicel 7–20 mm long, reddish-brown tomentose. Sepals lanceolate or narrowly triangular, 7–9 mm long, acute, on outside densely tomentose, on inside tomentose and glabrous towards base. Corolla lobes triangular (each lobe divided to the base into 3 triangular lobes), 5.5–8 mm long, acute, entire. Stamens 8, 5–7 mm long. Staminodes linear. Ovary pilose; style terete, 5–6.5 mm long, glabrous. Fruit broadly ovoid, glabrous or nearly so, fleshy, 1.5–2.2 cm long, 1.5–1.8 cm wide. Seeds 1–2(–3), ellipsoid, compressed, 13–14 mm long, 8.5–9.5 mm wide, 6–7 mm thick; testa brown.

***Additional selected specimens examined*: Western Australia.** 7 km SW of Martins Well, Dampierland, N of Broome, Apr 1977, *Kenneally 6184* (PERTH); Dampier Peninsula, Ilan (between Gnamagun Mill and coast), Jun 1984, *Forbes 2452 & Kenneally* (BRI, L); Bathurst Island, Buccaneer Archipelago, W Kimberley coast, Aug 1982, *Kenneally 8507* (CANB, PERTH); Eastern Walcott Inlet, West Kimberley, May 1983, *Milewski 72* (BRI); Cape Leveque, Gnamagan Well, Apr 1988, *Dunlop 7803* (BRI). **Northern Territory.** Channel Island, Darwin Harbour, Feb 1972, *Byrnes 2371* (BRI, CANB); Gunn Point, Jan 1985, *Wightman 1800* (BRI, CANB, K); Murgenella area, 3 km NW of Laterite Point, Oct 1987, *Dunlop 7122* (BRI, MEL); Crocodile Creek, Gove Peninsula, Feb 1988, *Russell-Smith 4656 & Lucas* (BRI); Marchinbar Island, Wessel Islands, Dec 1987, *Russell-Smith 4456 & Lucas* (BRI, MEL). **Queensland.** Cook District: Portland Roads, Jan 1982, *Hyland 11547* (BRI); Turrel Hill, Macrossan Range, Silver Plains, Jun 1998, *Forster PIF23086 et al.* (BRI); 0.5 km from Lakeland Downs to Cooktown Road, on road to Helenvale, Mar 1987, *Clarkson 6777 & McDonald* (BRI); Wangetti Beach FR, Jan 2009, *Costion 1598* (BRI). North Kennedy District: Cape Cleveland NP, Feb 1992, *Forster PIF9662 & Bean* (BRI); Bowen golf links, Mar 1983, *Anning A579* (BRI). South Kennedy District: R60 Ossa, Cape Hillsborough, May 1975, *Hyland 4281RFK* (BRI); Lindeman Island, Nov 1985, *Batianoff 3324 & Dalliston* (BRI); Calder Island, 60 km NE of Mackay, May 1992, *Halford Q1227 & Crombie* (BRI); Turtle Bay, Carlisle Island, 35 km N of Mackay, Sep 1986, *Sharpe 4402 & Batianoff* (BRI). Port Curtis District: W Coast of Shoalwater Bay, near Mooly Creek, Apr 1945, *Blake 15596* (BRI); Shoalwater Bay Training Area, site SW02, 10 km SE of Sabina Point, Sep 1993, *McDonald 5668 & Melzer* (BRI).

***Distribution and habitat*:** *Mimusops elengi* occurs across coastal, tropical northern Australia from north of Broome, Western Australia, to north of Shoalwater Bay, Queensland (**Map 1**). It is found in coastal vine thickets, gallery forests and near mangroves. It also occurs in Asia, Malesia and on Pacific islands.

***Phenology*:** Flowers have been recorded from October to June, and fruit from May to October.

2. MANILKARA

Manilkara Adanson (*nom. cons.*), *Fam. Pl. (Adanson)* 2: 166 (1763). **Type:** *M. kauki* (L.) Dubard.

Shrubs or trees. Leaves spirally arranged; venation brochidodromous; stipules absent or present (not in Australia). Flowers mostly bisexual, axillary. Calyx of two whorls of (2–)3(–4), free or shortly united sepals. Corolla lobes 6(–9, not in Australia), usually divided to near the base into 3 segments; median segment usually erect, sometimes clawed, clasping the stamen; two dorso-lateral segments erect or spreading, entire or divided. Stamens 6(–12, not in Australia) in a single whorl usually inserted at top of corolla tube; filaments free or partially fused with the staminodes, anthers extrorse. Staminodes usually present and alternating with stamens, usually erect and divided in one way or another at apex. Disk annular, small or absent. Ovary 6–8(–14)–locular, style exserted. Fruit 1–several-seeded; seed scar elongate, basiventral. Cotyledons foliaceous, radicle exserted; endosperm copious.

A pantropical genus of 30 species in America, *c.* 20 species in Africa and Madagascar and *c.* 15 species in Asia and the Pacific, and two species in Australia. The Asian-Pacific species of the genus have recently been revised by Armstrong (2013).

Key to species of *Manilkara* in Australia

1 Lamina appressed tomentose on underside; sepals 6–7.5 mm long; style 8–9.5 mm long; fruit 2.5–3.7 cm long, 1.8–3.3 cm wide . . . . . **1. M. kauki**

1. Lamina glabrous; sepals 8.5–12 mm long; style 13–16 mm long; fruit 5–6 cm long, 4–4.5 cm wide . . . . . **2. M. kanosiensis**

1. Manilkara kauki (L.) Dubard, *Ann. Mus. Colon. Marseille* ser.3, 3: 9 (1915); *Mimusops kauki* L., *Sp. Pl.* 349 (1753). **Type:** "Habitat in Zeylona", *s.dat.*, *P. Hermann s.n.* (lecto: BM, image!; *fide* Trimen 1895: 87).

Mimusops kauki var. *browniana* A.DC., *Prodr. Fl. Nov. Holland.* 8: 203 (1844); *Mimusops browniana* (A.DC.) Benth., *Fl. Austral.* 4: 285 (1868). **Type:** New Holland, *s.dat.*, *R. Brown s.n.* (holo: BM).

***Illustrations*:** Lam (1941); Cooper & Cooper (2004: 505); Hyland *et al.* (2010).

Shrubs or trees, to 20 m. Twigs tomentose, glabrescent. Leaves with petiole 5–25 mm long, tomentose or pubescent, channelled above; lamina obovate or broadly elliptic, 3–9 cm long, 2–5.5 cm wide, apex rounded, obtuse or emarginate, base cuneate, glabrescent above, persistently appressed tomentose below; margins slightly recurved; secondary veins 11–20 pairs. Flowers fasciculate; pedicels 15–20 mm long, sericeous or tomentose. Sepals ovate or triangular, 6–7.5 mm long, 3–4.5 mm wide, acute, inner whorl only slightly smaller than outer; appressed tomentose outside, less densely so inside, nearly glabrous at base. Corolla tube 1.5–3 mm long, lobes 4.5–7 mm long, narrowly ovate, oblong or lanceolate. Stamens 6, filaments 2–3 mm long, anthers 2.5–3.7 mm long. Staminodes ovate, acuminate, 3.5–5 mm long, often with dentate margin and bifid at apex. Ovary conical, pubescent; style cylindrical, 8–9.5 mm long, glabrous. Fruit broadly ovoid, ellipsoid or obovoid, 2.5–3.7 cm long, 1.8–3.3 cm wide, glabrous or nearly so, fleshy or dry, mostly with 1–3 seeds. Seeds obovoid, compressed, 16–18 mm long, 12–14 mm wide, 7–10 mm thick, testa light brown.

***Additional selected specimens examined*: Queensland.** Cook District: Dauan [Island] SW side, Apr 2003, *Wannan 4036* (BRI); Deliverance Island, Torres Strait, May 1999, *Waterhouse BMW5362* (BRI); Near boat ramp, Stephen Island, Torres Strait, Apr 2005, *Hucks LAH281* (BRI); Coconut Island, Aug 1994, *Wannan 45* (BRI); Sue Island, Oct 1981, *Clarkson 3947* (BRI); Somerset, May 1948, *Brass 18800* (BRI, CANB, K, L); Evans Bay, 26 km NE of Bamaga, Feb 1994, *Fell DGF3897 et al.* (BRI); *c.* 2 km S of first creek N of Vrilya Point, Aug 1981, *Morton AM1435 & Godwin* (BRI); Bolt Head, Temple Bay, Jun 1996, *Forster PIF19330* (BRI); Temple Bay, S of Bolt Head, Sep 2004, *Sankowsky 2523 & Sankowsky* (BRI); Beach, 3 km SSE of Kennedy Hill, 'Bromley', Jul 1991, *Forster PIF8924* (BRI, MEL); *c.* 1.5 km N of mouth of Pascoe River, Aug 1991, *Clarkson 9095 & Neldner* (BRI); Restoration Island, 1 km E of Cape Weymouth, Feb 1980, *Clarkson 2953* (BRI); Chili Beach, Jan 1982, *Hyland 11606* (BRI); Bathurst Bay, *c.* 2 km ENE of the Muck River, 13 km SSW of Cape Melville, Jun 1984, *Clarkson 5400* (BRI); Bathurst Bay, Cape Melville NP, N of Cooktown, Jul 1998, *Bean 13689* (BRI); Ingram Island, Jul 1973, *Stoddart 4056* (BRI); Two Isles, Sep 1973, *Stoddart 4628* (BRI); Conical Rock, N of Cape Bedford, May 1984, *Godwin C2534* (BRI); Cooktown, *s.dat.*, *Pollock 10* (BRI).

***Distribution and habitat*:** *Manilkara kauki* occurs from south-east Asia to New Guinea and in Australia from Torres Strait to Cooktown in north Queensland (**Map 2**). The species is found in coastal vineforest, and on coral and sand cays, often near mangroves.

***Phenology*:** Flowers have been recorded from January to May, and fruit from May to December.

***Note*:** A specimen of this species in MEL (*Flecker 9521*) is labelled as being collected from Steven Island (NT), but it appears to be an error and is more likely a specimen collected on Stephens Island, Torres Strait (I. Cowie and J. Clarkson *pers. comm.*).

2. Manilkara kanosiensis H.J.Lam & B.Meeuse, *Blumea* 4: 337 (1941). **Type:** Papua New Guinea. Central Province: Kanosia, 10 February 1935, *C.E. Carr 11237* (holo: L image!; iso: CANB; BM & K image!).

***Illustration*:** Lam (1941).

Trees to 25 m. Twigs glabrescent. Leaves: petiole 8–20(–27) mm long, glabrescent or glabrous, channelled above; lamina obovate, 5–10(–14) cm long, 3–6 cm wide, apex abruptly acuminate, rounded or emarginate, base acutely cuneate, glabrous, margins flat; secondary veins 12–18 pairs. Flowers 1–3, axillary; on pedicels 15–27 mm long, appressed tomentose. Sepals acutely triangular, 8.5–12 mm long, inner sepals slightly smaller than outer, appressed tomentose outside, less densely so inside, nearly glabrous at base. Corolla tube 2–4 mm long, lobes *c*. 6.5 mm long, glabrous, the appendages up to 3.5 mm long with long tapering tip. Stamens 6, filaments 2–3 mm long, anthers 4–4.5 mm long. Staminodes ovate with a thickened base, up to 4 mm long, margin laciniate and dentate. Ovary conical, pubescent; style cylindrical 13–16 mm long, glabrous. Fruit ovoid, 5–6 cm long,4–4.5 cm wide, firmly fleshy with two seeds, glabrous. Seeds ellipsoid or narrowly ovoid, compressed, 27–35 mm long, 14–18 mm wide, 10–11 mm thick, testa brown.

***Additional selected specimens examined*: Queensland.** Cook District: Near summit of Banks Peak, *c.* 4.5 km NNW of St Pauls village, Moa Island, Torres Strait, Nov 2007, *Fell DGF9166 & Stanton* (BRI); Banks Peak, Moa Island, Torres Strait, Jul 2008, *Fell DGF9721 & Stanton* (BRI); *ibid*, Jul 2008, *Fell DGF9721A & Stanton* (BRI); *ibid*, Jul 2008, *Fell DGF9729 & Stanton* (BRI); Moa Peak, Moa Island, Feb 2010, *Cummings AC1 & AC2* (BRI); *ibid*, Mar 2010, *Cummings AC3 & AC4* (BRI).

***Distribution and habitat*:** *Manilkara kanosiensis* occurs in coastal areas of New Guinea, the Tanimbar Islands and in Australia only on Moa Island in the Torres Strait, north Queensland (**Map 2**). It is found in complex evergreen notophyll vineforest.

***Phenology*:** Flowers have been recorded in February and March, and fruit in July and December.

Tribe Isonandreae Hartog, *J. Bot*. 16: 69 (1878).

Calyx usually 2 whorls of 2 or 3 sepals; corolla lobes undivided; staminodes absent.

3. PALAQUIUM

Palaquium Blanco, *Fl. Filip. [F.M. Blanco]* 403 (1837). **Type:** *P. lanceolatum* Blanco (lecto: *fide* Merrill 1904: 15, 20).

Bassia L. (1771) (Sapotaceae); *non Bassia* All. (1766) Chenopodiaceae.

Galactoxylon Pierre, *Not. Bot. Sapot.* 6 (1890). **Type:** *G. pierrei* Baillon (lecto: *fide* Baehni 1965: 149).

Trees. Leaves spirally arranged. Lamina with eucamptodromous venation, the secondary veins decreasing to indistinct loops inside the margin. Stipules usually present. Flowers usually bisexual in axillary fascicles. Sepals 6 in 2 whorls, free or shortly connate. Corolla lobes entire, mostly 6, contorted, usually spreading or reflexed and exceeding the length of the tube. Stamens exserted, usually 12 in a single whorl, sometimes (not in Australia) more or fewer and in 2 or 3 whorls; filaments mostly free, inserted in the throat; anthers extrorse. Staminodes absent. Disk usually absent. Ovary (5–)6(–10)-locular; style usually long-exserted, tapering gradually to the apex. Fruit with fleshy pericarp. Seed usually with a broad adaxial scar, without endosperm, cotyledons plano-convex, radicle extending to the surface, or sometimes (not in Australia) seed laterally compressed with a narrow scar, endosperm and foliaceous cotyledons.

A genus of 119 species in Asia, Australia, Malesia and the Pacific (Govaerts *et al*. 2001), one species in Australia.

Palaquium galactoxylon (F.Muell.) H.J.Lam [as *galactoxylum*, *orth. var.*], *Bull. Jard. Bot. Buitenzorg* sér. 3, 7: 107 (1925); *Bassia galactoxyla* F.Muell., *Fragm.* 6: 27 (1867); *Sersalisia galactoxylon* (F.Muell.) F.Muell. ex Benth., *Fl. Austral.* 4: 279 (1868); *Lucuma galactoxylon* (F.Muell.) F.Muell., *Syst. Census Austral. Pl.* 91 (1883); *Galactoxylon pierrei* Baillon, *Hist. Pl. (Baillon)* 11: 300 (1891); *P. galactoxylon* var. *galactoxylon*, P.Royen, *Blumea* 10: 592 (1960). **Type:** Queensland. Rockingham Bay, *s.dat.*, *J. Dallachy s.n.* (lecto [here selected]: MEL 233070).

Palaquium salomonense C.T.White, *J. Arnold Arbor.* 31: 107 (1950); *P. galactoxylon* var. *salomonense* (C.T.White) P.Royen, *Blumea* 10: 592 (1960), **syn. nov. Type:** Solomon Islands. New Georgia, 9 October 1945, *F.S. Walker & C.T. White BSIP180* (holo: BRI).

***Illustrations*:** Cooper & Cooper (2004: 508); Hyland *et al.* (2010).

Trees to 47 m high. Twigs tomentose, glabrescent, with leaves conferted at apex. Leaves with petiole (3–)10–16 mm long; lamina narrowly obovate, 7–13.5 cm long, 2.5–5 cm wide, apex obtuse or rounded or emarginate or bluntly acuminate; secondary veins 8–12(–16) pairs. Flowers in axillary clusters of 2–4 along up to 3 mm long brachyblasts; pedicels 6–7 mm long, reddish brown tomentose. Sepals ovate, 1.8–2.5 mm long, obtuse or rounded, ferruginous tomentose on outside, glabrous inside. Corolla lobes narrowly ovate or triangular, 4–4.5 mm long, rounded or obtuse at apex, fimbriate. Stamens 12, 1.7–2.2 mm long, equal or slightly unequal in length; filaments subulate, 1–2 mm long, glabrous; anthers sagittate, oblong or tapering, mostly with some reddish-brown hairs. Ovary cylindrical or broadly conical, *c.* 1.5 mm long, pilose; style soon terete and elongating to 11.5–12.2 mm long. Fruit broadly ellipsoid, 3–3.5(–4) cm long, 1.2–2.5(–3) cm wide, pericarp whitish, glabrous or nearly so; 1 or 2-seeded. Seeds ellipsoid, compressed, 20–25 mm long, 12–20 mm wide, 13–17 mm thick; testa brown or yellowish, shining part covering most of the seed. *Pencil cedar*, *Daintree maple*.

***Additional selected specimens examined*: Queensland.** Cook District: Long Scrub, Bamaga at tip of Cape York Peninsula, in 1962, *Webb & Tracey 6931* (BRI); Lake Boronto, Newcastle Bay, Cape York Peninsula, Sep 1974, *Tracey 14330* (BRI); Claudie River, Jun 1972, *Irvine 222* (BRI, L); Nesbit River floodplain, Silver Plains, Jun 1998, *Forster PIF23034 et al.* (BRI); Mt Webb – Starke Station, Sep 1974, *Tracey 14422* (BRI); TR 165 Monkhouse, Shipton LA, Apr 1984, *Hyland 12945* (BRI, CNS); Foothills near Cape Tribulation, Oct 1971, *Webb & Tracey 11441* (BRI); JCU Canopy Crane plot, Dec 2009, *Costion 2154* (BRI); Daintree River, Dec 1929, *Kajewski s.n.* (BRI [AQ34251]); Kuranda Range (Lower Lookout), Oct 1973, *Hyland 6906* (BRI); SFR 310 Parish of Gadgarra, Goldsborough LA, Dec 1984, *Gray 3778* (BRI); *ibid*, Dec 1984, *Gray 3781* (BRI); SFR 310, Goldsborough LA, Dec 1984, *Gray 3781* (BRI); *ibid*, Jun 1987, *Gray 4495* (BRI); Wyvuri Holding, Apr 1972, *Hyland 6023* (BRI, L); Council Reserve off Cowley Creek Road, E of Cowley Creek, near Silkwood, Oct 2007, *Ford AF5152* (BRI). North Kennedy District: Jarra Creek, *c.* 15 miles [24 km] due NW of Tully, Nov 1951, *Smith & Webb 5005* [distributed as *4905*] (BRI); North Brook Island, 30 km NE of Cardwell, Dec 1988, *Fell DF1535* (BRI); Mt Bentley, Palm Island, Apr 1998, *Cumming 17168* (BRI).

***Distribution and habitat*:** *Palaquium galactoxylon* occurs in Papua New Guinea, Solomon Islands and in Australia in north Queensland from Bamaga to Palm Island (**Map 3**). It is found in mesophyll and notophyll vineforest.

***Phenology*:** Flowers have been recorded from April to July, and fruit in November and December.

***Typification*:** Dallachy originally sent only fruiting material to Mueller and the protologue refers only to fruit. It is for this reason that I have chosen MEL 233070 as lectotype. However, mounted on the sheet MEL 233071 on the lower right hand side is a label dated December 1866 which predates publication of the protologue and was most likely sent with the original fruiting collection. The label on the lower left hand side of MEL 233071 was written by Dallachy and refers to his shooting down flowers and therefore accompanied a later collection that was not available to Mueller when he wrote his description. Mounted directly above this label is a branchlet with a single flower attached. A packet on the same sheet contains some fruit which may also belong with the original collection.

***Notes*:** Cooper & Cooper (2004: 508) describe the fruit as 30–40 mm long and the seed as 25–35 mm long with the hilum scar covering half the seed.

The taxon *Palaquium galactoxylon* var. *salomonense* (C.T.White) P.Royen was distinguished from Australian material based on petiole length alone, but examination of a range of material at BRI shows this to be quite unreliable. Therefore, the use of the autonym for the Australian material appears unwarranted.

Subfamily Chrysophylloideae Luerss. (as *Chrysophylleae*), *Handb. Syst. Bot.* 2: 946 (1882).

Calyx a single whorl of 4, 5 or 6 sepals; corolla lobes and stamens mostly of the same number as the sepals (up to 8 in *Amorphospermum*); corolla lobes entire; staminodes present or absent.

4. NIEMEYERA

Niemeyera F.Muell. (*nom. cons.*), *Fragm.* 7: 114 (1870); *non Neimeyera* F.Muell., *Fragm.* 6: 96 (1867) (Orchidaceae). **Type:** *N. prunifera* (F.Muell.) F.Muell., (*nom. cons.*).

Trees or shrubs. Stipules absent. Leaves spirally arranged; venation eucamptodromous (secondary veins gradually decreasing apically inside the leaf margin), tertiary venation horizontal or oblique, or a combination of the two. Flowers fasciculate, axillary, pedicel with bracts at base, bisexual, isomerous. Calyx a single whorl of 5 quincuncial sepals. Corolla with 5 revolute lobes as long as the tube or slightly longer, entire, glabrous. Stamens 5, inserted opposite each corolla lobe at the tube orifice, glabrous, filaments well-developed, free, anthers dorsifixed, shortly calcarate. Staminodes absent. Disk absent. Ovary 5-locular; placentation axile. Style terete or slightly tapered, longer than ovary, without visible stigmatic areas. Fruit a 1 or 2-seeded berry. Seed ellipsoid to globose, not laterally compressed; seed scar adaxial for full length, covering 60% or more of the seed surface width, testa thin, papery, shining part elliptical or oblong. Embryo with white plano-convex cotyledons; radicle included; endosperm absent.

A genus of four species endemic to Australia. Species previously recorded for New Caledonia have been transferred to *Pycnandra* Benth. (Swenson *et al.* 2013; Swenson & Munzinger 2016).

Key to the species of *Niemeyera*

1 Underside of newly expanded lamina with a dense covering of appressed hyaline trichomes exhibiting a silvery sheen; pedicels 2–2.5 mm long . . . . . **3. N. discolor**

1. Underside of newly expanded lamina with pale to reddish brown loosely appressed to erect trichomes; pedicels up to 0.5 mm long **2**

2 Lamina on underside with subpersistent erect or suberect trichomes, glabrescent on older leaves . . . . . **4. N. whitei**

2. Lamina on underside with loosely appressed trichomes, glabrescent on most leaves **3**

3 Young stems and underside of newly expanded lamina with nearly straight or slightly curved pale reddish-brown or white appressed trichomes, glabrescent; tertiary veins horizontal or oblique; stamens up to 3 mm long; fruit subglobose or broadly ovoid and ± tapering to the style remnant, 20–25 mm long, 17–25 mm wide . . . . . **1. N. chartacea**

3. Young stems and underside of newly expanded lamina with ± tortuous reddish-brown trichomes, often fading with age, glabrescent; tertiary veins mostly oblique; stamens 3 mm long or more; fruit globose with a short abruptly swollen style base, 35–50 mm long, 24–50 mm wide . . . . . **2. N. prunifera**

1. Niemeyera chartacea (F.M.Bailey) C.T.White, *Contr. Arnold Arbor.* 4: 87 (1933); *Lucuma chartacea* F.M.Bailey, *Queensl. Fl.* 3: 955, t. XXXIX (1900); *Sersalisia baileyana* Domin, *Biblioth. Bot.* 89: 508 (1928); *Chrysophyllum chartaceum* (F.M.Bailey) Vink, *Blumea* 9: 62 (1958); *Amorphospermum chartaceum* (F.M.Bailey) Baehni, *Boissiera* 11: 103 (1965). **Type:** Queensland. Moreton District: Eumundi, October 1900, *J.F. Bailey s.n.* (lecto: BRI [AQ22599]; *fide* Vink 1958: 63).

***Illustration*:** Harden *et al.* (2013).

Shrubs or trees to 25 m high. Twigs densely tomentose, glabrescent. Leaves with petiole 2–8(–10) mm long; lamina oblanceolate, sometimes elliptic or obovate, (2.5)6–12(14) cm long, (1–)2–4 cm wide, apex acuminate, base cuneate or attenuate, soon glabrescent; secondary veins 6–12 pairs; tertiary venation horizontal. Flowers in axillary or ramal few-flowered fascicles; pedicels 0–0.2 mm long, shortly reddish brown tomentose. Calyx lobes ovate, 1.2–1.5 mm long, obtuse. Corolla lobes broadly ovate, broadly obovate or oblong, 1.6–2.2 mm long. Stamens 5, 2.5–3 mm long. Ovary ovoid or subglobose, pilose, style 3.3–3.6 mm long. Fruit subglobose or broadly ovoid and tapering to the style remnant, 2–2.5 cm long, 1.7–2.5 cm wide, pruinose to black, glabrescent. Seeds 1 or 2, ovoid, 17–20 mm long, 9–11 mm wide, shining part of testa elliptic, 14–16 mm long, 5–8 mm wide. *Smooth-leaved plum*.

***Additional selected specimens examined*: Queensland.** South Kennedy District: Massey Creek, Eungella Range, W of Mackay, Oct 1951, *Smith & Webb 4842* (BRI), (as *4742* on ex-BRI specimens). Wide Bay District: Conondale NP (NP 1100 Kilcoy), Peters Road near Mt Cabinet, Sep 1986, *McDonald 4113* (BRI); Conondales, Sunday Creek Road, Jan 2002, *Forster PIF28106 & Leiper* (BRI); Montville, Blackall Range, Apr 1918, *White s.n.* (BRI [AQ34123]); *ibid*, *s.dat.*, *Shirley s.n.* (BRI [AQ348567]); Mary Cairncross Scenic Reserve, Blackall Range, 3 km SE of Maleny, Oct 2007, *Forster PIF33090 & Smyrell* (BRI). Moreton District: Eumundi, Mar 1894, *Simmonds s.n.* (BRI [AQ22597], K); *ibid*, May 1896, *Simmonds s.n.* (BRI [AQ34134]); *ibid*, Nov 1900, *Bailey s.n.* (BRI [AQ34131]); Brolga NP, W of Woombye, Feb 1990, *Bean 1352* (BRI); McDonald Road, 3 km N of Peachester, Jul 1993, *Bean 6255* (BRI); Mt Glorious, 50 km NW of Brisbane, Jun 1978, *Jessup 125 & Reynolds* (BRI, L); *ibid*, Sep 1978, *Jessup 145 & Reynolds* (BRI); Mt Glorious, Taylor Range, Feb 1973, *Webb & Tracey 11452* (BRI); Summit of D'Aguilar Range near Mt Glorious, Nov 1972, *Lebler & Durrington s.n.* (BRI [AQ8931]).

***Distribution and habitat*:** *Niemeyera chartacea* is endemic to Queensland from the Eungella Range near Mackay to the D'Aguilar Range near Brisbane (**Map 4**) in notophyll vineforest.

***Phenology*:** Flowers have been recorded from September to June and fruits from February and March.

***Typification*:** There is only one collection belonging to the original material, i.e. by J.F. Bailey in 1900. This comprises three sheets, two are in BRI that W. Vink saw and which he selected as the lectotype. The third sheet is in MEL and is an isolectotype (MEL 725955).

2. Niemeyera prunifera (F.Muell.) F.Muell., *Fragm.* 7: 114 (1870); *Chrysophyllum pruniferum* F.Muell., *Fragm.* 6: 26 (1867); *Lucuma prunifera* (F.Muell.) F.Muell., *Sel. Pl. Indust. Cult.* 142 (1872); *Amorphospermum pruniferum* (F.Muell.) Baehni, *Boissiera* 11: 103 (1965). **Type:** Queensland. Rockingham Bay, 2 March 1864, *J. Dallachy s.n.* (lecto: MEL 233076; isolecto: GH 75591, F 65037; *fide* Vink 1958: 64).

***Illustrations*:** Cooper & Cooper (2004: 507); Hyland *et al.* (2010); Harden *et al.* (2013).

Shrubs or trees to 15 m high. Twigs densely felted or tomentose. Leaves with petiole 10–25 mm long; lamina oblanceolate to elliptic, 5–14(–18) cm long, 1.7–5.5(–7) cm wide, apex acuminate to obtuse, base acutely cuneate or shortly attenuate, with pale to reddish brown loosely appressed to suberect trichomes below, glabrescent; secondary veins 6–12 pairs; tertiary venation horizontal near midvein, oblique in the distal part, prominent below. Flowers in axillary or ramal fascicles of up to 20 flowers; pedicels 0–0.2 mm long, reddish brown tomentose. Calyx lobes ovate, 1.2–1.5 mm long, obtuse or rounded. Corolla lobes oblong, 1.5–2 mm long. Stamens 5, 2.5–4 mm long. Ovary subglobose, pilose, style 3.3–3.6 mm long. Fruit globose or depressed globose, with a short swollen style base, 35–50 mm long, 24–50 mm wide, pruinose to purple-

black, glabrescent. Seeds 1 or 2, subglobular, 15–20 mm diameter, shining part of testa 16–18 mm long, 11–13 mm wide.

***Additional selected specimens examined*: Queensland.** Cook District: Upper Parrot Creek, Annan River, Sep 1948, *Brass 20304* (BRI, K, L); Daintree River, Dec 1929, *Kajewski 1440* (BRI); *ibid*, Mar 1932, *Brass 2218* (BRI); Mossman River Gorge, Feb 1932, *Brass 2143* (BRI); Mossman Gorge, Aug 1959, *Thorne 22863 & Tracey* (BRI); 7.4 km from Rex highway along Mt Lewis Road, Aug 1995, *Hind 6647 & Hind* (BRI); Head of Robson Creek, 5.8 km past Hoop Pine Triangle, NE end of Tinaroo Falls Dam, Mar 1988, *Forster PIF3938* (BRI); SFR 933, Little Pine LA, Nov 1978, *Gray 1162* (BRI); TR 1230, Boonjie LA, Nov 1976, *Hyland 9167* (BRI, K, L); East Malanda, Atherton Tableland, Sep 1929, *Kajewski 1213* (BRI); Garradunga, Sep 1929, *White 11729* (BRI, K, L); Little Beatrice LA, SF 756 Mt Father Clancy, Nov 1995, *Forster PIF18217 & Spokes* (BRI). North Kennedy District: 6 km along Kirrama Range Road, SF 861, Feb 1996, *Forster PIF18366 & Ryan* (BRI); Hinchinbrook Island, *c*. 2 km NW of Mt Diamantina, Dec 2000, *Kemp TH2570* (BRI); Hinchinbrook Island, Little Ramsay Bay, Aug 1975, *Sharpe 1630* (BRI); 2 km E of Paluma, Jan 1989, *Jackes 8901* (BRI). South Kennedy District: Massey Creek, Eungella Range, W of Mackay, Oct 1951, *Smith & Webb 4772* (BRI) [as *4672* on ex-BRI specimens]. Port Curtis District: Pigeon Scrub, SF 391 Bulburin, 9 km along Dawes Range road, Dec 1995, *Forster PIF18287 et al*. (BRI); Bulburin FR, Dawes Range Road, Pigeon Scrub, Jan 2004, *Forster PIF29889 & Tucker* (BRI); Bulburin NP, Cassilus Creek, Jan 2009, *Forster PIF34942 et al.* (BRI).

***Distribution and habitat*:** *Niemeyera prunifera* is endemic to Australia in eastern Queensland and occurs from the Annan River, south of Cooktown to the Dawes Range, near Gladstone, (**Map 5**) in lowland and upland mesophyll and notophyll vineforest.

***Phenology*:** Flowers have been recorded from September to May; fruit from June to November.

***Typification*:** Mueller cited two collections by Dallachy for this species, the first was collected on 2 March 1864 from Rockingham Bay and the second on 11 August 1866 from Mackay River (now Tully River). The lectotype designated by Vink (1958) was collected on 2 March 1864 and has flowers. The fruit that Dallachy refers to on the label of the 2 March 1864 collection are not with the rest of the material on MEL 233076 and can probably no longer be distinguished from fruit collected in 1866. The label with the Mackay River collection states that there were no flowers and only two fruit. Therefore, all flowering collections from that time must have been collected on 2 March 1864 and are therefore isolectotypes.

In making the combination *Niemeyera prunifera*, Mueller also cited specimens collected at Bellinger River by Moore and Clarence River by Wilcox. These were later referred to *N. whitei* and are cited here under that name.

3. Niemeyera discolor Jessup **sp. nov.** differing from the other three *Niemeyera* species by the underside of the newly expanded lamina having a dense covering of appressed hyaline hairs exhibiting a silvery sheen and by the longer pedicels (2–2.5 mm long compared with 0.5 mm long or less). **Typus:** Queensland. Cook District: State Forest Reserve 143, Kanawarra, Carbine Logging Area, 24 November 1987, *B.P. Hyland 13360* (holo: BRI; iso: CNS).

Chrysophyllum sp. (Mt. Lewis A.K. Irvine 1402); Jessup (1994).

Chrysophyllum sp.; Green (1999).

Niemeyera sp. (Mt. Lewis A.K. Irvine 1402); Jessup (1997, 2002, 2007, 2010, 2015).

***Illustrations*:** Cooper & Cooper (2004: 508); Hyland *et al.* (2010).

Trees to 30 m high. Twigs felted or tomentose, glabrescent. Leaves with petiole 10–25(–30) mm long; lamina oblanceolate or elliptic or obovate, 4–13 cm long, 1.5–5 cm wide, apex acuminate to obtuse, base cuneate or shortly attenuate; discolourous with persistent, appressed pale or hyaline trichomes below giving a silvery sheen, glabrescent with age; secondary veins 7–10 pairs; tertiary venation horizontal near midvein, oblique to laxly reticulate in the distal part, not prominent below. Flowers in axillary or closely packed ramal fascicles; pedicels 2–2.5 mm long, reddish or pale brown sericeous. Calyx lobes ovate or oblong, 3–3.2 mm long. Corolla lobes 5, ovate to oblong, 3–3.5 mm long, rounded or obtuse. Stamens 5, 3.7–4.2 mm long. Ovary ovoid, pilose, style terete, 3.5–4 mm long. Fruit obovoid, broadly ellipsoid or subglobular, 4–6 cm long, 4–5.5 cm wide,

glabrous or nearly so. Seed 1, subglobular or broadly ellipsoid and tapering to the stylar end, 30 mm long, 25–30 mm diameter, shining part of testa *c.* 18 mm long and 9 mm wide. **Fig. 3A–E.**

***Additional selected specimens examined*: Queensland.** Cook District: Big Tableland, 27 km SE of Cooktown, Sep 1960, *Smith 11179* (BRI); TR 146 Tableland LA, Jul 1975, *Hyland 8325* (BRI); Cedar Bay, Jan 1973, *Webb & Tracey 13767* (BRI); Cedar Bay NP, Mt Finnigan summit area, Horans Creek, Oct 1999, *Forster PIF25039 & Booth* (BRI); Daintree NP, upper slope of Mt Sorrow walking track, W of Cape Tribulation, Nov 2008, *Ford 5408 et al.* (BRI); VCL Noah, Jun 1975, *Hyland 3198RFK* (BRI); Devils Thumb, NW of Mossman, Dec 1990, *Russell s.n.* (BRI [AQ501366]); Mt Lewis, Carbine Tableland, Dec 2008, *Costion 1593* (BRI); SFR 143 North Mary LA, Dec 1974, *Hyland 3144RFK* (BRI); *ibid*, Apr 1975, *Irvine 1402* (BRI)4434; *ibid*, Jul 1975, *Irvine 1476* (BRI); *ibid*, Sep 1975, *Hyland 8375 & 8376* (BRI); *ibid*, Nov 1981, *Gray 2260* (BRI); *ibid*, Sep 2000, *Ford 2429* (BRI, S); *ibid*, Mar 2001, *Forster PIF27058 et al*. (BRI); SFR 143, South Mary LA, Dec 1981, *Hyland 11437* (BRI); SFR 143, Parish of Riflemead, Dec 1984, *Gray 3753* (BRI); Mt Spurgeon, near Schillers Hut, Sep 1972, *Tracey s.n.* (BRI [AQ376171]); Mt Isley, W of Edmonton, Dec 1996, *Jago 4215* (BRI); Davies Creek, in 1962, *Webb & Tracey 6469A* (BRI); SFR 185 Mt Haig, Mar 1968, *Hyland 1398RFK* (BRI).

***Distribution and habitat*:** *Niemeyera discolor* is endemic to Australia from the Wet Tropics bioregion of Queensland where it has been collected from Big Tableland, south of Cooktown to Mt Haig, north-east of Atherton (**Map 4**), and occurs mostly in notophyll vineforest on soils derived from granite and metamorphic rocks from near sea level to 1300 m.

***Phenology*:** Flowers have been recorded from December to January and fruits from September to December.

***Note*:** Placement of this new species in *Niemeyera* is strongly supported by molecular phylogenetic analysis, which places the specimen *Ford 2429* as sister to *N. chartacea* and *N. prunifera* (Swenson *et al*. 2013).

***Etymology*:** The species epithet refers to the difference in colour of the upper and lower lamina surfaces.

4. Niemeyera whitei (Aubrév.) Jessup, *Austrobaileya* 6: 161 (2001); *Amorphospermum whitei* Aubrév., *Adansonia* ser. 2, 5: 23, t.2 (1965). **Type:** New South Wales. Whian Whian State Forest, May 1945, *C.T. White 13043* (holo: BRI; iso: BRI, MEL, NSW).

***Illustration*:** Harden *et al.* (2013).

Shrubs or trees to 20 m high. Twigs felted or tomentose. Leaves with petiole 7–13 mm long; lamina oblanceolate to elliptic, 8–15(–17) cm long, 2.5–6 cm wide, apex acuminate or acute, base acutely or obtusely cuneate, with reddish-brown erect or suberect trichomes below, glabrescent on older leaves; secondary veins 9–15 pairs; tertiary venation horizontal near midvein, oblique in the distal part, prominent below. Flowers in axillary or ramal fascicles of up to 15 flowers; pedicels 0–0.2 mm long, reddish brown tomentose. Calyx ovate, 1.5–2 mm long, acute or obtuse. Corolla lobes 5, 2–2.5 mm long, rounded or obtuse. Stamens 5, 3.5–4 mm long. Ovary ovoid, pilose, style 4–5 mm long. Fruit globose with an indistinct style remnant, 40–60 mm long, 30–60 mm wide, purple-black, glabrous or nearly so. Seed 1, globose, 24–35 mm diameter, shining part of testa elliptic, *c.* 30 mm long and 10 mm wide.

***Additional selected specimens examined*: Queensland.** Moreton District: Cougals Track, Jun 1984, *Jones s.n.* (BRI [AQ440567]); Below northern cliffs of Mt Cougal, Upper Tallebudgera Creek Valley, Nov 1986, *Monteith s.n.* (BRI [AQ440746]); *c.* 50 m from the summit of E peak of Mt Cougal, May 1993, *Thomas RFR29 & Gale* (BRI); Upper Tallebudgera Creek, Dec 1917, *White s.n.* (BRI [AQ34149], NSW); Upper Tallebudgera, on property of L & D Cook, Dec 2003, *Cook s.n. et al.* (BRI [AQ763291]). **New South Wales.** Minyon Falls, Sep 1926, *Cheel s.n.* (NSW41816); Whian Whian SF 173, Jan 1949, *Webb & White 2147* (BRI); Eastern part of Whian Whian SF, Oct 1984, *Hemsley 7058* (MEL, NSW); The Punchbowl, near Copmanhurst, Upper Clarence River, Dec 1969, *O'Grady s.n.* (NSW); 'Araucaria' property at Blackbutt Road, Broken Head, Nov 2008, *Nicholson NJN3025* (BRI); Clarence River, in 1869, *Wilcox s.n.* (MEL 601094); Escarpment below Waihou Trig., 25 km NW of Coffs Harbour, Oct 1978, *Streimann 8131* (BRI, L, NSW); 80 m N of Upper Corindi Road, 250 m E of Hutley's Pass, *c.* 15 km due NW of Woolgoolga, Sep 2001, *Copeland 3146* (BRI); Woolgoolga Creek, Nov 1982, *Williams s.n.* (BRI [AQ338993]); *c.* 6 km W of Woolgoolga, Oct 1984, *Hemsley 7054* (MEL, NSW); Coffs Harbour, Apr 1909, *Lawrence s.n.* (BRI [AQ34148], NSW); Urunga, Sep 1910, *Swain 208* (NSW); Bellinger River, *s.dat*., *Moore 26* (MEL); *ibid*, *s.dat*., *Moore s.n.* (NSW17146).

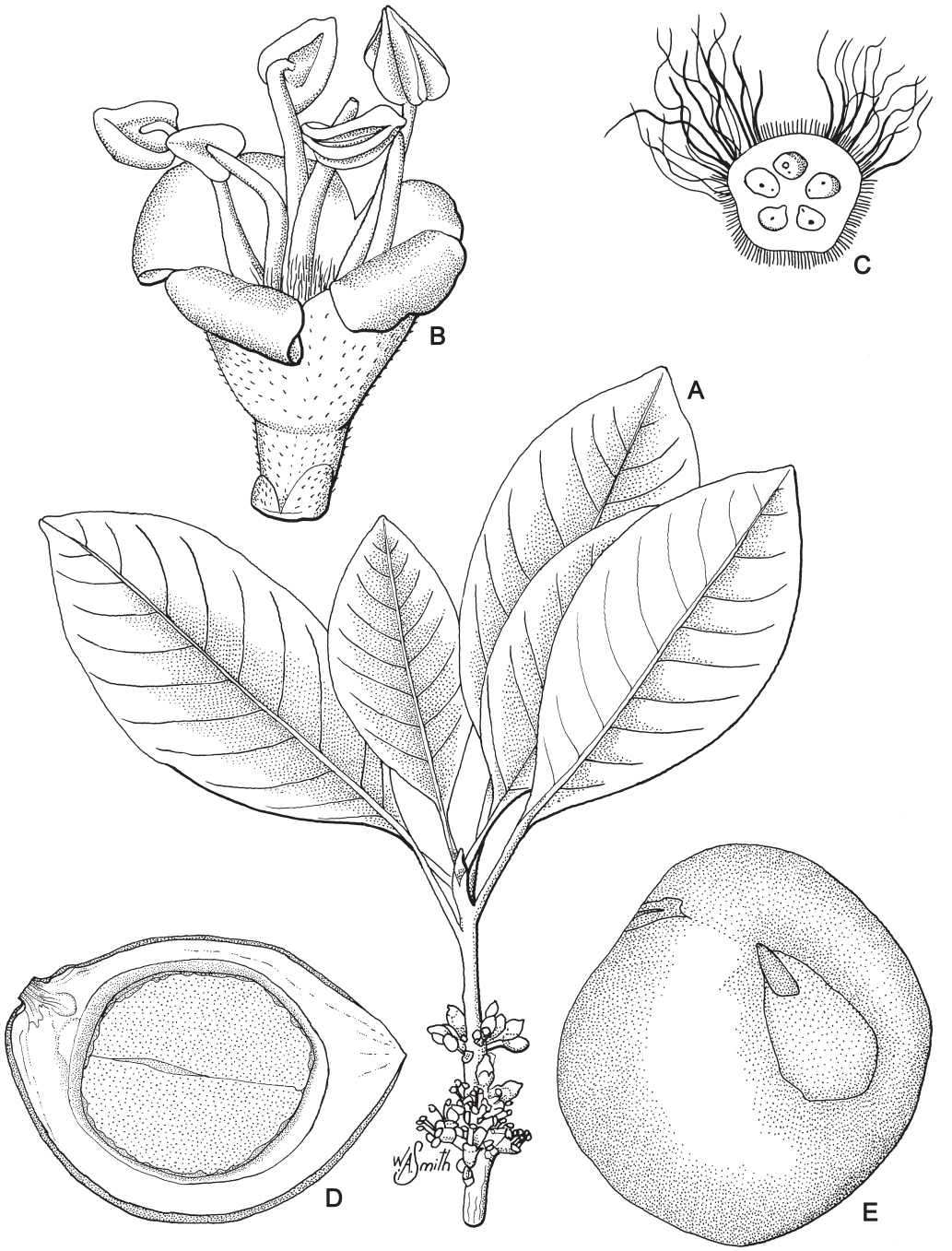

Fig. 3. A–E. ***Niemeyera discolor***. A. habit ×0.8. B. flower ×1. C. cross section of ovary ×16. D. longitudinal section of fruit ×1. E. seed ×2. A–C from *Hyland 13360* (BRI); D–E from *Hyland 8375* (BRI). Del. W. Smith.

***Distribution and habitat*:** *Niemeyera whitei* is endemic to Australia and occurs from Tallebudgera Creek, Queensland to the Bellinger River, New South Wales (**Map 4**), mostly in lowland notophyll vineforest.

***Phenology*:** Flowers have been recorded from September to January; fruit in November and December.

***Conservation status*:** *Niemeyera whitei* is listed as **Vulnerable** under the Queensland *Nature Conservation Act 1992*.

5. AMORPHOSPERMUM

Amorphospermum F.Muell., *Fragm*. 7: 112 (1870). **Type:** *A. antilogum* F.Muell.

Small or medium trees. Stipules absent. Leaves spirally arranged; venation brochidodromous, tertiary venation admedial ramified (descending from the margin and parallel to secondary veins). Inflorescence fasciculate, axillary or ramal, flowers bisexual, mostly isomerous. Calyx a single whorl of 5 or 6 imbricate sepals. Corolla with 5–6(–8) revolute lobes as long as the tube or slightly longer. Stamens inserted opposite each corolla lobe, at the tube orifice, glabrous; filaments well-developed, free, anthers retrorse. Staminodes absent. Disk absent. Ovary 5-locular; placentation axile. Style terete or slightly tapered, longer than ovary. Fruit a 1-seeded berry. Seed globose, not laterally compressed; seed scar adaxial, covering 90% or more of the seed surface, testa slightly woody or bony, 0.5–1 mm thick. Embryo with plano-convex cotyledons; radicle included; endosperm absent.

A monotypic genus from Australia and New Guinea.

Amorphospermum antilogum F.Muell., *Fragm*. 7: 113 (1870); *Lucuma antiloga* (F.Muell.) Benth. & Hook.f. ex F.M.Bailey, *Syn. Queensl. Fl.* 296 (1883); *Sersalisia antiloga* (F.Muell.) Domin, *Biblioth. Bot.* 89: 508 (1928); *Chrysophyllum antilogum* (F.Muell.) Vink, *Blumea* 9: 65 (1958); *Niemeyera antiloga* (F.Muell.) Pennington, *Gen. Sapotac.* 235 (1991). **Type:** Queensland. [Port Curtis District]: Princhester, 70 miles [112 km] NW of Rockh[ampton], *s.dat*., [*A*.] *Thozet* [*315*] (lecto: MEL 233068; *fide* Vink 1958: 65).

***Illustrations*:** Francis (1951: 346 & 347); Cooper & Cooper (2004: 506); Hyland *et al*. (2010); Harden *et al*. (2013).

Trees to 18 m high. Twigs densely felted-sericeous. Leaves with petiole 4–18(–20) mm long; lamina elliptic, oblanceolate or obovate, apex acute to rounded, (1.5–)4–12(–16) cm long, (0.8–)1.5–4.5(–6.5) cm wide, underside with straight, appressed, reddish or pale brown trichomes; secondary veins mostly 10–20 pairs; intersecondary and tertiary veins parallel, obscured below by indumentum. Pedicel to 0.5 mm long, reddish brown felted or sericeous. Calyx lobes ovate, 1.8–2.5 mm long. Corolla tube *c*. 1.5 mm long, lobes oblong 2–2.5 mm long, glabrous, apical margin ciliolate. Stamens 5–6(–8), 3–4.5(–5.2) mm long. Ovary conical, pilose; tapering to 3.5–4 mm long style. Fruit globose or subglobose with a shortly attenuate base, 3.5–6 cm long, 3.5–5 cm wide, purple-black to purple-brown, fleshy and 1-seeded, nearly glabrous; style indistinct. Seeds globose, 20–40 mm diameter, testa pale brown, shining part reduced to a narrow ellipse *c*. 12 mm long, 2–3 mm wide. *Brown pearwood*.

***Additional selected specimens examined*: Queensland.** Cook District: Olive River, Sep 1974, *Hyland 3063RFK* (BRI); Bolt Head, Temple Bay, Jun 1996, *Forster PIF19404* (BRI); Between Massy Creek and Rocky River, Silver Plains Holding, Dec 1979, *Hyland 10148* (BRI); 7 km N of upper crossing of Massey [Massy] Creek, on Silver Plains Station, Nov 1980, *Clarkson 3643* (BRI); 8.5 km SSE of Jeannie River mouth, Starke Pastoral Holding, Oct 1992, *Fell 2650 & Stanton* (BRI); Tributary of Brady Creek, 37 km SSW of Laura in Conglomerate Hills, Jul 2005, *Wannan 4056 & Ray* (BRI). North Kennedy District: Fanning River, Jun 1980, *Godwin C991* (BRI); Cape Cleveland, Bowling Green Bay National Park, S of Townsville, Dec 1992, *Bean 5312* (BRI). South Kennedy District: S of Collinsville, Nov 2011, *Wiley S52* (BRI); Gorge Creek, Redcliffe Tableland, Jan 1993, *Fensham 510* (BRI); St Pauls Scrub, 13 km SE of St Pauls Homestead, Sep 1991, *Thompson 228 & Dillewaard* (BRI). Port Curtis District: Marlborough, Oct 1937, *White 12109* (BRI); Marlborough Creek, 10 km from Marlborough township, Aug 1991, *Batianoff MC9108004 & Robins* (BRI); Marlborough Creek, 25 km SW of Marlborough, Nov 1997, *McCabe 28 & Rayner* (BRI); Marlborough area, Gap Creek Road, Spring Creek, Oct 2001, *Batianoff 01103GNB et al.* (BRI); Mt Slopeaway, 7.5 km W of Marlborough, Aug 2000, *Forster PIF25964* (BRI); SFR

28, Upper Stony LA, Oct 1976, *Hyland 4307RFK* (BRI); Byfield, near Keppel Bay, Sep 1931, *White 8034* (BRI); Struck Oil, Mt Morgan, Ironstone Creek, May 2002, *Braddick 2242* (BRI); SF 67 Bulburin, *c.* 3 km S of old Bulburin Forestry Station, Jul 1978, *McDonald 2406* & *Stanton* (BRI). Wide Bay District: Mt Bauple, Dec 1922, *Kajewski s.n.* (BRI [AQ34095]); *ibid*, Jan 1928, *Kajewski 76* (BRI). Moreton District: Sapling Pocket, Pine Mt, 12 km NW of Ipswich, Nov 1990, *Bird s.n.* (BRI [AQ501172]). **New South Wales.** Tweed River, in 1871, *Guilfoyle 13* (MEL 2192413A).

***Distribution and habitat*:** *Amorphospermum antilogum* occurs in Australia and New Guinea. In Australia it occurs from the Olive River on eastern Cape York Peninsula, Queensland to the Tweed River, New South Wales (**Map 6**) in notophyll vineforest and vinethicket. At the type locality, it grows in a relatively restricted community of semi-evergreen vinethicket on serpentinite.

***Phenology*:** Flowers have been recorded from June to January; fruit from November to April.

***Typification*:** Wim Vink, a botanist at the Leiden herbarium, was sent a piece of the Thozet material from MEL with a transcribed label, but the number 315 was not included in the transcription, hence his citation of *Thozet s.n.* as the type. He annotated this material and returned it to MEL where it was mounted on (or "returned to") the sheet MEL 233068. I propose that it is reasonable to regard the entire sheet MEL 233068 as the lectotype. In addition to the omission of the number 315, the transcription includes a misinterpretation of the abbreviation "Rockh" as "Rockingham" rather than "Rockhampton".

***Notes*:** Some collections of *Amorphospermum* from the vicinity of Julatten, north Queensland have been postulated to represent a distinct taxon (Cooper & Cooper 2004). I have been able to observe only minor differences in the indumentum in flowering material from this area although the habitat is markedly different from that of the type locality. Two specimens in BRI (*Womersley NGF3561* and *Fryar NGF4046*) from Bulolo in Papua New Guinea are currently placed under *A. antilogum* but additional collections, particularly of fruiting material are required to confirm the identification.

6. VAN-ROYENA

Van-royena Aubrév., *Adansonia* ser. 2, 3: 329 (1964) [not 1963]. **Type:** *V. castanosperma* (C.T.White) Aubrév.

Shrubs or trees, hermaphrodite. Leaves spirally arranged, entire or very rarely wavy and somewhat crenate; stipules absent. Venation brochidodromous with long loops, giving an eucamptodromous impression; intersecondary or tertiary veins parallel to secondary veins and becoming reticulate near the margin or completely reticulate between the secondary veins. Inflorescence axillary. Flowers 5-merous, sepals quincuncial, pubescent both sides, persistent in fruit. Corolla tubular, the tube longer than the lobes, lobes cochlear, erect. Stamens inserted above the middle of the corolla tube, glabrous, included; anthers ovate, basifixed. Staminodes inserted in the corolla sinus, oblong, terete at base, flattened and with a few cilia at apex, otherwise glabrous. Ovary 5-locular, ovoid, tapering to a conical style, the apex with round stigmatic areas. Fruit ellipsoid or ovoid; seeds 1 or 2, seed scar elliptical *c.* 90% of seed length; testa brown; cotyledons plano-convex, radicle included, endosperm absent.

A monotypic genus restricted to northeast Queensland.

Van-royena castanosperma (C.T.White) Aubrév., *Adansonia* ser. 2, 3: 329 (1964) [not 1963]; *Chrysophyllum castanospermum* C.T.White, *Bot. Bull. Dept. Agric. Queensland* 21: 12, Plate 5 (1919); *Lucuma castanosperma* (C.T.White) C.T.White & W.D.Francis, *Proc. Roy. Soc. Queensland* 35: 74 (1924); *Pouteria castanosperma* (C.T.White) Baehni, *Candollea* 9: 295 (1942). **Type:** Queensland. Cook District: Malanda "Upper Johnstone River", January 1918, *C.T. White s.n.* (holo: BRI [AQ22595]).

***Illustrations*:** White (1919: Plate 5); Cooper & Cooper (2004: 509); Hyland *et al.* (2010).

Trees to 15 m high. Twigs glabrous (trichomes on shoots only). Leaf petiole 3–5 mm long; lamina oblanceolate, lanceolate or elliptic, 2.5–12 cm long, 0.8–5 cm wide, apex acuminate, glabrescent; secondary veins

7–13 pairs; tertiary veins descending or laxly reticulate. Pedicels 10–18 mm long, very sparsely hyaline sericeous or glabrous. Calyx lobes ovate or broadly obtuse, 5–5.5 mm long on outside, rounded or obtuse, outside sericeous or glabrous, inside sericeous. Corolla 11–12.5 mm long, tube 7.5–8.5 mm long; lobes 5, depressed ovate or suborbicular, 2–2.5 mm long, obtuse or rounded, margin ciliate. Stamens 5, 1.5–2 mm long, filaments 0.8–1 mm long, anthers 1.4–1.5 mm long. Staminodes subulate, inserted just below the sinus between the corolla lobes. Ovary 4–5 mm long, *c*. 3 mm diameter, sericeous; style 8.8–9.3 mm long, pubescent near base. Fruit ovoid or ellipsoid, 3–6 cm long, 3–4.5 cm wide, often tapering into a persistent style point, eventually deep blackish blue, glabrous or nearly so. Seeds 1 or 2, oblong-ellipsoid when solitary, flattened on one side when a pair, 25–40 mm long, 21–27 mm wide, 27–32 mm thick; testa brown, shining part covering most of seed. *Milky plum*.

***Additional selected specimens examined*: Queensland.** Cook District: Spur SE of Christy's Pocket between Bloomfield & McDowall Range, May 1969, *Smith 14482* (BRI); Lower eastern Thornton Peak, May 1985, *Godwin C2945 & Storch* (BRI); SFR 143, Leichhardt LA, Feb 1982, *Hyland 11683* (BRI, CNS); Portion 49V Parish of Alexandra, Cooper Creek, Dec 1984, *Gray 3815* (BRI); TR 55, Jul 1974, *Hyland 7327* (BRI); Daintree River, Mar 1932, *Brass 2236* (BRI); Forest Creek road just N of Daintree River, May 1992, *Russell 25* (BRI); near Daintree, in 1962, *Webb & Tracey 8157* (BRI); Mossman River mouth, Sep 1948, *Smith & Webb 4014* (BRI, K, L); Rex Range, Mar 1979, *Gray 1345* (BRI); SFR 1073, Parish of Dulanban, Rooty LA, Jan 1988, *Gray 4718* (BRI); Kennedy Highway between Smithfield and Kuranda, Feb 2000, Jago *5566* (BRI); North Bell Peak, lower western slopes, Malbon Thompson Range, Nov 1995, *Forster PIF18005 et al.* (BRI); N of Wonga Beach, Nov 2005, *Wannan 4139 & Gillanders* (BRI); Lake Barrine, Nov 1929, *Kajewski 1350* (BRI, K); Boonjee, near Malanda, Aug 1943, *Blake 15228* (BRI); Malanda, Aug 1943, *Blake 15174* (BRI); Tarzali, Jan 1991, *Sankowsky 1180* (BRI); Palmerston Highway, Dec 1977, *Gray 837* (BRI); 6 km SSW of Millaa Millaa, end of Whiting road, Dec 2000, *Forster PIF26536 et al.* (BRI).

***Distribution and habitat*:** *Van-royena castanosperma* is endemic to the Wet Tropics of northeast Queensland from just north of the McDowall Range to the Cardwell Range south of Millaa Millaa (**Map 7**), in lowland and upland mesophyll and notophyll vineforest, from near sea level up to 1200 m altitude.

***Phenology*:** Flowers have been recorded from January to July; fruits from September to January.

7. PLEIOLUMA

Pleioluma (Baill.) Baehni, *Boissiera* 11: 150 (1965); *Sersalisia* sect. *Pleioluma* Baill., *Hist. Pl.* 11: 280 (1891). **Type:** *P. crebrifolia* (Baill.) Swenson & Munzinger.

Beccariella Pierre, *Not. Bot. Sapot*. 30 (1890), *nom. illeg.*; *non Beccariella* Cesati, *Atti. Reale Accad. Sci. Fis.* 8: 9 (1879). **Type:** *B. sebertii* (Pancher) Pierre.

Shrubs or trees, hermaphrodite or gynodioecious. Leaves spirally arranged, entire; stipules absent. Secondary veins mostly eucamptodromous but brochidodromous with weak loops towards the apex; tertiary veins oblique or horizontal, sometimes obscure and appearing to join areolate quaternary veins. Inflorescence axillary, fasciculate; flowers 5-merous. Sepals free, quincuncial, sericeous or tomentose inside, persistent in fruit. Corolla tubular, glabrous or the lobe margins ciliolate, the tube equal to or slightly longer than the lobes, lobes erect. Stamens attached near the middle of the tube or below, glabrous, included. Staminodes inserted in the corolla sinus, usually oblong and entire, glabrous or sometimes ciliolate at apex. Ovary 5-locular; style exserted prior to anthesis then included, apex with 5 round stigmatic areas. Fruit a berry, seeds 1–5, laterally compressed, testa mostly brown, seed scar narrow covering 80%–100% of seed length; cotyledons thin and foliaceous, radicle exserted below the cotyledon commissure; endosperm copious.

A genus of around 40 species distributed from southeast Asia to New Guinea, Melanesia (especially New Caledonia) and Australia (Swenson *et al*. 2018), with nine species in Australia.

Key to the Australian species of *Pleioluma*

1 Mature lamina on underside glabrescent, soon glabrous or nearly so **2**
1. Mature lamina with a persistent indumentum below, glabrescent with age **6**

2 Fruit 5–6(–8) cm long, 3.5–4.5 cm wide; seeds 30–40 mm long . . . . . **4. P. macrocarpa**
2. Fruit up to 3 cm long, up to 1.5 cm wide; seeds less than 20 mm long. **3**

3 Fruit subglobose or broadly obovoid, pericarp brittle when dry; style remnant *c*. 0.5 mm long, not expanded at the base . . . . . **3. P. laurifolia**
3. Fruit ellipsoid or narrowly obovoid, pericarp not brittle when dry; style remnant 2–7 mm long, with an expanded base **4**

4 Pedicel 15–40 mm long . . . . . **8. P. singuliflora**
4. Pedicel ≤ 15 mm long **5**

5 Style base and top of ovary marked by a ring of appressed trichomes . . . . **9. P. xerocarpa**
5. Style base and top of ovary glabrous . . . . . **7. P. queenslandica**

6 Lamina trichomes on underside closely appressed like a pellicle, more or less covering the epidermis, straight, mostly hyaline, glabrescent; calyx lobes 6–7 mm long . . . . . **1. P. brownlessiana**
6. Lamina trichomes tortuous and more or less matted or erect and nearly straight, mostly reddish or dark brown, fading with age; calyx lobes ≤ 5 mm long. **7**

7 Lamina 8–18 cm long; tertiary veins prominent below; pedicels 7–10 mm long; calyx lobes 3–3.5 mm long . . . . . **5. P. papyracea**
7. Lamina 2.8–8 cm long; tertiary veins not prominent below; pedicels (12–)16–22 mm long, calyx lobes 3.5–5 mm long **8**

8 Lamina trichomes erect with a short side branch, sometimes two, leaf surface visible between the trichomes; pedicels with reddish-brown tortuous and erect trichomes . . . . . **6. P. pilosa**
8. Lamina trichomes appressed and tomentose, obscuring the tertiary veins, leaf surface hidden by the indumentum and visible only with age . . . . . **2. P. ferruginea**

1. Pleioluma brownlessiana (F.Muell.) Swenson & Munzinger, *Taxon* 62: 763 (2013); *Achras brownlessiana* F.Muell., *Fragm.* 7: 111 (Dec 1870); *Sideroxylon brownlessianum* (F.Muell.) F.Muell., *Syst. Census Austral. Pl.* 92 (1883); *Sersalisia brownlessiana* (F.Muell.) Domin, *Biblioth. Bot.* 89: 508 (1928); *Pouteria brownlessiana* (F.Muell.) Baehni, *Candollea* 9: 318 (1942); *Planchonella brownlessiana* (F.Muell.) P.Royen, *Blumea* 8: 343 (1957); *Beccariella brownlessiana* (F.Muell.) Swenson, Bartish & Munzinger, *Cladistics* 23: 221 (2007). **Type:** Queensland. Rockingham Bay, 30 July 1870, *J. Dallachy s.n.* (lecto: MEL 710082 [here selected]; isolecto: MEL 710072, MEL 710081; possible isolecto: MEL 710080, MEL 710083).

Achras ralphiana F.Muell. in Baillon, *Hist. Pl. (Baillon)* 11: 280 (1891), *nom nud.* [see note below]; *Sersalisia ralphiana* (F.Muell.) Baillon, *Hist. Pl. (Baillon)* 11: 280 (1891), *nom. inval.*; *Iteiluma ralphiana* (F.Muell.) Aubrév., *Adansonia* ser. 2, 3: 335 (1964), *nom. inval.*; *Planchonella ralphiana* (F.Muell.) Dubard, *Ann. Mus. Colon. Marseille* ser. 2, 10: 56 (1912), *nom. inval.*

Sersalisia brachyloba Domin, *Biblioth. Bot.* 89: 507 (1928). *Sideroxylon brachylobum* Domin, *Biblioth. Bot.* 89: 507 (1928), *pro.*

syn., *nom. inval.*; *Pouteria brachyloba* (Domin) Baehni, *Candollea* 9: 341 (1942). **Type:** Queensland. Cook District: Lake Eacham, February 1910, *K. Domin s.n.* (holo: PR *n.v.*).

***Illustrations*:** van Royen (1957: 343, fig. 33 [as *Planchonella brownlessiana*]); Hyland *et al.* (2010).

Trees to 25 m high. Twigs greyish-brown with short appressed trichomes. Leaves with petiole 7–20 mm long, channelled above; lamina oblanceolate or obovate, 4–12(–15) cm long, 1.5–5.5 cm wide, apex acuminate to rounded, soon becoming glabrous above, with hyaline closely appressed trichomes below appearing pellicle-like, glabrescent with age; margins flat; secondary veins 5–10 pairs; tertiary veins horizontal, mostly obscure. Flowers solitary or 2 or 3 together; pedicels terete, 10–35 mm long, hyaline sericeous. Calyx lobes broadly elliptic or ovate, 6–7 mm long, sericeous on both sides. Corolla tube 5–5.5 mm long, lobes 5, quadrangular, 2–3 mm long, distal margin ciliolate. Stamens 5, 2.5–3 mm long; filaments 1.4–1.7 mm long, attached at or just below the middle of the tube; anthers 1.5–1.7 mm long. Staminodes oblong or slightly broader at the base, 2–2.4 mm long. Disk small, 5-lobed, white or hyaline hirsute. Ovary ovoid, 5-lobed, *c.* 2 mm long, glabrous at base, sericeous above, tapering to the conical style; style *c.* 7.5 mm long, sericeous then distally glabrous for *c.* 4 mm to the stigmas. Fruit ellipsoid, 2.5–3 cm long, 1–1.3 cm wide, often oblique at apex, dark purple, glabrous except for remnants of disk and style base; style persistent, 7–9 mm long, appressed pubescent around the thickened base, distally glabrous. Seeds 1(–2), ellipsoid-ovoid, flattened on one side, 15–19 mm long, 8–9 mm wide, 6–7 mm thick; testa dark brown; seed scar up to 14 mm long and 1.5 mm wide.

***Additional selected specimens examined*: Queensland.** Cook District: Upper Parrot Creek, Annan River, Sep 1948, *Brass 20247* (BRI); Mossman River Gorge, Feb 1932, *Brass 2142* (BRI); Little Mossman LA, Aug 1973, *Risley 103* (BRI); SFR 143, Little Mossman LA, Nov 1978, *Gray 1139* (BRI); Davies Creek, Jan 1962, *Hyland 2279* (BRI, L); Bridle Creek, W of Kuranda, Nov 2004, *Bartish & Ford 17* (BRI); SFR 675, Parish of Cairns, Shoteel LA, Oct 1983, *Gray 3275* (BRI); SFR 185, Robson LA, Apr 1972, *Sanderson 71* (BRI); SFR 194, Parish of Herberton, Hugh Nelson Range, Mar 1981, *Gray 1929* (BRI); SFR 652 Mt Fisher, May 1975, *Hyland 3177RFK* (BRI, CANB, L); SFR 185, Robson LA, Apr 1972, *Sanderson 71* (BRI, L); Reserve 310, Gadgarra, Mar 1954, *White s.n.* (BRI [AQ68233], L); Topaz Road, E of Malanda, Nov 2004, *Bartish & Ford 28* (BRI); Westcott Road, Topaz, Oct 2004, *Cooper WWC1898 et al.* (BRI). North Kennedy District: Arthur Bailey road, S of Ravenshoe, Jun 1995, *Forster PIF16743* (BRI); Koolmoon Creek, *c.* 11 miles [17.6 km] due SSE of Ravenshoe, Sep 1950, *Smith 3735* [distributed as *4635*] (BRI); Kirrama Range, Bryce Henry LA, SF 344, *c.* 38 km NW of Kennedy, Nov 1989, *Fell DF2037* (BRI).

***Distribution and habitat*:** *Pleioluma brownlessiana* is endemic to the Wet Tropics bioregion of north-east Queensland from the Annan River south of Cooktown to near Cardwell (**Map 8**). It occurs in several types of rainforest up to 1200 m altitude.

***Phenology*:** Flowers have been recorded from March to November and fruits from August to January.

***Note*:** *Achras ralphiana* is a *nomen nudum* because it was simply referred to under the description of a new section *Pierella* of the genus *Sersalisia* by Baillon. The reason why Mueller chose to name this tree for Brownless rather than Ralph, as was written on the labels but never corrected, remains obscure. However, there is sufficient similarity between the draft handwritten description mounted on the sheet MEL 710082 and the published description as well as the handwritten labels all bearing the name *Achras ralphiana* in Mueller's hand to indicate they refer to the same collection.

2. Pleioluma ferruginea Jessup **sp. nov.** differing from *P. papyracea* in the tertiary veins being not prominent below and from *P. brownlessiana* and *P. pilosa* in the lamina indumentum being mostly tortuous and more or less matted and from all the other Australian species by the persistent indumentum on the underside of the lamina. **Typus:** Queensland. Cook District: State Forest Reserve 143, Parish of Riflemead, North Mary Logging Area, 14 July 1988, *B. Gray 4887* (holo: BRI; iso: CNS).

Planchonella sp. (Mt Lewis B.P. Hyland 579); Jessup (1994).

Pouteria sp. (Mt Lewis B.P.Hyland 579); Jessup (1997; 2002, 2007).

Planchonella sp. (Mt Lewis B.Hyland 14048); Jessup (2010).

Pleioluma sp. (Mt Lewis B.P.Hyland 14048; Jessup (2015).

***Illustrations*:** Hyland (1971), as *Planchonella singuliflora RFK579*; Hyland *et al.* (2010).

Shrubs or trees to 5 m high (or more). Twigs with appressed, dark reddish brown straight and shortly tortuous trichomes, glabrescent. Leaves with petiole 6–25 mm long, channelled above; lamina obovate, oblanceolate or elliptic, 2.8–8 cm long, 1–4 cm wide, apex acute or obtuse or rounded, base shortly attenuate, appressed tomentose, glabrescent above, persistent below; secondary veins 6–9 pairs; tertiary veins obscured by indumentum below. Flowers 1–3 in leaf axils; pedicels (12–)16–22 mm long, with reddish brown appressed trichomes. Calyx lobes broadly ovate, 3.5–5 mm long, acute, reddish brown appressed pubescent on outside and inside. Corolla 8–9 mm long, lobes oblong-obovate to suborbicular, 2–2.5 mm long, ciliate on distal margin and sometimes with a few short trichomes on inner surface. Stamens 2.5–3 mm long, filaments 1.5–1.8 mm long, attached near the middle of the tube, anthers 2 mm long. Disk a ring of sericeous trichomes at the base of the ovary. Ovary ovoid-conical, *c.* 1.5 mm long, tapering to the conical style; style 5–6 mm long, appressed pubescent on lower half. Fruit ellipsoid, up to 2 cm long, 0.7–0.8 cm wide, fleshy, purple; style persistent, 6–7 mm long with an expanded and appressed pubescent base. Seed 1, ellipsoid, *c.* 17.5 mm by 6 mm by 4.5 mm (one specimen). **Fig. 4A–F.**

***Additional selected specimens examined*: Queensland.** Cook District: Summit of Mt Spurgeon, W of Mossman, Aug 1971, *van Balgooy 1611* (K, L); Summit of Mt Spurgeon, Aug 1971, *Stocker 774* (BRI, K, L); TR 140, Cow LA, Sep 1973, *Hyland 2874RFK* (BRI); North Mary LA, SF 143, Jul 1994, *Forster PIF15633 et al.* (BRI); *ibid*, Sep 2001, *Ford AF2452 & Holmes* (BRI); SFR 143 Riflemead, North Mary LA, Mar 1988, *Hyland 25406RFK* (CNS image!); SFR 143, Parish of Riflemead, Jun 1988, *Gray 4858 & 4859* (BRI); *ibid*, Sep 2003, *Gray 8749 & Jones* (BRI); *ibid*, Jul 1990, *Hyland 14048* (BRI, CNS); TR 130, Mt Lewis, *c.* 45 miles [72 km] NW of Cairns, Dec 1964, *Hyland 3444* (BRI, K, L); Mt Lewis Road, Jan 2009, *Gray 9279* (BRI).

***Distribution and habitat*:** *Pleioluma ferruginea* is endemic to the Wet Tropics bioregion of north-east Queensland, from Mt Spurgeon to Mt Lewis (**Map 11**), in simple evergreen notophyll and microphyll vineforest and vinethicket at altitudes of 1000 to 1300 m.

***Phenology*:** Flowers have been recorded from June to September and January; fruit in July.

***Etymology*:** The species epithet refers to the rusty brown colour of the indumentum on the newly expanded foliage and flower buds of this species.

3. Pleioluma laurifolia (A.Rich.) Swenson, *Taxon* 62: 764 (2013); *Sersalisia laurifolia* A.Rich. in J.S.C. Dumont d'Urville, *Voy. Astrolabe* 2: 84 (1834); *Achras laurifolia* (A.Rich.) F.Muell. ex Benth., *Fl. Austral.* 4: 282 (1868); *Sideroxylon richardii* F.Muell., *Syst. Census Austral. Pl.* 92 (1883); *Sideroxylon laurifolium* (A.Rich.) Engl. in Engler & Prantl, *Nat. Pflanzenfam. [Engler & Prantl]* 4(1): 144 (1890), *Bot. Jahrb. Syst.* 12: 517 (1890), *nom illegit. non* Lam. (1783); *Planchonella laurifolia* (A.Rich.) Pierre, *Not. Bot. Sapot.* 36 (1890); *Sideroxylon laurifolium* (A.Rich.) F.M.Bailey, *Queensland Fl.* 3: 957 (1900), *nom. illeg. non* Lam. (1783); *Pouteria richardii* (F.Muell.) Baehni, *Candollea* 9: 287 (1942); *Beccariella laurifolia* (A.Rich.) Aubrév., *Adansonia* ser. 2, 2: 193 (1962). **Type:** [Northern Territory] Baie Morton, NH [Melville Island] Voyage l'Astrolabe 6 [*s.dat.*, *C. Fraser s.n.*] (holo: P; iso: E, G, K).

[*Planchonella xerocarpa*, *auct. non* (F.Muell. ex Benth.) H.J.Lam; Dunlop (1987)].

***Illustration*:** Dumont d'Urville (1833: 84) [as *Sersalisia laurifolia*].

Trees to 20 m high. Twigs with appressed or felted trichomes. Leaves with petiole 12–30 mm long; lamina oblanceolate, oblong or narrowly obovate, (4–)8–15 cm long, 2.2–5 cm wide, apex acuminate, acute or obtuse, glabrescent; margins flat; secondary veins mostly 8–15 pairs; tertiary veins oblique or

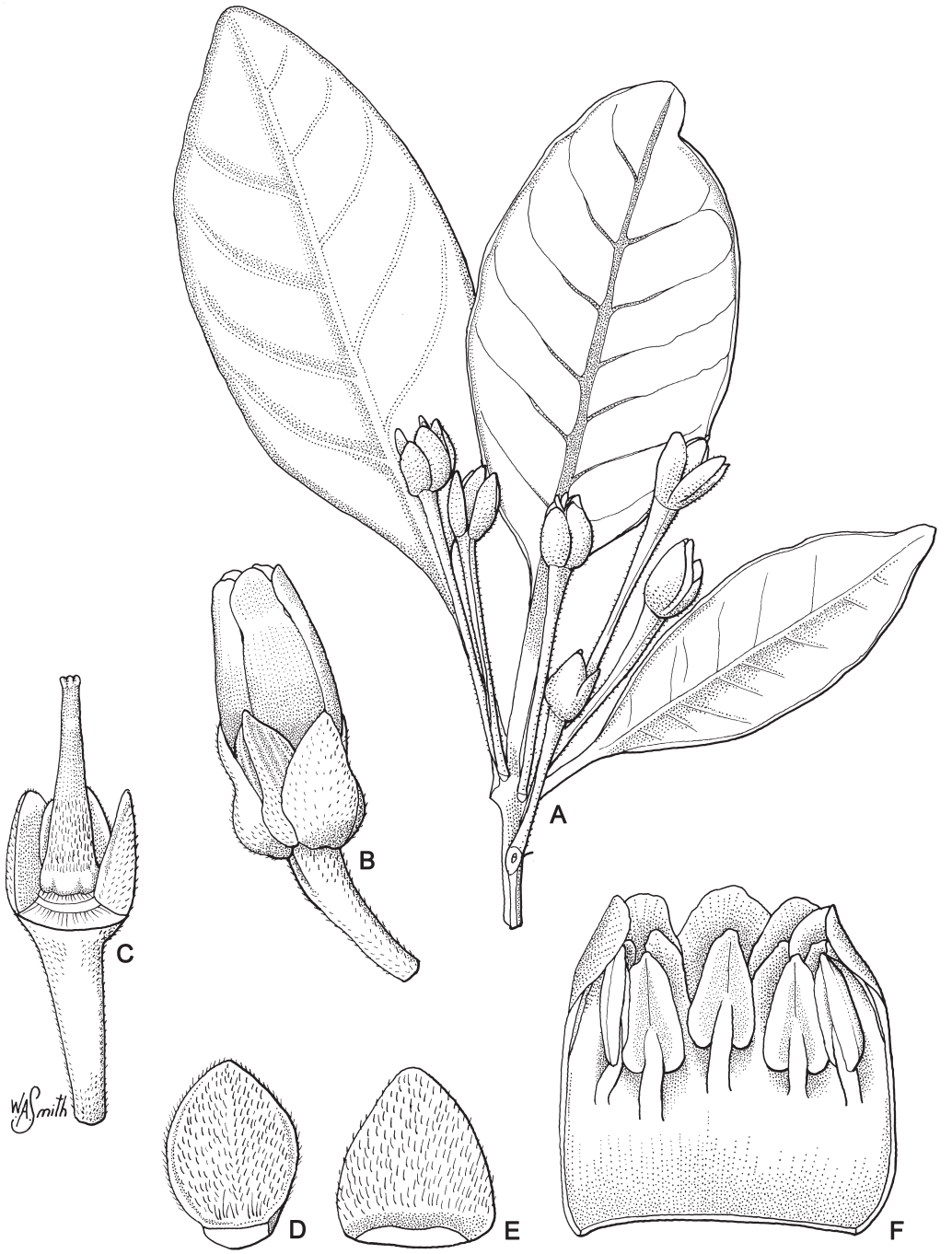

Fig. 4. A–F. *Pleioluma ferruginea*. A. habit ×2. B. flower ×4. C. dissected flower with corolla and two sepals removed ×4. D. inner sepal ×6. E. outer sepal ×6. F. dissected corolla ×8. A from *Gray 4887* (BRI); B from *Hyland 14048* (BRI); C–F from *Gray 4858* (BRI). Del. W. Smith.

horizontal, not prominent. Flowers several in axillary clusters; pedicels 6–15 mm long, with appressed trichomes. Calyx lobes broadly ovate to depressed ovate, 2–2.5 mm long; on outside appressed pubescent or felted, on inside sericeous. Corolla 2.8–3.5 mm long, tube 1.4–1.6 mm long, lobes oblong-linguiform, truncate, 1.4–1.6 mm long, margin mostly entire. Stamens 2–2.2 mm long, filaments 1.7–1.8 mm long, attached just above the base of the tube, anthers *c*. 0.8 mm long. Disk indistinct from base of ovary, pilose; ovary ovoid, *c*. 1 mm long, tapering to the style, mostly glabrous above the base; style 2–3 mm long, narrowly conical, glabrous. Fruit subglobose or broadly obovoid, 1.4–2 cm long, 1–1.2 cm wide, black, glabrous except for a few trichomes near the base, pericarp brittle when dry, style remnant *c*. 0.5 mm long, not expanded at the base. Seeds up to 4, ovoid or ellipsoid, often flattened on one surface, 11–13 mm long; 5–5.5 mm wide and 4.3–6.2 mm thick; seed scar *c*. 0.5 mm wide, less than half the length of the seed.

***Additional selected specimens examined*: Northern Territory.** Taracumbie Creek, Melville Island, May 1978, *Webb & Tracey 12378* (BRI); Moyle River Catchment Area, Kurrowa Creek, May 1983, *Dunlop 6489 & Wightman* (BRI); Muldiva Creek, Feb 1989, *Dunlop 7978 & Leach* (BRI); *ibid*, May 1983, *Dunlop 6489 & Wightman* (BRI); Kakadu NP, bottom of Mangela Creek Falls, Mar 2002, *Dixon & Leach 1032* (BRI); Kakadu NP, 15 km SE of Jim Jim Falls, Jun 1988, *Russell-Smith 5698 & Lucas* (BRI); Sandy Creek Falls, Litchfield NP, Jul 1990, *Russell-Smith 8321 & Lucas* (BRI); 10 km SE of Jabiru, Mar 1981, *Craven & Whitbread 7850* (BRI); Tolmer Falls, Litchfield Park, Sep 1990, *Brock 734* (BRI); *ibid*, Jun 1991, *Brock 791* (BRI); 10 miles [16 km] NE Moline, Mar 1971, *Dunlop & Byrnes 210*1 (BRI); Radon Creek, Mt Brockman, West Arnhem Land Escarpment, May 1978, *Webb & Tracey 12379* (BRI); *ibid,* May 1978, *Webb & Tracey 12763* (BRI); McCallums Creek, Woolaning Station, NW of Mt Tolmer, May 1978, *Webb & Tracey 12380 & 12761* (BRI); Few km N of Woolaning on Bamboo Creek road, May 1978, *Webb & Tracey 12584* (BRI); Twin Falls Gorge, Jim Jim Creek, West Arnhem Land Escarpment, May 1978, *Webb & Tracey 12764* (BRI); NE of Blyth Homestead, western bottom slopes of Mt Tolmer, May 1978, *Webb & Tracey 12762* (BRI); 13° 20’ S 131° 05’ E, Jan 1972, *Byrnes 2478* (BRI).

***Distribution and habitat*:** In Australia *Pleioluma laurifolia* occurs in the Northern Territory in scattered localities from Melville Island to the Moyle River and Kakadu National Park (**Map 9**), predominantly in evergreen notophyll vineforest. It also occurs in Malesia, including New Guinea.

***Phenology*:** Flowers mostly March to July. Fruit mostly July to February.

***Typification*:** Only two of many specimens cited by van Royen (1957) belong to *Pleioluma laurifolia*, *viz.* Melville Island, *Fraser 226* (K) and Moreton Bay: Voyage de l’Astrolabe 6 (P). Both are almost certain to be replicates of the same gathering, the Paris specimen being part of a gift of specimens to the French visitors to Sydney on the second voyage of the Astrolabe (1826–1829) by Charles Fraser along with some of his Moreton Bay collections. This appears to be the reason why the Paris specimen is labelled “Baie Morton, N.H.”. See note under *Pouteria queenslandica* in Jessup (2001).The remaining specimens cited by van Royen (1957) as well as his Fig. 31 under *Planchonella laurifolia* are referable to *Pleioluma queenslandica*.

4. Pleioluma macrocarpa (P.Royen) Swenson, *Taxon* 62: 764 (2013); *Planchonella macrocarpa* P.Royen, *Blumea* 8: 320, 429, fig. 27 (1957); *Pouteria pearsoniorum* Jessup, *Austrobaileya* 6: 163 (2001), *non Pouteria macrocarpa* (Martius) D.Dietrich, *Syn. Pl. [D. Dietrich]* 1: 431 (1839) *et non Pouteria macrocarpa* (Huber) A.Ducke, *Bol. Técn. Inst. Agron. N.* No.8. 11 (1946); *Beccariella macrocarpa* (P.Royen) Swenson, Bartish & Munzinger, *Cladistics* 23: 221 (2007). **Type:** Queensland. Cook District: Kaban, *s.dat.*, *Pearson brothers s.n.* (holo: BRI [AQ22578]; iso: BRI, L).

***Illustrations*:** van Royen (1957: 321, fig. 27 [as *Planchonella macrocarpa*]); Cooper & Cooper (2004: 511); Hyland *et al.* (2010) [latter two as *Pouteria pearsoniorum*].

Trees to 25 m high. Twigs with persistent reddish-brown appressed trichomes. Leaves with petiole channelled above, (25–)40–85 mm long, covered in short reddish-brown appressed trichomes, glabrescent; lamina narrowly obovate or elliptic, (6–)10–26 cm long, (2.5–)5–7 cm wide, apex obtuse or rounded or acute or bluntly acuminate, glabrescent, soon glabrous; margins flat or

recurved; secondary veins 6–12 pairs; tertiary veins indistinct, slightly raised below, oblique to nearly horizontal near lamina apex. Flowers axillary (solitary or few?); pedicels 6–10 mm long, pale to reddish brown sericeous or felted. Calyx lobes broadly ovate to lanceolate, 4.5–6 mm long, sericeous both sides. Corolla tube 4–4.5 mm long, lobes obovate, 2.5–3 mm long, margin mostly entire. Stamens 5, 3–3.5 mm long, attached near the middle of the corolla tube, filaments 2.5–2.7 mm long, anthers *c*. 1.2 mm long. Staminodes linear, *c*. 1.5 mm long. Disk pulvinate, 5-lobed, hirsute. Ovary ovoid, *c*. 2 mm long, glabrous, tapering to the conical style *c*. 5.5 mm long, glabrous. Fruit ellipsoid, 5–6(–8) cm long, 3.5–4.5 cm wide, dark purple, glabrous. Seeds 1–3, obovoid, laterally flattened, 30–40 mm long, 10–13 mm wide, 16–19 mm thick; testa light brown; scar slightly shorter than the seed and *c*. 3 mm wide.

***Additional selected specimens examined*: Queensland.** Cook District: Daintree NP, NW of Black Mountain, May 1998, *Forster PIF22889 et al.* (BRI); TR 143 Zarda LA, near Zarda Clearing, Sep 1973, *Hyland 2903RFK* (BRI, CANB, L); Mt Spurgeon near Schillers Hut, Sep 1972, *Webb & Tracey 11786* (BRI); Mt Lewis, Oct 1971, *Webb & Tracey 10505* (BRI); SFR 143, North Mary LA, Dec 1977, *Gray 825* (BRI); *ibid*, Dec 1982, *Gray 2900* (BRI); SFR 263, Apr 1971, *Stocker 661* (BRI, L); SFR 194, Herberton Range, Plath Road, Nov 1980, *Gray 1838* (BRI); Longlands Gap, Feb 1980, *Winter L71* (CNS); SFR 194, Parish of Barron, Longlands Gap, Sep 1987, *Gray 4603* (BRI).

***Distribution and habitat*:** *Pleioluma macrocarpa* is endemic to the Wet Tropics bioregion of north-east Queensland and occurs from Black Mountain in the Daintree NP to Mt Lewis and also in the Herberton Range SF between Herberton and Ravenshoe (**Map 10**).

***Phenology*:** Flowers have been recorded in February; fruits in September and November to January.

5. Pleioluma papyracea (P.Royen) Swenson, *Taxon* 62: 765 (2013); *Planchonella papyracea* P.Royen, *Blumea* 8: 347, 431 fig. 35 (1957); *Beccariella papyracea* (P.Royen) Aubrév., *Adansonia* ser. 2, 3: 335 (1964); *Pouteria papyracea* (P.Royen) Baehni, *Boissiera* 11: 59 (1965). **Type:** Queensland. Cook District: 20 miles [32.2 km] NE of Atherton, 11 November 1949, *N.L. Krauss 102* (holo: BRI; iso: L).

***Illustrations*:** van Royen (1957: 348, fig. 35 [as *Planchonella papyracea*]); Cooper & Cooper (2004: 511); Hyland *et al.* (2010) [latter two as *Pouteria papyracea*].

Trees to 35 m high. Twigs with reddish brown appressed and matted trichomes. Leaves with petiole flattened above, (14–)20–30 mm long, puberulous; lamina obovate, 4–15 cm long, 3–7.5 cm wide, apex obtuse, base broadly acute, with appressed trichomes above and below, glabrescent; margins recurved or revolute; secondary veins 8–17 pairs, prominently raised below; tertiary veins oblique, prominently raised below. Flowers several in each axil; pedicels 7–10 mm long, reddish brown felted. Calyx lobes ovate, 3–3.5 mm long; reddish brown felted outside, sericeous on inside. Corolla tube 2–2.5 mm long, lobes suborbicular or quadrangular, 2–2.2 mm long, distal margin sparsely ciliolate. Stamens 5, 2.5–3 mm long, attached between base and middle of tube, filaments 1.8–2 mm long, anthers 1.1–1.2 mm long. Staminodes oblong, truncate, 1.5–2 mm long. Disk reddish brown hispid. Ovary ovoid, *c*. 1.5 mm long, reddish brown hispid, tapering to the style; style narrowly conical, 3–4 mm long, glabrous. Fruit obovoid to narrowly obovoid, 2–3 cm long, 1.5–2.5 cm wide, dark purple to black, glabrescent or glabrous, rounded with a depression at the apex containing the persistent style *c*. 1.5 mm long; the depression bearing persistent appressed trichomes. Seeds 1 or 2, obovoid, flattened on one side, 15–19 mm long, 9–11 mm wide, 8–9 mm thick; scar 12–15 mm long and up to 2 mm wide.

***Additional selected specimens examined*: Queensland.** Cook District: SFR 144 Windsor Tableland, Nov 1977, *Stocker 1621* (BRI); SFR 144, Aug 1977, *Gray 633* (BRI); SFR 143, Windmill LA, Mar 1979, *Gray 1297* (BRI, CNS, MEL); SFR 607 Emerald LA, Aug 1980, *Gray 1777* (BRI); SFR 185, Emerald Creek LA, May 1971, *Dockrill 84* (BRI); SFR 607, Davies LA, Jan 1982, *Gray 2342* (BRI); SFR 194, Parish of Barron, Scrubby LA, Mar 1987, *Gray 4434* (BRI); SFR 185, Noel LA, Feb 1978, *Risley 479* (BRI); Tinaroo Range, near Danbulla, Jan 1947, *Byrne s.n.* (BRI [AQ34535]); SFR 194, Hugh Nelson Range, Sep 1980, *Gray 1787* (BRI, CNS); *ibid*, Oct 1975, *Irvine 1637* (BRI); On the range between

Atherton and Herberton, SFR 99, Dec 1952, *White 53/266 (426)* (BRI); Reserve 99, Western, Mar 1954, *White 710* (BRI). North Kennedy District: Herberton Range, in 1962, *Webb & Tracey 7943* (BRI); Girrungun NP, off walking track, *c.* 1.3 km from Burgoo Creek, CSIRO EP 19, W of Ingham, Nov 2005, *Ford 4762 & Bradford* (BRI); Mt Fox, Dec 1954, *Volk 942* (BRI); Mt Spec, *c.* 32 km S of Ingham, Sep 1954, *Smith 5358* (BRI). South Kennedy District: Eungella Ra[nge], *s.dat*., *Crain s.n.* (BRI [AQ34542]).

***Distribution and habitat*:** *Pleioluma papyracea* is endemic to north-east Queensland from Mt Windsor Tableland to Eungella Range (**Map 10**) and occurs mostly in notophyll vineforest on soils derived from granite or rhyolite.

***Phenology*:** Flowers have been recorded from January to March and fruit from August to February.

6. Pleioluma pilosa Jessup **sp. nov.** differing from *P. papyracea* in the tertiary veins being not prominent below and from *P. brownlessiana* and *P. ferruginea* in the lamina indumentum being mostly erect and not appressed to the leaf lamina and all the other Australian congeners by the persistent indumentum on the underside of the lamina. **Typus:** Queensland. Cook District: Wooroonooran National Park, along track to Towalla Mine, 17 January 2014, *A. Ford AF6291 & W. Cooper* (holo: BRI).

Trees to 18 m high. Twigs tomentose with mostly erect, tortuous or curved reddish brown 2-branched trichomes, glabrescent. Leaves with petiole channelled above, (6–)8–12(–17) mm long; lamina obovate or broadly elliptic to almost orbicular, 2–7(–12) cm long, 1.5–4(–6) cm wide, adult foliage with apex obtuse or rounded, base obtuse and recurved margins, juvenile foliage with apex oblanceolate and acuminate, base acute or attenuate and flat margins, at first densely tomentose with tortuous and erect reddish brown trichomes, the upper surface nearly glabrous at full expansion, the lower surface with mostly erect 2 or rarely 3-branched trichomes, glabrescent and nearly glabrous when older; secondary veins (4–)6–9 pairs, impressed above, conspicuous below; tertiary veins oblique, obscure above and slightly less so below. Flowers 1–3 in leaf axils; pedicels (12–)15–18 mm long, with reddish brown tortuous and erect trichomes. Calyx lobes narrowly ovate, 4–5 mm long, acute, reddish brown tomentose on outside, sericeous on inside. Corolla 8.8–9.2 mm long, lobes suborbicular, 2.5–3 mm long, ciliate on distal margin, the corolla is elsewhere glabrous. Stamens 2.5–3 mm long, filaments 1.6–1.8 mm long, attached near the middle of the corolla tube, anthers *c*. 1.6 mm long. Disk indistinct, sericeous. Ovary ovoid-conical, *c*. 2.5 mm long, appressed pubescent and tapering to the conical style; style *c*. 7.5 mm long, appressed pubescent on lower half. Fruit not seen. **Figs. 5A–E, 6, 7.**

***Additional specimens examined*: Queensland.** Cook District: Gadgarra SF, SW of extension of Gadaloff Road, Apr 1995, *Horton SH1257* (BRI); Ridgeline between Butcher Creek and Caribou Creek, near spot height 652, Gadgarra SF, Jun 1995, *Hunter JH3993* (BRI); Narrow ridgetop on E fall of Bellenden Ker, Jan 1995, *Hunter JH945A* (BRI); Narrow ridgetop on Bartle Frere Track, Jan 1995, *Hunter JH446* (BRI); NPR 904, Wooroonooran, along Donkey Track off Russell River Track, site 29, above Chuck Lunga Creek, Oct 2001, *Ford AF2958 et al.* (BRI); Topaz, Dec 1983, *Tucker 38* (BRI); Towalla, W end of Francis Range, Aug 1995, *Hunter JH5279* (BRI).

***Distribution and habitat*:** *Pleioluma pilosa* is endemic to the Wet Tropics of north-east Queensland and is distributed along the eastern edge of the Atherton Tableland in Gadgarra SF and Wooroonooran NP to the western end of the Francis Range (**Map 11**). It occurs in simple notophyll vineforest on soils derived from granitic or metamorphic rocks.

***Phenology*:** Flowers have been recorded in January.

***Etymology*:** The species epithet refers to the long ascending trichomes particularly on the lamina undersurface of this species.

7. Pleioluma queenslandica (P.Royen) Swenson, *Taxon* 62: 765 (2013); *Planchonella queenslandica* P.Royen, *Blumea* 8: 341, 430 (1957); *Beccariella queenslandica* (P.Royen) Aubrév., *Adansonia* ser. 2, 3: 335 (1964); *Pouteria queenslandica* (P.Royen) Jessup, *Austrobaileya* 6: 161 (2001). **Type:** Queensland. South Kennedy District: Eungella Mts, 31 March 1937, *H.H. Haines 136Q* (holo: K).

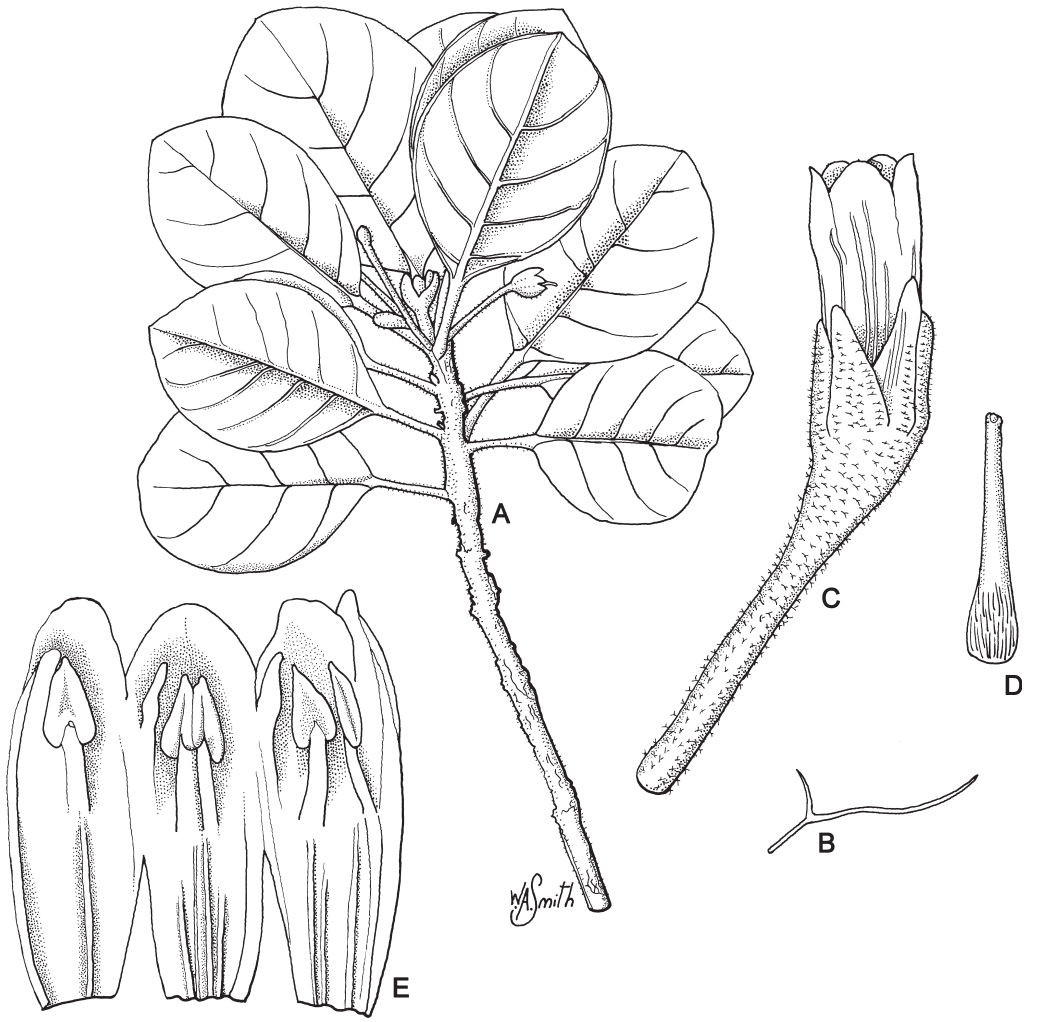

Fig. 5. A–E. ***Pleioluma pilosa***. A. habit ×1. B. trichome from underside of lamina ×48. C. flower ×4. D. ovary ×4. E. dissected corolla ×6. All from *Ford AF6291 & Cooper* (BRI). Del. W. Smith.

Sideroxylon laurifolium (A.Rich.) F.M.Bailey, *Queensland Fl.* 3: 957 (1900) *pro parte*, excluding Fraser specimen.

[*Planchonella laurifolia auct. non* (A.Rich.) Pierre; Francis (1951: 352–353); van Royen (1957: 339–341, excluding type and Northern Territory specimens)].

***Illustrations*:** Francis (1951: 350 & 351 [as *Planchonella laurifolia*]; van Royen (1957: 340, fig. 31 [as *Planchonella laurifolia*], 342, fig. 32 [as *Planchonella queenslandica*]); Hyland *et al.* (2010); Harden *et al.* (2013) [as *Pouteria queenslandica*].

Trees to 30 m high, sometimes gynomonoecious. Twigs with few appressed trichomes, glabrescent. Leaves with petiole channelled above, 10–25 mm long, sericeous but soon glabrous; lamina elliptic or oblong or obovate, 5–14 cm long, 1.5–5.5 cm wide, apex obtuse or emarginate, base acute or shortly attenuate, glabrous above, with very sparse appressed trichomes and glabrescent below;

Fig. 6. ***Pleioluma pilosa*** (*Ford AF6291 & Cooper*, BRI). Photo: A. Ford.

Fig. 7. ***Pleioluma pilosa*** (*Ford AF6291 & Cooper*, BRI). Photo: A. Ford.

margins mostly flat; secondary veins 6–10 pairs, not prominent; tertiary veins weakly oblique, often indistinct. Flowers 1–4, axillary; pedicels slender, angular, 5–12 mm long, with white appressed trichomes, glabrescent. Calyx lobes broadly ovate or depressed ovate, 2.2–2.8 mm long; on outside appressed pubescent or sericeous, glabrescent, on inside sericeous. Corolla tube 2.7–3 mm long, lobes suborbicular, 2–2.5 mm long, margin usually sparsely ciliolate. Stamens 5(–6), 2.5–2.7 mm long; filaments 1.5–2 mm long, attached near the middle of the tube; anthers 1.5 mm long. Staminodes oblong 1–1.5 mm long. Disk inconspicuous, hirsute. Ovary ovoid, *c.* 1.2 mm long, glabrous, tapering to the style; style narrowly conical, 3.5–4 mm long, glabrous. Fruit narrowly obovoid, 1.2–2 cm long, 0.7–1 cm wide, fleshy, black, glabrous; style persistent, 3–3.5 mm long, with a broad base, glabrous. Seed usually 1, ellipsoid, 9–15 mm long, 6–8 mm wide, 5–7 mm thick; seed scar more than half length of seed, *c.* 1 mm wide. *Blush coondoo.*

***Additional selected specimens examined*: Queensland.** Cook District: Round Mountain, Embley Range, Silver Plains, Jul 1997, *Forster PIF21387 et al.* (BRI); TR 14 McIlwraith Range, Sep 1974, *Hyland 3092* (BRI, L). North Kennedy District: Seaview Range, Waterview Creek, Dec 2002, *Ford 3732 & Holmes* (BRI); Taravale, Coane Range, E of the Paluma – Taravale Road, Nov 2001, *Ford AF3090 & Holmes* (BRI); Mt Storth, SE of Townsville, Nov 1995, *Cumming 13816* (BRI); Mt Aberdeen NP, W of Bowen, May 1992, *Forster PIF9975 et al.* (BRI); Headwaters of Dryander Creek, Mt Dryander, Oct 1969, *Webb & Tracey 1008* (BRI); SFR 299 Conway, Cedar Creek, May 1975, *Hyland 4244RFK* (BRI). South Kennedy District: SF 652 Cathu, North Road, Clarke Range, Feb 2004, *Forster PIF30011 et al.* (BRI); Dalrymple Heights, Jul 1947, *Clemens s.n.* (BM, BRI [AQ34414], G, K, L); Clarke Range, Eungella NP, lookout 1 km S of Mt David, Apr 1991, *Telford 11174 & Rudd* (BRI). Port Curtis District: Shoalwater Bay, Mt Parnassus sector, May 1999, *Brushe JB1876 & Brushe* (BRI); Upper reaches of Sawpit Creek, Grevillea Range, 14 km SSE of Lowmead, Jun 1995, *Bean 8712* (BRI); Resumption LA, SF 391 Bulburin, Dec 1993, *Forster PIF14544 et al.* (BRI). Wide Bay District: Eel Creek, 16 km S of Biggenden, Jul 1981, *Young 395 & Randall* (BRI); near Noosa Heads, Aug 1956, *Blake 20037* (BRI). Moreton District: Mt Eerwah, 4 km W of Eumundi, Jan 1985, *Sharpe 3706 & Tan* (BRI), *Sharpe 3707 & Tan* (BRI). **New South Wales.** Mooball SF, near Burringbar, Jun 1947, *Ruttley s.n.* (NSW41821); Brunswick River upstream from Pacific Highway, May 1977, *Floyd 378* (BRI).

***Distribution and habitat*:** *Pleioluma queenslandica* is endemic to north-eastern Australia and occurs from the McIlwraith Range, north Queeensland to the Brunswick River, north-east New South Wales (**Map 7**) in various forms of notophyll and microphyll vineforest including riverine forest and ecotones with eucalypt forest.

***Phenology*:** Flowers have been recorded from May to February and fruit from June to March.

8. Pleioluma singuliflora (C.T.White & W.D.Francis) Swenson, *Taxon* 62: 765 (2013); *Sideroxylon singuliflorum* C.T.White & W.D.Francis, *Proc. Roy. Soc. Queensland* 37: 161, Pl. 7 (1926); *Pouteria singuliflora* (C.T.White & W.D.Francis) Baehni, *Candollea* 9: 316 (1942); *Planchonella singuliflora* (C.T.White & W.D.Francis) P.Royen, *Blumea* 8: 345, fig. 34 (1957); *Beccariella singuliflora* (C.T.White & W.D.Francis) Swenson, Bartish & Munzinger, *Cladistics* 23: 221 (2007). **Type:** Queensland. Cook District: Bellenden Ker, near the summit of Central Peak, January 1923, *C.T.White s.n.* (holo: BRI [AQ022593]; iso: A *n.v.*, K, MEL).

***Illustrations*:** van Royen (1957: 346, fig. 34 [as *Planchonella singuliflora*]); Cooper & Cooper (2004: 512); Hyland *et al.* (2010) [latter two as *Pouteria singuliflora*].

Shrubs or trees to 10 m high. Twigs appressed sericeous. Leaves with petiole flattened or channelled above, 3–15 mm long, sparsely puberulous; lamina narrowly obovate or oblanceolate, 1.5–13 cm long, 0.8–3.5 cm wide, apex bluntly acuminate or acute to rounded, base acute or shortly attenuate, appressed trichomes present on young foliage, soon glabrous above and below, margins recurved; secondary veins 4–9 pairs; tertiary veins horizontal near midvein, obliquely to laxly reticulate in the distal part, scarcely visible. Flowers 1(–2), axillary; pedicels terete, 15–40 mm long. Calyx lobes broadly or depressed ovate, 4–5.5 mm long, on outside glabrescent, inner sepals appressed pubescent near the middle, on inside sericeous, margin ciliate. Corolla tube 6–6.5 mm long, lobes oblong, 4–5.5 mm long, margin ciliolate. Stamens 3–3.5 mm long; filaments 1.7–2 mm long, attached near the middle of the tube; anthers 1.9–2.2 mm long. Staminodes oblong, *c*. 2 mm long, obliquely truncate at apex. Disk indistinct, with short trichomes at base of ovary. Ovary depressed ovoid, *c*. 1.5 mm long, sericeous at base, style conical, 7–8.2 mm long, glabrous. Fruit ellipsoid, 2–3 cm long, 0.8–1 cm wide, fleshy, glabrous or nearly so; style persistent, 6.5–7 mm long with an expanded and glabrous base. Seeds 1(–2), ellipsoid, 13–16 mm long, 3.5–4 mm wide, 6–7 mm thick; seed scar up to 12 mm long and 0.5–1 mm wide.

***Additional selected specimens examined*: Queensland.** Cook District: TR165 Pieter Botte LA, May 1977, *Hyland 9358* (BRI); VCL Noah, Upper Noah Creek, May 1977, *Hyland 9353* (BRI); Thornton Peak, Nov 1973, *Hartley 14033* (BRI, CANB, L); TR143 Zarda LA, near Zarda clearing, Sep 1973, *Hyland 2895RFK* (BRI, CANB); SFR 310, Upper Goldsborough LA, Mar 1978, *Gray 922* (BRI); Mt Bellenden Ker, Jun 1969, *Smith 14616* (BRI, L); Wooroonooran NP, Mt Bellenden Ker summit, Dec 2000, *Forster PIF26517 et al.* (BRI); *ibid*, Dec 2001, *Forster PIF27946 et al.* (BRI); E Bartle Frere, Oct 1994, *Hunter JH2184* (BRI); Bellenden Ker Range, Mt Bartle Frere NW Peak, May 1991, *Telford 11402 & Rudd* (BRI); NPR 904, Wooroonooran, just S of tower No. 9, Mt Bellenden Ker cableway, Jan 2005, *Ford 4547 & Metcalfe* (BRI); Bellenden Ker, Nov 1972, *Hyland 6573* (BRI); SFR 310, Bellenden Ker LA, Nov 1975, *Dockrill 1085* (BRI); Centre Peak near TV tower, summit of Bellenden Ker, Nov 1972, *Webb & Tracey 10800* (BRI); Mt Bartle Frere, May 1955, *Volk 1010* (BRI); E Bartle Frere, Oct 1994, *Hunter JH2184* (BRI).

***Distribution and habitat*:** *Pleioluma singuliflora* is endemic to the Wet Tropics bioregion of north-east Queensland and occurs in and around the Daintree NP from Mt Pieter Botte to west of Mossman and in Wooroonooran NP (**Map 8**), in upland and montane rainforest above 450 m altitude.

***Phenology*:** Flowers have been recorded from September to May and fruit from May and October.

9. Pleioluma xerocarpa (F.Muell. ex Benth.) Swenson, *Taxon* 62: 765 (2013); *Achras xerocarpa* F.Muell. ex Benth., *Fl. Austral.* 4: 281 (1868); *Sideroxylon xerocarpum* (F.Muell. ex Benth.) F.Muell., *Syst. Cens. Austral. Pl.* 91 (1883); *Planchonella xerocarp*a (F.Muell. ex Benth.) H.J.Lam, *Bull. Jard. Bot. Buitenzorg* ser. 3, 7: 218 (1925); *Sersalisia xerocarpa* (F.Muell. ex Benth.) Domin, *Biblioth. Bot.* 89: 508 (1928); *Beccariella xerocarpa* (F.Muell. ex Benth.) Aubrév., *Adansonia* ser. 2, 3: 335 (1964); *Pouteria xerocarpa* (F.Muell. ex Benth.) Baehni, *Boissiera* 11: 58 (1965). **Type:** Queensland. Cook District: Murray River [Rockingham Bay], 22 February 1867, *J. Dallachy s.n.* (lecto: MEL 233064 [here selected specimen 'B' on LHS of sheet]).

***Illustration*:** Hyland *et al.* (2010) [as *Pouteria xerocarpa*].

Trees to 23 m high, commonly gynomonoecious. Twigs sericeous. Leaves with petiole channelled above, 10–35 mm long, sericeous; lamina oblanceolate or elliptic, 7–16 cm long, 2–5 cm wide, apex acuminate or acute, base acute or attenuate, appressed trichomes *c*. 1 mm long present on young foliage, soon glabrous above, glabrescent below; margins flat; secondary veins 7–16 pairs; tertiary veins oblique, almost invisible. Flowers 1–3, axillary; pedicels 6–12 mm long, felted. Calyx lobes broadly ovate or depressed ovate, 3–4.2 mm long; appressed pubescent and glabrescent outside, sericeous inside. Corolla 5–6 mm long; tube 3–4 mm long, lobes suborbicular or oblong-obovate, 1.8–2.5 mm long, margin mostly entire. Stamens 3–4 mm long (vestigial or completely reduced in female flowers); filaments 2–2.7 mm long, attached near the base of the corolla tube; anthers 1–1.3 mm long. Staminodes oblong, *c*. 1.5 mm long. Disk inconspicuous, sericeous. Ovary ovoid, *c*. 2 mm long, sericeous at base, style conical, 4–4.5 mm long. Fruit ellipsoid, 1.8–2.5 cm long, 1–1.3 cm wide, fleshy, black; style persistent, 2–4 mm long with an expanded and appressed pubescent base. Seed 1, obovoid or ellipsoid, 13–16 mm long, 3.5–5 mm wide, 5–7 mm thick; seed scar more than half length of seed, *c*. 1 mm wide.

***Additional selected specimens examined*: Queensland.** Cook District: McIvor River N of Cooktown, in 1962, *Webb & Tracey 7793* (BRI); Hope Vale Aboriginal Reserve, 5.7 km NE of Hope Vale Community, Nov 1993, *Fell DGF3830 & Stanton* (BRI); Mt Cook, NP 142, 0.2 km NNE of Mt Cook summit, Feb 1993, *Fell DGF2832 & Stanton* (BRI); 4.5 km along Mt Misery Telecom track from intersection with Normanby Tin Mine track, Nov 1989, *Jessup GJD2876 et al.* (BRI); Daintree NP, NW of Black Mountain, May 1998, *Forster PIF22885 et al.* (BRI); Baileys Creek, N of Daintree River, in 1962, *Webb & Tracey 6481* (BRI); Rex Range, Dec 1988, *Sankowsky 964 & Sankowsky* (BRI); SFR 310, Goldsborough LA, Jan 1982, *Gray 2394* (BRI); Juara Creek between Kairi and Danbulla, Aug 1947, *Smith 3349 & Webb* (BRI, K, L); *ibid*, Aug 1948, *Smith 3784* (BRI); Atherton, Rotary Park, Apr 1964, *Hyland 3051* (BRI); Yarrabah, *c*. 9 miles [14.4 km] E of Cairns, May 1965, *Martin s.n.* (BRI [AQ34614]); Wyvuri Holding on coastal range of Babinda, Feb 1973, *Stocker 979* (BRI); 1.4 km SE of Cooroo Peak, at the head of Culla Creek, 14 km NW of South Johnstone, Oct 1988, *Jessup GJM2521 et al.* (BRI); El Arish – Mission Beach Road, in 1962, *Webb & Tracey 6784* (BRI). North Kennedy District: Alcock FR, rafting access point No.9, 5.2 km from Tully River camping area, Feb 2002, *Ford AF3282 & Holmes* (BRI); Kirrama Range, W of Kennedy, between Society Flat and Yuccabine Creek, Aug 1947, *Smith & Webb 3216* (BRI); Mt Fox, near Ingham, Nov 1949, *Clemens s.n.* (BRI [AQ34626]); Paluma Range – Dotswood Holding, Jun 1974, *Hyland 7282* (BRI, L); Bluewater Range, WNW of Townsville, Nov 1996, *Cumming 15320* (BRI); Mt Spec forestry camp, Nov 1933, *Francis s.n.* (BRI [AQ34619]).

***Distribution and habitat*:** *Pleioluma xerocarpa* is endemic largely to north-east Queensland and occurs from the McIvor River, Cooktown to Paluma Range (**Map 12**) in mostly notophyll vineforest.

***Phenology*:** Flowers have been recorded from August to April and fruit from August to December.

8. PLANCHONELLA

Planchonella Pierre (*nom. cons.*), *Not. Bot. Sapot.* 34 (1890). **Type:** *P. obovata* (R.Br.) Pierre (*type cons.*).

Shrubs or trees, hermaphrodite or gynomonoecious. Leaves spirally arranged, entire; stipules absent. Secondary venation mostly brochidodromous or eucamptodromous; intersecondaries rarely present. Tertiary venation mostly reticulate (areolate venation absent). Inflorescence axillary, fasciculate. Flowers (4–)5(–6)–merous**,** sometimes with just an extra corolla lobe, bisexual or female. Sepals in one whorl, free, quincuncial, mostly glabrous inside, persistent in fruit. Corolla tubular, the tube as long as or longer than the lobes, lobes erect, often widening slightly near apex. Stamens inserted just below the orifice of the tube, glabrous, included; anthers ovate, basifixed. Staminodes inserted in the corolla sinus, oblong, lanceolate, subulate, or aristate, glabrous. Gynoecium with a conical or slender style, exserted beyond corolla or not prior to anthesis, mostly included at anthesis, often persistent in fruit; apex of style with round stigmatic areas. Fruit a berry, seeds 1–5, laterally compressed, sometimes keeled; testa shining or dull, brown; seed scar linear-oblong, narrow, covering 90%–100% of seed length, rarely shorter; cotyledons thin and foliaceous; radicle exserted below the cotyledon commissure; endosperm copious.

A genus of at least 110 species distributed from Thailand and southern China through Malesia, Australia and the Pacific islands especially New Caledonia but also including Hawaii and French Polynesia (Swenson *et al.* 2013), with 12 species in Australia.

Key to the Australian species of *Planchonella*

1 Calyx glabrous inside or with only a few hairs **2**
1. Calyx pubescent, sericeous, or tomentose inside **10**

2 Tertiary veins mostly oblique or weakly horizontal and joining the midvein, sometimes weakly reticulate; corolla lobes quadrangular, 1.2–1.5 mm long, sometimes with a short acumen; fruit 3.5–8 cm long, 3–8 cm wide . . . . . **12. P. xylocarpa**
2. Tertiary veins laxly reticulate or descending towards the midvein parallel to the secondaries (admedial); corolla lobes ovate, suborbicular, oblong, or linguiform, 1.5–4 mm long; fruit to 3 cm long and to 3.6 cm wide **3**

3 Base of style thickened or broadened in fruit **4**
3. Base of style not thickened or broadened in fruit **6**

4 Lamina closely appressed hyaline pubescent below, glabrescent with age; corolla lobes ovate or suborbicular. Ovary 5-lobed, style longer than the mature ovary, 2.2–2.5 mm long . . . . . **2. P. asterocarpon**
4. Lamina hairs various but not closely appressed hyaline pubescent below, corolla lobes obovate or oblong or linguiform. Ovary not lobed, style as long as the mature ovary, 1.2–1.5 mm long. **5**

5 Lamina obovate or broadly obovate; petiole mostly 20–40 mm long or more; fruit persistently pubescent or tomentose at least near base, glabrescent with age. . . . . **1. P. arnhemica**
5. Lamina narrowly obovate or oblanceolate; petiole mostly 5–15 mm long; fruit glabrous well before maturity . . . . . **11. P. pohlmaniana**

6 Corolla lobes more than half as long as tube; style up to 3 mm long. **7**
6. Corolla lobes less than half as long as tube; style 6 mm long or more **9**

7 Lamina glabrescent below; corolla lobes oblong, 3–3.5 mm long. Disk absent; seeds more than 20 mm long . . . . . **6. P. eerwah**
7. Lamina persistently appressed pubescent below; corolla lobes ovate, or linguiform, up to 2.2 mm long. Disk present; seeds less than 20 mm long **8**

8 Calyx, twigs and petioles with reddish brown hairs. Fruit sericeous or pubescent; 2–3.5 cm long. Seeds 15–20 mm long; 6–8 mm wide . . . . . **7. P. euphlebia**
8. Calyx twigs and petioles with hyaline or pale brown hairs. Fruit glabrous or nearly so; 1–1.5 cm long. Seeds 8–12 mm long; 2–3.5 mm wide . . . . . **10. P. obovata**

9 Petioles 3–8 mm long; lamina mostly elliptic or lanceolate; secondary veins 60–75° to midvein; tertiary veins descending or parallel-reticulate; calyx lobes 3.5–6 mm long; disk obsolete, ovary sericeous; fruit 1.2–1.8(–2.5) cm long; seeds 10–14 mm long . . . . . **8. P. myrsinifolia**
9. Petioles 0.5–2 mm long; lamina mostly obovate or suborbicular; secondary veins 30–60° to midvein; tertiary veins laxly reticulate; calyx lobes 1.5–3.5 mm long; disk adnate to ovary basally, free distally, pubescent; ovary pilose or glabrous; fruit 1–1.5 cm long; seeds 9–11 mm long . . . . . **5. P. cotinifolia**

10 Lamina with a persistent dense, appressed indumentum below . . . **9. P. myrsinodendron**
10. Lamina glabrescent or glabrous below **11**

11 Fruit 3–6 cm long, 2.5 cm wide or more; seeds 30 mm long or more, 8–15 mm wide, 13–19 mm thick . . . . . **3. P. australis**
11. Fruit up to 2.5 cm long, up to 1.5 cm wide; seeds up to 16 mm long, up to 7 mm wide, 5–8 mm thick . . . . . **4. P. chartacea**

1. Planchonella arnhemica (F.Muell. ex Benth.) P.Royen, *Blumea* 8: 397 (1957); *Achras pohlmaniana* var. *latifolia* F.Muell., *Fragm.* 5: 185 (1866); *Achras arnhemica* F.Muell. ex Benth., *Fl. Austral.* 4: 280 (1868); *Sideroxylon arnhemicum* (F.Muell. ex Benth.) F.Muell., *Syst. Census Austral. Pl.* 91 (1883); *Sersalisia arnhemica* (F.Muell. ex Benth.) Domin, *Biblioth. Bot.* 89: 508 (1928); *Pouteria arnhemica* (F.Muell. ex Benth.) Baehni, *Candollea* 9: 286 (1942). **Type:** N Australia, Sea Range, December 1855, *F. Mueller s.n.* (holo: MEL 233052; iso: BRI, K).

Sideroxylon portus-darwini O.Schwarz, *Repert. Spec. Nov. Regni. Veg.* 24: 92 (1927). **Type:** [Northern Territory.] "Port Darwin", November 1929, *A.J.A. Bleeser 297* (holo: B†; iso: MEL 232970).

Planchonella crocodiliensis P.Royen, *Blumea* 8: 409, 433 (1957). **Type:** Northern Territory. Crocodile Islands, December 1924, *S.H. Wilkins 216* (holo: BM).

[*Planchonella pohlmaniana*, *auct. non* (F.Muell.) Pierre ex Dubard; Wheeler (1992: 269–270 Fig. 77B1–3; Green (1985: 139, 271)].

[*Planchonella pohlmaniana* var. *vestita*, *auct. non* (C.T.White) P.Royen; Dunlop (1987)].

***Illustration*:** van Royen (1957: 397, fig. 43).

Shrubs or trees, to 10 m; bark usually tessellated and corky. Twigs with long and short, straight and tortuous, appressed and suberect, hyaline, pale brown or reddish-brown trichomes, mostly persistent. Leaves with petiole (10–)20–40(–65) mm long; lamina elliptic or oblanceolate or obovate or suborbicular, (4–)5–12(–22) cm long, 1.8–4.5(–11.5) cm wide, apex obtuse, rounded, or acute, base mostly attenuate, indumentum erect and appressed or felted on both surfaces or more or less glabrescent; secondary veins 6–14 pairs, tertiary veins reticulate. Pedicels 2–6 mm long, with pale brown felted trichomes. Calyx lobes suborbicular, 2.5–4 mm long, sericeous or tomentose outside, glabrous inside. Corolla 3–4.5 mm long, lobes oblong, 1.5–2.5 mm long, truncate. Stamens 1–1.2 mm long, filaments geniculate, *c.* 0.3 mm long, anthers 0.7–0.8 mm long; filaments straight and lacking anthers in female flowers. Staminodes oblong or narrowly lanceolate, 0.4–0.6 mm long. Ovary ovoid, 0.7–1 mm long, sericeous; style 2–2.2 mm long, mostly glabrous. Fruit ovoid to subglobose or rarely obovoid, sometimes lobed, ligneous or dry, 2–3 cm long, 1.8–2.7 cm wide, green and ferruginous pubescent, fading and glabrescent with age; style remnant with a broad base. Seeds 3–5, ellipsoid, compressed 10–14 mm long, 7–8 mm wide, 4–5 mm thick, testa brown.

***Additional selected specimens examined*: Western Australia.** Mt Daglish, Eastern Walcott Inlet, West Kimberley, May 1983, *Kenneally 8723* (BRI, PERTH); Upper reaches of Hunter River, W Kimberly coast, May 1996, *Kenneally 11665* (BRI); NE Kimberley, Pim Hill, May 1984, *Chesterfield 370* (BRI, PERTH); *c.* 200 km S of Kulumburu–Gibb River Crossing on road to Kalumburu, Apr 1989, *Halford H33* (BRI, PERTH); 15 km WSW of King George River Falls. 0.7 km N of mining exploration track between Kalumburu & Oombulgari along unnamed track, 24.2 km W of King George River crossing, Jul 1984, *Forbes 2736 et al.* (BRI, PERTH); Gibb River Road, 51 km NNE of Karunjie Station, Jul 1991, *Streimann 80029* (BRI); New York Jump Up on Karunjie track into Karunjie Station Homestead, E Kimberley, Sep 2006, *Mitchell 8625 & Vinnecombe* (BRI). **Northern Territory.** W end of Macadam Range, Feb 1994, *Leach 4163* (BRI); Bathurst Island, *c.* 5 km from Ngurr [Nguirr] on Port Hurd Road, Jan 1994, *Leach 3935 & Dunlop* (BRI); 17 Mile Plain, Melville Island, Sep 1977, *Dunlop 4613* (BRI); Melville Island, Nov 1989, *Russell-Smith 8135 & Peth. [Petherick]* (BRI); Berry Creek area, Nov 1974, *Parker 567* (BRI); *c.* 40 miles [64 km] ENE of Pine Creek Township, Mar 1965, *Lazarides & Adams 202* (BRI); El Sharana Mining Camp, Jan 1973, *Martensz AE387 & Schodde* (BRI, K); 12 km SSW of Cooinda on Pine Creek Road, May 1980,

Lazarides 8863 (BRI); 26 km S of Cooinda, Jun 1980, *Craven 6371* (BRI); 2 km N of Nabarlek, Apr 1979, *Rankin 2208* (BRI); 16 km SE of Koongarra, Jun 1980, *Craven 6255* (BRI); Ramingining Area NR, Djapidi Dapink Creek, Jul 1998, *Cowie & Dunlop 7861* (BRI); Bickerton Island, South Bay, *Cowie 3920 & Dunlop* (BRI); Anarrama Creek, Groote Eylandt, Sep 1988, *Latz 10924* (DNA).

***Distribution and habitat*:** *Planchonella arnhemica* is endemic to Australia and occurs from the West Kimberley coast, Western Australia to Groote Eylandt, Northern Territory (**Map 13**) in open *Eucalyptus miniata/E. tetrodonta* woodland and on the edge of semideciduous notophyll vineforest and deciduous vinethickets.

***Phenology*:** Flowers have been recorded from October to January; fruit from June to September.

***Notes*:** There appear to be at least two forms of *Planchonella arnhemica*, the typical form with appressed rather sericeous indumentum that does not persist for long and a large-leaved form with erect more persistent hairs. The fruit of the broad-leaved form is also more persistently hairy. Field studies would be required to determine if infraspecific taxa could be recognised. The leaves on the type of *P. crocodiliensis* are of new growth and appear to be not fully formed.

2. Planchonella asterocarpon (P.Royen) Swenson, Bartish & Munzinger, *Cladistics* 23: 222 (2007); *Planchonella pohlmaniana* var. *asterocarpon* P.Royen, *Blumea* 8: 395, 432, fig. 42 e & f (1957); *Pouteria asterocarpon* (P.Royen) Jessup, *Austrobaileya* 6: 163 (2001). **Type:** Queensland. Cook District: Atherton district, *s.dat.*, *L. Kemp s.n.* (holo: BRI [AQ22582]).

Pouteria sp. (Atherton L.Kemp AQ22582); Jessup (2002).

***Illustrations*:** van Royen (1957: 397, fig. 42e & f; as *P. pohlmaniana* var. *asterocarpon*); Cooper & Cooper (2004: 509); Hyland *et al.* (2010).

Trees to 35 m high. Twigs appressed pubescent. Leaves with petiole 10–28 mm long, lamina elliptic, oblanceolate or obovate, 6–12 cm long, 2–6 cm wide, apex acute, rounded or obtuse, base attenuate, glabrescent or glabrous above, with persistent appressed hyaline trichomes below; secondary veins 9–14 pairs; tertiary veins reticulate. Pedicels 5–8 mm long, with dense appressed pale brown trichomes. Calyx lobes suborbicular or depressed obovate, 3.5–4 mm long, with appressed pale brown trichomes outside, glabrous inside. Corolla 5–6 mm long, lobes depressed ovate or suborbicular, 1.5–1.8 mm long. Stamens 1–1.3 mm long, filaments geniculate, 0.6–0.8 mm long, anthers 0.8–1mm long. Staminodes linear, *c.* 0.7 mm long. Ovary depressed ovoid, *c.* 1.3 mm long, pilose; style 2.2–2.5 mm long, glabrous. Fruit subglobose, fleshy or dry, 5-angular when dry, 1.5–2.5 cm long, 1.5–2.5 cm wide, reddish-brown, glabrous; style remnant with a broad base. Seeds mostly 5, ellipsoid, compressed, 10–13 mm long, 3–4 mm wide.

***Additional selected specimens examined*: Queensland.** Cook District: Tolga Scrub, Aug 1968, *Hyland 1774* (BRI); *ibid*, Aug 1968, *Hyland 1842* (BRI); 1 km W of Putts Mt, Gadgarra SF, Apr 1995, *Horton SH1121* (BRI); SFR 194, Western, Jan 1982, *Gray 2389* (BRI); *ibid*, Oct 1984, *Gray 3661 & 3662* (BRI); Scrubby Creek, May 1971, *Stocker 714* (BRI); Crater, Aug 1969, *Hyland 2407* (BRI); Upper reaches of Barron River, Aug 1941, *Dawson s.n.* (BRI [AQ34544]). North Kennedy District: SFR 194, Apr 1968, *Hyland 1442RFK* (BRI); Keough's scrub (Evelyn), Por. 52v, Parish of Herberton, Sep 1971, *Hyland 5521* (BRI); Misty Mountains, Coolmoon [Koolmoon Creek] Headwaters, near Ravenshoe, Nov 2004, *Bartish 25 & Ford* (BRI); SFR 251, Koolmoon LA, 1.5 km S of Coochimbeerum Road, May 2001, *Ford AF2863* (BRI).

***Distribution and habitat*:** *Planchonella asterocarpon* is endemic to the Wet Tropics bioregion of north-east Queensland where it occurs on the Atherton Tableland and surrounding mountains from Tolga to south of Ravenshoe (**Map 15**) in mesophyll and notophyll vineforest at 900 to 1150 m altitude.

***Phenology*:** Flowers have been recorded in January and fruit from August to October.

***Notes*:** Van Royen (1975) described the branches and leaves as glabrous but on the type and all other specimens seen they are closely appressed pubescent, but the trichomes are not visible without magnification.

3. Planchonella australis (R.Br.) Pierre, *Not. Bot. Sapot.* 36 (1890); *Achras australis* R.Br., *Prodr. Fl. Nov. Holland.* 530 (1810); *Sapota australis* (R.Br.) A.DC., *Prodr. [A. P. de Candolle]* 8: 175 (1844); *Sideroxylon australe* (R.Br.) Benth & Hook.f. ex F.Muell, *Syst. Census Austral. Pl.* 92 (1883); *Sersalisia australis* (R.Br.) Domin, *Biblioth. Bot.* 89: 508 (1928); *Pouteria australis* (R.Br.) Baehni, *Candollea* 9: 308 (1942); *Xantolis australis* (R.Br.) Baehni, *Boissiera* 11: 22 (1965). **Type:** [New South Wales.] Hunter's River, October 1804, *R. Brown [Bennett no.2824]* (lecto: K, *fide* van Royen 1957: 301; isolecto: BM, E, G).

Sersalisia glabra A.Gray, *Proc. Amer. Acad. Arts* 5: 327 (1862). **Type:** New South Wales. Wollongong, United States Exploring Expedition under the command of Capt. C. Wilkes, in 1840, *W. Rich s.n.*? (holo: US).

***Illustrations*:** Francis (1951: 354 & 355); van Royen (1957: 200, fig. 20); Harden *et al.* (2013).

Trees to 45 m high. Twigs glabrescent. Leaves with petiole 3–15 mm long; lamina elliptic to oblanceolate or obovate, 5–15 cm long, 2–6 cm wide, apex acuminate to rounded; secondary veins 10–14 pairs; tertiary veins reticulate. Pedicels (4–)8–15 mm long. Calyx lobes broadly ovate, 3.5–5 mm long, with appressed trichomes both sides, less densely so inside. Corolla 5–7.5 mm long, lobes suborbicular or broadly elliptic, 3–4 mm long. Stamens 5, 2–3 mm long, filaments *c.* 2.5 mm long, anthers 2–2.5 mm long; staminodes subulate 2 mm long. Ovary broadly or depressed ovoid, 1–1.2 mm long, obscurely 5-lobed, sericeous; style cylindrical, 5-ribbed, 4–6.5 mm long, glabrous except at base. Fruit ovoid, 3–5.2 cm long, 2.5–4.5 cm wide, dark purple to black, nearly glabrous. Seeds 1–5, ellipsoid, laterally compressed, 30–40 mm long, 8–11 mm wide, 13–16 mm thick, testa brown, shining part covering most of seed. *Black apple*, *wild plum*, *bulletwood*.

***Additional selected specimens examined*: Queensland.** Port Curtis District: 26 km W of Agnes Water, TR 102, Nov 1996, *Thompson MIR357 & Price* (BRI); Bulburin SF 67, Old Forestry Barracks Area, 9 km E of Builyan, Oct 1989, *Gibson 1135* (BRI); Mt Fort William, Kalpowar SF 95, Sep 1989, *Forster PIF5768 & Bean* (BRI). Burnett District: Cania Gorge NP, Russell Gully, 26 km NE of Monto, Mar 1997, *Kampf s.n. et al.* (BRI [AQ658250]); Walla Range, Nov 1992, *Randall 759* (BRI). Wide Bay District: Kin Kin area, 14 km N of Pomona, Beenham Range, former W.D.Francis farm, Sep 2002, *Forster PIF28903 et al.* (BRI); Old Ceylon Road 6 km SW of Cooroy, Dec 1993, *Bean 7134* (BRI); Mary Cairncross Scenic Reserve, Blackall Range, 3 km SE of Maleny, Dec 2004, *Forster PIF30408 et al.* (BRI). Moreton District: Neurum Creek Track Mt Mee SF, Nov 1993, *Grimshaw 217 & Franks* (BRI); Mt Tamborine, Panorama Point area, Gold Coast City Council Conservation Area, Nov 2011, *Forster PIF38392 & Leiper* (BRI); Boonah District, end of Hansons Road, near Milbong, 0.4 km E of Boonah/Ipswich road, Sep 1984, *Bird s.n. & Collins* (BRI [AQ395961]); Lever's Plateau, McPherson Range, *c.* 25 km SE of Rathdowney, Sep 1977, *Bird s.n.* (BRI [AQ254377]); Lamington National Park, Nov 1942, *White 11885* (BRI). **New South Wales.** Dorrigo SF, Oct 1930, *White 7512* (BRI); Shelly Beach, *c.* 2 miles [3.2km] S of Port Macquarie, Dec 1971, *Thurtell 3821 & Coveny* (BRI, L); Seal Rocks, 20 miles [32 km] E of Bulahdelah, Aug 1964, *Briggs s.n.* (NSW 636336); Ash Island, Hunter River, Oct 1903, *Maiden s.n.* (NSW 18062); Bulli, in 1885, *Kirton 63* (MEL).

***Distribution and habitat*:** *Planchonella australis* is endemic to Australia and occurs in south-east Queensland and eastern New South Wales from Bulburin SF near Gladstone to the Illawarra District, on the south coast of New South Wales (**Map 14**) in mostly notophyll vineforest up to 900 m altitude.

***Phenology*:** Flowers have been recorded from October to February and fruit from September to December.

***Typification*:** Van Royen (1957: 301) stated "Type specimen: *Brown 2824* in K" that can be considered an effective lectotypification.

4. Planchonella chartacea (F.Muell. ex Benth.) H.J.Lam, *Bull. Jard. Bot. Buitenzorg* ser. 3, 7: 217 (1925); *Achras chartacea* F.Muell., ex Benth., *Fl. Austral.* 4: 281 (1868); *Sideroxylon chartaceum* (F.Muell. ex Benth.) F.Muell., *Syst. Census Austral. Pl.* 91 (1883); *Sersalisia chartacea* (F.Muell. ex Benth.) Domin, *Biblioth. Bot.* 89: 508 (1928); *Beccariella chartacea* (F.Muell. ex Benth.) Aubrév., *Adansonia* ser. 2, 4: 232(1964); *Pouteria chartacea* (F.Muell. ex Benth.) Baehni, *Boissiera* 11: 59 (1965). **Type:** Queensland. North Kennedy District: Tamoshanter [Tam O'Shanter] Point, February 1865 & 15 August 1865, *Green per J. Dallachy s.n.* (syn: BRI, K, MEL, NSW).

***Illustrations*:** Cooper & Cooper (2004: 509); Hyland *et al.* (2010); Harden *et al.* (2013).

Shrubs or trees to 35 m high. Twigs angular, glabrous or sparsely hyaline sericeous with appressed trichomes. Leaves with petiole 7–12 mm long; lamina oblanceolate or obovate, (4–)9–20 cm long, (1.5–)3–6 cm wide, apex acuminate, base attenuate; secondary veins 7–15 pairs, tertiary veins reticulate. Pedicels (4–)5–8 mm long, hyaline or pale brown sericeous. Calyx lobes broadly ovate, 2.5–3 mm long, acute or obtuse, sericeous on outside and inside. Corolla 3.5–4.5 mm long, lobes 5, oblong or quadrangular, 1–1.5 mm long. Stamens 5, *c.* 1.5 mm long, filaments sinuously curved, *c.* 1 mm long, anthers 0.8–1 mm long. Staminodes oblong or slightly tapered to apex, 1–1.5 mm long. Disk surrounding base of ovary, ferruginous pilose; ovary subglobular, 0.7–0.8 mm long, glabrous; style conical, 5-ribbed, *c.* 1.5 mm long, glabrous. Fruit subglobose, broadly ellipsoid or obovoid, with an apical depression around the style remnant, 3–5 lobed only when dry, 1–2.2 cm long, 0.7–1.5 cm wide, red to black. Seeds 1–5, ellipsoid, laterally compressed, 9–14 mm long, 3–4 mm wide, 5–6.3 mm thick, testa dark brown, shining part covering most of seed. *Thin-leaved coondoo.*

***Additional selected specimens examined*: Queensland.** Cook District: Carnegie Range, 19.5 km NE of Bamaga, Feb 1994, *Fell DGF3976 et al.* (BRI); Burster Creek, 3 km SW of Bamaga, Jun 1988, *Forster PIF4461 & Liddle* (BRI); 10.5 km W of Captain Billy Landing, 91.3 km SSE of Bamaga, Heathlands D and O Reserve, Oct 1993, *Fell DGF3790 & Stanton* (BRI); Bolt Head, Temple Bay, Jun 1996, *Forster PIF19412* (BRI); NPR 8, Parish of Weymouth, Jan 1982, *Hyland 11560* (BRI); Home Rule, Jul 1995, *Forster PIF17279 & Figg* (BRI); SFR 933, Trinity, Little Pine LA, Dec 1987, *Hyland 13381* (BRI); Wyvuri Holding, Aug 1973, *Stocker 1021* (BRI); *ibid*, Nov 1987, *Hyland 13305* (BRI, CNS); Tropical Trials Unit, Pin Gin Hill, Jul 1980, *Gray 1755* (BRI); *ibid*, Feb 1981, *Gray 1907* (BRI). North Kennedy District: Hinchinbrook Island, Aug 1975, *Sharpe 1703* (BRI); SF 299 Conway, Brandy Creek Road, 8 km SSE of Airlie Beach, Feb 2004, *Forster PIF29973 et al.* (BRI). South Kennedy District: Scawfell Island NP, 50 km ENE of Mackay, Nov 1986, *Batianoff 6214 & Krieger* (BRI). Port Curtis District: Shoalwater Bay, Mt Parnassus sector, Bluewater Creek, May 1999, *Brushe JB1877 et al.* (BRI). Wide Bay District: Dundowran Beach, Sep 1991, *Telford 11339* (BRI). Moreton District: *c.* 1 km N of Swan Bay, North Stradbroke Island, Feb 1973, *Durrington s.n.* (BRI [AQ9150]); Riverview Parade, Surfers Paradise, Jan 2012, *Forster PIF38507 & Leiper* (BRI). **New South Wales.** Cabarita Beach, Bogangar, Nov 1995, *Bowen s.n.* (BRI [AQ640435]); Oxley River (Middle Arm Creek), just beyond end of Butler's Road NW of Tyalgum, Jul 1981, *Guymer 1575 & Jessup* (BRI); Coolgardie Road, Wardell Nov 1983, *Floyd AGF2018* (BRI, NSW).

***Distribution and habitat*:** In Australia *Planchonella chartacea* occurs from Cape York, Queensland to Wardell on the Richmond River, northeast New South Wales (**Map 16**), mostly in coastal and subcoastal notophyll vine forest. It also occurs in eastern Malesia including Papua New Guinea.

***Phenology*:** Flowers have been recorded from October to May and fruit from May to December.

5. Planchonella cotinifolia (A.DC.) Dubard, *Ann. Mus. Colon. Marseille* ser. 2, 10: 56 (1912); *Hormogyne cotinifolia* A.DC., *Prodr. [A.P. de Candolle]* 8: 176 (1844); *Sersalisia cotinifolia* (A.DC.) F.Muell., *Fragm.* 5: 161 (1866); *Achras cotinifolia* (A.DC.) F.Muell., *Nuovo Giorn. Bot. Ital.* 3: 31 (1871); *Sideroxylon cotinifolium* (A.DC.) Engler, in Engler & Prantl, *Nat. Pflanzenfam. Nachtr. [Engler & Prantl]* 4(1): 276 (1897); *Pouteria cotinifolia* (A.DC.) Baehni, *Candollea* 9: 377 (1942); *Xantolis cotinifolia* (A.DC.) Baehni, *Boissiera* 11: 22 (1965). **Type:** [Queensland.] Shaded forests on the mountains at Moreton Bay, 28º S, in 1827, *A. Cunningham 545* (holo: G-DC; iso: BM, K).

***Illustrations*:** van Royen (1957: 295, fig. 18); Harden *et al.* (2013).

Shrubs or trees to 10 m high. Leaves with petiole 0.5–2 mm long; lamina obovate, suborbicular or sometimes elliptic, 0.4–5 cm long, 0.3–3.8 cm wide, apex rounded or obtuse or bluntly acuminate or acute, base attenuate; secondary veins 3–6 pairs, tertiary veins reticulate. Pedicels 3–9 mm long. Calyx lobes broadly ovate, 2–2.5 mm long, obtusely acuminate or rounded, glabrous inside. Corolla 7–8 mm long, lobes oblong or suborbicular, 1.5–2 mm long, truncate. Stamens up to 2.5 mm long, filaments *c.* 1.5 mm long, anthers 0.8–1 mm long; staminodes oblong, slightly tapered, *c.* 1.5 mm long. Disk adnate to base of ovary, *c.* 1 mm long, free

above, pubescent; ovary ovoid-conical, *c*. 0.7 mm long; style narrowly conical, 6–8 mm long. Fruit ellipsoid or ovoid to subglobose, 1–1.5 cm long, 0.5–1.2 cm wide, purple to black; style distinct, persistent, to 7 mm long. Seeds 1–4, ellipsoid, compressed, 9–11 mm long, 3.5–4.5 mm wide, 3.5–4.5 mm thick, testa pale brown or yellowish, shining part covering most of seed.

Two varieties are recognised:

Shoots and twigs with appressed, nearly straight trichomes, glabrescent; lamina glabrescent above and below with sparse appressed hyaline or pale brown trichomes; pedicels 2–11 mm long, puberulous with mostly hyaline trichomes, glabrescent, rarely glabrous; calyx pubescent with appressed hyaline or pale brown trichomes on outside; ovary and style glabrous; fruit with 1 seed . . . . . **P. cotinifolia** var. **cotinifolia**

Shoots and twigs with erect, frequently tortuous persistent trichomes; lamina with erect tortuous hyaline or reddish brown mostly persistent trichomes above and below; pedicels 5–12 mm long, pubescent or tomentose with reddish brown trichomes; calyx tomentose on outside with reddish brown trichomes; ovary and style puberulous or pilose; fruit with 1–2(–4)-seeds . . . . . **P. cotinifolia** var. **pubescens**

5a. Planchonella cotinifolia (A.DC.) Dubard var. **cotinifolia**.

Twigs with appressed, nearly straight trichomes, glabrescent. Lamina glabrescent. Pedicels 2–8 mm long, puberulous or pubescent, with straight, appressed hyaline or pale brown trichomes, rarely glabrous. Calyx lobes on outside puberulous with hyaline or pale brown trichomes, glabrescent. Ovary glabrous. Fruit ellipsoid, glabrous, with a single seed. *Small-leaved coondoo.*

***Additional selected specimens examined*: Queensland.** Cook District: Schram Scrub; 16.2 km NW of Moreton telegraph station, Bertiehaugh Holding, catchment of Wenlock River, Apr 1994, *Fell DGF4258 & Pritchard* (BRI); Altanmoui Range, Cape Melville NP, 1.6 km E of Flat Hill, 62.6 km NE of Lakefield Ranger Base, May 1994, *Fell DGF4348A & McDonald* (BRI); NPR 166, Black Mountain, Helenvale Road, site 17, May 2004, *Ford 4327 & Hewett* (BRI). North Kennedy District: Daydream Island, Whitsunday Region, Mar 1990, *Batianoff 900322* (BRI). South Kennedy District: Track to Beachcombers Cove, Cape Hillsborough NP, Nov 1989, *McDonald 4488 et al.* (BRI). Port Curtis District: South Percy Island, 50 km NE of Arthur Point, Shoalwater Bay, Oct 1989, *Batianoff 11490 et al.* (BRI); Essendean Bridge Crossing, Baffle Creek, Berajondo to Agnes Waters Road, Jan 2000, *Forster PIF25305 & Schmitt* (BRI). Burnett District: Jack Smith's Scrub Conservation Park, 10 km NNW of Murgon, Feb 2008, *Forster PIF33364* (BRI); N end of Elgin Vale SF, SE of Murgon, Feb 2009, *Bean 28552* (BRI); Kingaroy, Apr 1947, *Smith 3106* (BRI); Tower LA, SF 289, Feb 1994, *Forster PIF14845 & Smyrell* (BRI). Wide Bay District: Property of N.Dargusch, Cattermull Avenue, Burnett Shire, Jan 1997, *Forster PIF20199* (BRI); Wrattens FR (formerly SF 639, Manumbar LA), Coast Range, 9 km NE of Gallangowan, Dec 2008, *Forster PIF34726 et al.* (BRI). Moreton District: Commissioners View, Blackbutt Range, SF 283, Apr 1990, *Forster PIF6638* (BRI); Redwood Park, E of Toowoomba, Sep 2014, *Jessup 5280 & Bell* (BRI); Splityard Creek, Wivenhoe Dam, Feb 1986, *Hinz s.n.* (BRI [AQ408211]); Rosewood, Feb 1943, *Blake 14814* (BRI, L, K, NSW); *ibid*, Feb 1943*, Blake 14816* (BRI); Kenmore, near Brisbane, near Moggill Creek, Feb 1954, *Blake 15476* (BRI, CANB). Darling Downs: Freestone area, 5.5 km SW of Gladfield, Nov 1977, *McDonald 2004* (BRI). **New South Wales.** Acacia Creek, Jun 1905, *Dunn s.n.* (NSW18127); *ibid*, Mar 1906, *Dunn s.n.* (NSW18128); *ibid*, Jan 1908, *Dunn s.n.* (NSW378977).

***Distribution and habitat*:** *Planchonella cotinifolia* var. *cotinifolia* is endemic to Australia and occurs from the Wenlock River in north Queensland to the Richmond River, north-east New South Wales (**Map 15**), mostly in notophyll vineforest.

***Phenology*:** Flowers have been recorded from January to July and fruit in March.

5b. Planchonella cotinifolia var. **pubescens** P.Royen, *Blumea* 8: 296, 428 (1957); *Pouteria cotinifolia* var. *pubescens* (P.Royen) Jessup, *Austrobaileya* 6: 162 (2001); *Planchonella*

pubescens (P.Royen) Swenson, Munzinger & Bartish, *Taxon* 56: 351 (2007). **Type:** Queensland. Leichhardt District: Duaringa, mixed softwood forest, 23 November 1943, *C.T. White 12462* (holo: L; iso: BRI).

Pouteria cotinifolia var. (Duaringa C.T.White 12462); Jessup (2002).

***Illustration*:** Harden *et al*. (2013) as *P. pubescens*.

Twigs with relatively persistent erect and tortuous trichomes, glabrescent with age. Lamina with tortuous, erect, hyaline to reddish brown trichomes, at length glabrescent. Pedicels 5–12 mm long, trichomes hyaline to reddish brown, tomentose or pubescent. Calyx lobes on outside yellowish-brown tomentose, pale brown or reddish brown trichomes. Ovary yellowish pilose or sometimes glabrous. Fruit ellipsoid or ovoid to subglobose, puberulous below style or glabrous; seeds 1–2(–4). *Yellow lemon*.

***Additional selected specimens examined*: Queensland.** Cook District: Royal Arch Tower, *c.* 5 km SW of Chillagoe, Mar 1987, *Clarkson 6840 & McDonald* (BRI, L); Between Chillagoe and Mungana, Jan 1972, *Hyland 5835* (BRI); Undara NP, Wind Tunnel Complex, E of Mt Surprise, Jan 2005, *McDonald KRM3365* (BRI). Burke District: Porcupine Gorge, 53 km NNE of Hughenden, May 1990, *Halford Q232* (BRI). North Kennedy District: Lead Creek, 11 km W of Turulka, Jan 1994, *Forster PIF14694 & Lockyer* (BRI); Forty Mile Scrub NP, 3.8 km N of Mount Surprise Road junction, Kennedy Highway, Mar 1987, *Clarkson 6906 & McDonald* (BRI); 45 km from Greenvale, towards Charters Towers, Feb 1994, *Bean 7470 & Forster* (BRI); Lolworth Range near Mt Stewart, 17 km NW of Homestead, Mar 2004, *Cumming 22205* (BRI). South Kennedy District: 8 km E of Lancewood Station Homestead, Jan 1998, *Thompson 683 & Fox* (BRI); 'Havilah', ridge on right 4 km after Mt Coolon and Nebo road fork, Jul 1993, *Forster PIF13422* (BRI). Mitchell District: Enniskillen, Nov 1943, *White 12368* (BRI). Leichhardt District: 38 miles [60.8 km] W of Nebo, Jun 1962, *Story & Yapp 97* (BRI, CANB, L, MEL, NSW); Springsure, Jun 1915, *Bick s.n.* (BRI [AQ34365], NSW); Palmgrove NP, NW of Taroom, Nov 1998, *Forster PIF23812 & Booth* (BRI). Port Curtis District: Bruce Highway 39 miles [62.4 km] SE of Sarina, Jun 1970, *Moriarty 241* (BRI); Marmor, *Blake 14821* (BRI). Burnett District: Oaky Gorge Creek, N tip of Coominglah SF, *c.* 4.5 km due WSW of Mt Dowgo, Sep 2010, *Pollock ABP2669 & McDonald* (BRI); Wonga Hills, 18 km W of Monogorilby, Nov 1984, *Rodd 4189 & Carlyle* (BRI); Eidsvold, Apr 1918, *Bancroft s.n.* (BRI [AQ34370]). **New South Wales.** Hill near Glen Model Homestead, 29 km NW of Rocky Dam, Aug 1986, *Wilson 78* (K, L, NSW); 'Warivan' 7.4 km from North Star on Warialda Road, Sep 1988, *Moore 8843* (BRI); Turkey Bush Hill, 11 km E of Yallaroi, Feb 1977, *Guymer 978* (BRI).

***Distribution and habitat*:** *Planchonella cotinifolia* var. *pubescens* occurs from the Chillagoe and Mungana area, north Queensland to Yallaroi, New South Wales (**Map 16**), in deciduous vinethickets and low microphyll vineforest and is often associated with brigalow (*Acacia harpophylla* F.Muell. ex Benth.).

***Phenology*:** Flowers have been recorded throughout the year and fruits from April to December.

***Notes*:** Swenson *et al.* (2007a) published a new combination raising this variety to species rank based on the placement of a sample from the voucher specimen *Bartish & Jessup 11* (BRI, S) in their molecular phylogeny. This collection, which was treated in the phylogenetic analysis as representative of *P. cotinifolia* var. *cotinifolia*, was subsequently found to be misidentified. It is *Planchonella myrsinifolia* and is cited in this revision. For this reason I have maintained the status of this taxon as a variety of *P. cotinifolia*. Jessup (2001) placed *P. myrsinoides* as a synonym of *P. cotinifolia* var. *pubescens* but this was later found to be incorrect. See under *P. myrsinifolia*.

6. Planchonella eerwah (F.M.Bailey) P.Royen, *Blumea* 8: 302 (1957); *Sideroxylon eerwah* F.M.Bailey, *Proc. Roy. Soc. Queensland* 10: 52 (1894); *Sersalisia eerwah* (F.M.Bailey) Domin, *Biblioth. Bot.* 89: 509 (1928); *Pouteria eerwah* (F.M.Bailey) Baehni, *Candollea* 9: 408 (1942). **Type:** Queensland. Moreton District: Mt Eerwah, 24 March 1894, *Field Naturalists s.n.* (holo: BRI [AQ22589]).

***Illustration*:** Harden *et al.* (2013).

Shrubs or trees to 8 m high. Twigs glabrescent. Leaves with petiole 5–18 mm long; lamina obovate or oblanceolate, 4–14 cm long, 1.2–6.5 cm wide, apex rounded or rarely bluntly acuminate; secondary veins 5–8 pairs, tertiary veins reticulate. Pedicels 8–15 mm long. Calyx lobes broadly ovate or suborbicular to depressed ovate or depressed

obovate, 2.6–3 mm long, mostly glabrous both sides, margins ciliate. Corolla 3.8–4.5 mm long, tube 1.5–1.7 mm long, lobes 5 or 6, oblong, 3–3.5 mm long. Stamens 5 or 6, 2.2–2.8 mm long, filaments 1.5–2 mm long, anthers 1.2–1.5 mm long. Staminodes oblong, tapered to apex, *c*. 2 mm long. Ovary ovoid, *c*. 2.5 mm long, sericeous, tapering to the conical style, 3–3.2 mm long, glabrous. Fruit ellipsoid to obovoid, 3–5.5 cm long, 2–4 cm wide, red, purple to black, nearly glabrous. Seeds 2–5, obovoid-pyriform, sometimes oblique or laterally flattened, 25–30 mm long, 10–15 mm wide, 10–18 mm thick. *Shiny-leaved coondoo*, *Eerwah plum*.

***Additional selected specimens examined*: Queensland.** Moreton District: Gold Creek Road, *c*. 4 km N of North Arm, Feb 1989, *Sharpe 4846* (BRI); Brolga Park, Dulong Road, *c*. 6 km SW of Nambour, Mar 1989, *Sharpe 4851 & Bean* (BRI); 799 Hunchy Road, Hunchy, N of Palmwoods and W of Nambour, Oct 2007, *Hansen s.n.* (BRI [AQ738985]); Carbrook (Logan City) California Creek Park and Recreation Reserve, Riverlakes Country Club Golf Course, May 2003, *McDonald s.n.* (BRI [AQ774853]); Bahrs Scrub, Davidson property, Belivah, S of Beenleigh, Aug 2012, *Forster PIF39005 & Leiper* (BRI); Bahr's Scrub central rainforest patch, *c*. 6 km SW of Beenleigh, Jul 1981, *Guymer 1590 & Jessup* (BRI, NSW); Upper Ormeau Road off Pacific Highway S of Beenleigh, Apr 1984, *Williams 84031 & Bird* (BRI); End of Upper Ormeau Road, S of Beenleigh, Apr 1984, *Bird s.n.* (BRI [AQ431223], NSW); Just SE of Mt Elliot, in 1980, *Bird s.n.* (BRI [AQ344978], NSW); Off Hotham Creek Road, Pimpama, Feb 1992, *Leiper s.n.* (BRI [AQ540255]); Hyperion Place, Willowvale, Jun 2012, *Forster PIF38776 et al.* (BRI); Woollaman Creek, 6 km S of Mt Flinders, Peak Crossing District, Sep 1985, *Bird & Krause s.n.* (BRI [AQ442070], L, NSW); 34 km S of Ipswich, 1 km NW of Ivory Knob end of Woolooman Road, Dec 1987, *Bird & Podlich s.n.* (BRI [AQ435909]); Ivory's Knob, headwaters of Oaky Creek, Jun 1981, *Bird s.n.* (BRI [AQ348210], CANB, K); Wongawallen Conservation Area, W section of Ormeau Scrub, Jun 2004, *Hermon & Leiper s.n.* (BRI [AQ726160]); Headwaters of Oakey Creek on Portion 18V, Parish of Dugandan, close to Ivory's Knob, Jul 1980, *Philips s.n.* (BRI [AQ343783]); Wyaralong, on Boonah to Beaudesert Road, on boundary between 15V and 17V, County Ward, Parish Dugandan, Jul 1980, *Romano s.n.* (BRI [AQ343785]); Veresdale, on property of Mr Robert Harrison, Jun 1993, *Leiper s.n.* (BRI [AQ620229]).

***Distribution and habitat*:** *Planchonella eerwah* is endemic to Australia in southeast Queensland and occurs at Mt Eerwah and vicinity, south and west of Nambour and south of Brisbane between Boonah, Logan City and Pimpama (**Map 15**) mostly in notophyll vineforest or vinethicket.

***Phenology*:** Flowers have been recorded from February to June and September and fruits from June, August and September.

***Conservation status*:** *Planchonella eerwah* is listed as **Endangered** under both the Queensland *Nature Conservation Act 1992* and the Australian *Environment Protection and Biodiversity Conservation Act 1999.*

7. Planchonella euphlebia (F.Muell.) W.D.Francis, *Austral. Rain-Forest Trees, ed. 2*, iv, 448 (1951); *Achras euphlebia* F.Muell., *Fragm*. 7: 110 (1870); *Sideroxylon euphlebium* (F.Muell.) F.Muell., *Syst. Census Austral. Pl.* 92 (1883); *Sapota euphlebia* (F.Muell.) Radlk. ex Holle, *Thése Erlangen* 17 (1892); *Sersalisia euphlebia* (F.Muell.) Domin, *Biblioth. Bot.* 89: 508 (1928); *Sideroxylon euphlebium* var. *euphlebium*, C.T.White, *Proc. Roy. Soc. Queensland* 50: 81 (1939); *Pouteria euphlebia* (F.Muell.) Baehni, *Candollea* 9: 335 (1942); *Pouteria euphlebia* var. *euphlebia*, Baehni, *Candollea* 9: 335 (1942); *Pouteria euphlebia* var. *typica* Baehni, *loc. cit.*, *nom. inval.*; *Planchonella euphlebia* var. *euphlebia*, P.Royen, *Blumea* 8: 292 (1957); *Xantolis euphlebia* (F.Muell.) Baehni, *Boissiera* 11: 22 (1965). **Type:** Queensland. Rockingham Bay, *s.dat.*, *J. Dallachy s.n.* (syn: MEL 233056, MEL 233057, MEL 233058, MEL 233060; isosyn: BM, BRI).

Sideroxylon euphlebium var. *cryptophlebium* C.T.White, *Proc. Roy. Soc. Queensland* 50: 81 (1939); *Pouteria euphlebia* var. *cryptophlebia* (C.T.White) Baehni, *Candollea* 9: 335 (1942); *Planchonella euphlebia* var. *cryptophlebia* (C.T.White) P.Royen, *Blumea* 8: 294 (1957). **Type:** Queensland. Cook District: Mt. Spurgeon, September 1936, *C.T. White 10655* (holo: BRI; iso: K; A, BM *n.v.*).

***Illustrations*:** van Royen (1957: 293, fig. 17); Cooper & Cooper (2004: 510); Hyland *et al.* (2010).

Shrubs or trees to 25 m high. Twigs, leaves and inflorescence with dark or reddish brown straight, appressed or felted trichomes, glabrescent. Leaves with petiole 8–25 mm

long; lamina narrowly obovate, 2.5–10(–18) cm long, 1.2–4.5 cm wide, apex obtuse or rounded or bluntly acuminate (apiculate), base attenuate, persistently appressed pubescent below; margins often recurved; secondary veins 4–8 pairs; tertiary veins frequently admedial. Pedicels 1–2.5 mm long. Calyx lobes broadly ovate, 2.5–3 mm long, with reddish-brown appressed trichomes outside, glabrous inside. Corolla 3.5–4 mm long, lobes 5, broadly ovate, 1.5–2 mm long. Stamens 5, 1.2–1.5 mm long, included, filaments *c*. 0.8 mm long, anthers *c*. 0.8 mm long. Staminodes narrowly lanceolate or triangular, *c*. 1.5 mm long. Disk inconspicuous. Ovary depressed ovoid, *c*. 1.5 mm long, ferruginous sericeous, style conical, 2.5(–3) mm long, sericeous at base. Fruit subglobose, ovoid or ellipsoid, 2–3.5 cm long, 1–3 cm wide, yellow to red, sericeous or pubescent. Seeds 1–5, obliquely ellipsoid, 15–20 mm long, 6–8 mm wide, 6–10 mm thick.

***Additional selected specimens examined*: Queensland.** Cook District: Top of Mt Hartley, TR 165, Jul 1995, *Forster PIF17328 & Figg* (BRI); SF 144 Mt Windsor Tableland, Jul 1995, *Forster PIF17256 & Figg* (BRI); *ibid*, Nov 1997, *Forster PIF21907 et al.* (BRI); *ibid*, Nov 2004, *Sankowsky 2546 & Sankowsky* (BRI); SFR 143, Parish of Riflemead, North Mary LA, Aug 1984, *Gray 3538* (BRI); SFR 143, Parish of Riflemead, Leichhardt LA, Nov 1985, *Gray 4217* (BRI); Copper Lode Falls Dam Site, on Freshwater Creek, *c*. 6 miles [9.6 km] S of Cairns, Sep 1970, *Gittins 2209* (BRI); SFR 251 Blunder LA, Oct 1978, *Gray 1033* (BRI); SFR 607 Emerald LA, Jun 1980, *Gray 1719* (BRI, CNS); TR 55, Jul 1974, *Hyland 7341* (BRI, L); Lamb Range, Davies Creek Plot, Aug 1971, *Webb & Tracey 11416* (BRI, L); SFR 185, Breach LA, Jun 1971, *Dockrill 137* (BRI, L); SFR 185, Emerald LA, Sep 1971, *O'Farrell 90* (BRI, L); SFR 185, Haig LA, Sep 1981, *Gray 2161* (BRI). North Kennedy District: SFR 605, Dawson LA, Sep 1981, *Hyland 11118* (BRI); Upper reaches of North Zoe Creek, Hinchinbrook Island, Jul 1988, *Fell DF1210 & Swain* (BRI); Hinchinbrook Island, *c*. 2 km NW of Mt Diamantina, Dec 2000, *Kemp TH2557 & Kutt* (BRI); Coast Range, Jul 1868, *Dallachy s.n.* (MEL 233059); Paluma Dam turnoff, Paluma–Hidden Valley road, Jan 2002, *Cumming 20229* (BRI).

***Distribution and habitat*:** *Planchonella euphlebia* is endemic to north-east Queensland from Mt Hartley near Cedar Bay to the Paluma Range (**Map 17**), in mesophyll and notophyll vineforest and upland microphyll forest and thickets and sometimes in adjacent sclerophyll forest, mostly on granite, granodiorite and rhyolite derived soil.

***Phenology*:** Flowers have been recorded from June to October; fruit from November to December.

8. Planchonella myrsinifolia (F.Muell.) Swenson, Bartish & Munzinger, *Cladistics* 23: 222 (2007); *Sersalisia myrsinifolia* F.Muell. (as *'Sarsalisia'*), *Fragm.* 5: 165 (Oct. 1866); *Pouteria myrsinifolia* (F.Muell.) Jessup, *Austrobaileya* 6: 162 (2001). **Type:** [Queensland. Moreton District:] Brisbane River, *s.dat.*, *W. Hill s.n.* (lecto: MEL 1058112, *fide* Jessup 2001: 162).

Achras myrsinoides A.Cunn. ex Benth., *Fl. Austral.* 4: 283 (16 Dec. 1868); *Sideroxylon myrsinoides* (A.Cunn. ex Benth.) F.Muell., *Syst. Census Austral. Pl.* 92 (1883); *Sapota myrsinoides* (A.Cunn. ex Benth.) Radlk. ex Holle, *Thése Erlangen* 17 (1892); *Sersalisia myrsinoides* (A.Cunn. ex Benth.) Domin, *Biblioth. Bot.* 89: 508 (1928); *Pouteria myrsinoides* (A.Cunn. ex Benth.) Baehni, *Candollea* 9: 303 (1942); *Planchonella myrsinoides* (A.Cunn. ex Benth.) S.T.Blake ex W.D.Francis, *Austral. Rain-Forest Trees, ed. 2*, 358 (1951); *Xantolis myrsinoides* (A.Cunn. ex Benth.) Baehni, *Boissiera* 11: 23 (1965). **Type:** [Queensland. Port Curtis District:] Rodd's Bay, May 1819, *A. Cunningham 123* (lecto: K, *fide* Green 1986: 118).

***Illustrations*:** van Royen (1957: 298, fig. 19 [as *P. myrsinoides*]); Hyland *et al.* (2010); Harden *et al.* (2013).

Shrubs or trees to 10 m high. Twigs with erect and appressed trichomes. Leaves with petiole 2–8 mm long: lamina elliptic or lanceolate to ovate, or obovate, 2–10 cm long, 0.8–5 cm wide, apex obtuse, acute or rounded, with appressed or felted trichomes, glabrescent and often soon glabrous above, more persistent below; secondary veins 6–10 pairs; tertiary veins reticulate or frequently admedial. Pedicels 2–14 mm long. Calyx lobes ovate, 3.5–6 mm long, glabrous inside. Corolla lobes oblong but widening distally. Stamens 2.2–2.5 mm long, filaments *c*. 1.2 mm long, anthers 1.3–1.5 mm long. Staminodes linear-lanceolate, truncate or tapered, 2–2.5 mm long. Disk indistinguishable or obsolete; ovary ovoid, 0.8–1 mm long, sericeous; style

narrowly conical, 5.5–6 mm long, sericeous in lower half. Fruit ellipsoid to narrowly ovoid, 1.2–1.8(–2.5) cm long, 0.6–0.9 cm wide, purple to black; style distinct, persistent, to 0.7 cm long. Seeds 1(–3) ellipsoid or obovoid, sometimes oblique, 10–14 mm long, 3.5–7 mm wide, 4–7 mm thick.

Two subspecies are recognised:

Twigs and leaves with indumentum of appressed and erect tortuous and straight reddish brown and pale brown trichomes; lamina elliptic, lanceolate or ovate, calyx lobes with appressed and erect trichomes; corolla up to 7.5 mm long . . . . . **8a P. myrsinifolia** subsp. **myrsinifolia**

Twigs and leaves with appressed white, pale brown or hyaline mostly straight trichomes, lamina elliptic to obovate, calyx lobes with appressed trichomes, corolla up to 8.2 mm long . . . **8b P. myrsinifolia** subsp. **howeana**

8a. Planchonella myrsinifolia (F.Muell.) Swenson, Bartish & Munzinger subsp. **myrsinifolia**

Twigs with felted reddish brown erect and appressed trichomes. Leaves: petiole 3–8 mm long; lamina elliptic or lanceolate to ovate, 2–10 cm long, 0.8–5 cm wide, with appressed or felted trichomes, glabrescent and often soon glabrous above, more persistent below. Pedicels and calyx lobes with pale brown or reddish brown felted trichomes. Corolla 6.5–7.5 mm long, lobes 2.1–2.3 mm long. *Blunt-leaved coondoo.*

***Additional selected specimens examined*: Queensland.** Cook District: 2 km E of Mt Gibson, 16 km SSE of Lakeland Downs, West Normanby River catchment, May 1993, *Fell DGF3275 & Daunt* (BRI); Daintree NP, Adeline Creek headwaters, Candlenut Scrub, May 1999, *Forster PIF24570 & Booth* (BRI); SFR 144 (Windsor Tableland), Oct 1971, *Hyland 5535* (BRI); *ibid*, Oct 1971, *Hyland 5537* (BRI); *ibid*, Oct 1971, *Hyland 5553* (BRI, CNS, L). North Kennedy District: Mt Aberdeen NP, W of Bowen, May 1992, *Forster PIF9924 et al.* (BRI); North Gregory, Property of D & R Clarke, adjacent to Dryander SF, Jul 1997, *Champion 1485 & Cali* (BRI). South Kennedy District: Mt Beatrice NP, northern tributary of Catherine Creek, Jul 1993, *Forster PIF13405 & Tucker* (BRI); Hazlewood Gorge, 13 km SSW of Eungella, Dec 1992, *Bean 5275* (BRI); Cut Creek at base of Eton Range, SF 652-658, Mackay, Oct 1986, *Ritchie 52* (BRI). Port Curtis District: Eurimbula NP, S of Middle Creek camping grounds, Nov 2009, *Booth 5414 & Stephens* (BRI); Dennis Martin property, Littlemore, Horseshoe Valley, 8 km from Rushbrook Road turnoff, Jun 1997, *Worthington 1695* (BRI); Rules Beach near Baffle Creek, NW of Bundaberg, Oct 1996, *Bean 11070* (BRI). Burnett District: Southern base of Coongara Rock, SF 1344, 11 km ESE of Coalstoun Lakes, Sep 2002, *Forster PIF28847* (BRI); Jack Smith's Scrub Conservation Park, 10 km NNW of Murgon, Sep 2007, *Forster PIF32988* (BRI); Tessman's Road, 2 km NE of Kingaroy, May 2007, *Forster PIF32495* (BRI). Wide Bay District: The Hummock, *c.* 5 miles [8 km] E of Bundaberg, Oct 1948, *Smith 4103* (BRI); Mt Walsh NP, Palm Valley, Oct 2008, *Forster PIF34330* (BRI); Mt Wolvi near scenic lookout, E of Gympie, Aug 1982, *Jessup 486* (BRI, CANB). Moreton District: Smith's rainforest, Upper Brookfield, 12 km SW of Brisbane, Nov 2004, *Bartish & Jessup 11* (BRI); World's End Pocket, N of Ipswich, Aug 1984, *Bird s.n.* (BRI [AQ395651], L). **New South Wales.** Cherry Tree FR, Richmond Range, Apr 1978, *Floyd AGF894* (BRI); Lismore, in 1892, *Bäuerlen 843* (NSW); Yahoo Island Nature Reserve, Wallis Lake, May 1978, *Clough s.n.* (CANB 597442, image!).

***Distribution and habitat*:** *Planchonella myrsinifolia* subsp. *myrsinifolia* is endemic to mainland Australia where it occurs from the West Normanby River, north-east Queensland to Wallis Lake, south of Forster, New South Wales (**Map 18**), mostly in notophyll and microphyll vineforests and vinethickets.

***Phenology*:** Flowers have been recorded from May to December and fruit in March and from July to December.

8b. Planchonella myrsinifolia subsp. **howeana** (F.Muell.) Jessup **comb. nov.**; *Achras howeana* F.Muell., *Fragm.* 9: 72 (1875); *Planchonella howeana* (F.Muell.) Pierre, *Notes Bot. Sapot.* 36 (1890); *Sideroxylon howeanum* (F.Muell.) F.Muell., *Syst. Census Austral. Pl.* 92 (1882); *Sersalisia howeana* (F.Muell.) Domin, *Biblioth. Bot.* 89: 508 (1928); *Pouteria howeana* (F.Muell.) Baehni, *Candollea* 9: 306 (1942). **Type:** Australia. New South Wales. Lord Howe Island, *s.dat.*,

J.P. Fullagar s.n. [?*32*] (lecto: MEL 242677, *fide* Green 1990: 251; isolecto: E, K).

[*Planchonella reticulata*, *auct. non* (Baill.) Pierre ex Dubard; van Royen (1957: 285), in reference to the Lord Howe Island specimen].

[*Pouteria myrsinoides* subsp. *reticulata*, *auct. non* (Baill.) P.S.Green; Green (1990: 251, 1994: 147), in reference to the Lord Howe Island specimens].

Twigs with appressed pale brown or hyaline trichomes. Leaves: petiole 2–5 mm long; lamina elliptic to broadly obovate, 2.5–8.5 cm long, 0.9–5 cm wide, with mostly appressed trichomes, glabrescent and soon glabrous above, glabrescent below. Pedicels and calyx lobes with pale brown or white appressed trichomes. Corolla 7.5–8.2 mm long, lobes 2.5–2.6 mm long.

***Additional selected specimens examined*: New South Wales.** Lord Howe Island: Lord Howe Island, in 1898, *King s.n.* (BRI [AQ34445]); *ibid*, May 1920, *Boorman s.n.* (BRI [AQ34607]); Lagoon Road near junction with Middle Beach Road, Jul 2001, *Le Cussan 1170* (BRI); Lagoon Road near War Memorial, Aug 2001, *Le Cussan 1193* (BRI); three quarters way to the summit of Mt Eliza along track, Feb 2002, *Le Cussan 1210* (BRI).

***Distribution and habitat*:** *Planchonella myrsinifolia* subsp. *howeana* is endemic to Lord Howe Island (**Map 18**) where it occurs as a component of low closed forest.

***Phenology*:** Flowers have been recorded in February, May, July and August; fruit from August to November.

***Notes*:** Swenson *et al.* (2007b) reported that their DNA analyses indicated that a broad circumscription of *P. myrsinifolia* to include material from New Caledonia as proposed by Green (1990) was inappropriate and that *P. myrsinifolia* and *P. howeana* are more closely related to each other than either is to *P. reticulata*. The reference to *P. cotinifolia* in their analysis was based on a misidentified voucher specimen which was found to *be P. myrsinifolia* (see in Notes above under *P. cotinifolia*).

9. Planchonella myrsinodendron (F.Muell.) Swenson, Bartish & Munzinger, *Cladistics* 23: 222 (2007); *Chrysophyllum myrsinodendron* F.Muell., *Fragm.* 6: 178 (1868); *Pouteria myrsinodendron* (F.Muell.) Jessup, *Austrobaileya* 6: 163 (2001). **Type:** Queensland. [Cook District:] Herbert River, 6 December 1867, *J. Dallachy s.n*. (holo: MEL 233326, MEL 233327, MEL 233328; iso: BM ex herb. Hance).

Planchonella obovoidea H.J.Lam, *Bull. Jard. Bot. Buitenzorg* ser.3, 7: 207, fig. 56 (1925); *Pouteria obovoidea* (H.J.Lam) Baehni, *Candollea* 9: 412 (1942). **Type:** Moluccas. Kai Island, *s.dat.*, *Jaheri 134* (holo: L).

***Illustrations*:** Cooper & Cooper (2004: 510); Hyland *et al.* (2010).

Trees to 35 m high. Twigs densely appressed sericeous, with pale brown, persistent trichomes. Leaves: petiole 8–25 mm long; lamina obovate or elliptic, 5–20 cm long, 2–8.5 cm wide, apex acute or obtuse or rounded, with persistent hyaline appressed trichomes below; secondary veins 4–12 pairs; tertiary veins reticulate or some oblique. Pedicels 3–6 mm long, hyaline or pale brown sericeous. Calyx lobes depressed ovate to suborbicular, 2–2.3 mm long, apices obtuse to rounded, with dense appressed trichomes on outside and slightly less dense inside in the apical half, sparse to glabrous near the base. Corolla 2.5–2.8 mm long, lobes broadly ovate or obovate or suborbicular, 1.5–1.7 mm long, apices obtuse to rounded. Stamens 1.2–1.5 mm long, filaments *c*. 1mm long, anthers *c*. 0.8 mm long. Staminodes lanceolate *c*. 1 mm long. Ovary ovoid, 0.6–0.7 mm long, embedded in the sericeous disk; style conical, 0.4–0.5 mm long, glabrous. Fruit obovoid, 1.8–2.5(–3) cm long, 1–1.5 cm wide, red to purple or black, glabrous or nearly so, apex surrounding base of style remnant enlarged and pale. Seed 1, obovoid, 15–25 mm long, 8–12 mm wide, 8–12 mm thick.

***Additional selected specimens examined*: Queensland.** Cook District: Banks Peak, Moa Island, Torres Strait, Jul 2008, *Fell DGF9731 & Stanton* (BRI); Between Lockerbie and Somerset, Sep 1979, *Hyland 3978RFK* (BRI); 1 km E of Kennedy Ridge, Jun 1989, *Forster PIF5416 & Tucker* (BRI); McIvor River, Jul 1972, *Hyland 6257* (BRI); Shiptons Flat, S of Cooktown, Aug 1973, *Moriarty 1428* (BRI); Noah Creek, between Daintree River and Cape Tribulation, Oct 1967, *Hyland 1069* (BRI); Daintree River, Dec 1929, *Kajewski 1433* (BM, BRI, E, K); TR 55, Whyanbeel, Jun 1975, *Hyland 8301* (BRI); SFR 607, Bridle LA, Jul 1982, *Hyland*

11821 (BRI); *ibid*, Aug 1982, *Hyland 11844* (BRI); *ibid*, Dec 1987, *Hyland 13401* (BRI); SFR 310, Goldfield LA, Jan 1982, *Gray 2399* (BRI); SFR 191, Sep 1981, *Gray 2154* (BRI); Etty Bay, Jul 1975, *Risley 178* (BRI, CANB, L); Peeramon on slopes of Mt Quincan, *Blake 15247* (BRI, K). North Kennedy District: Cardwell FR, near Meunga Creek water intake, W of Cardwell, Dec 2003, *Ford AF4249 & Green* (BRI); Mt Fox FR, un-named creek off Mt Fox Road, 7.5 km from Upper Stone River Road, Dec 2004, *Ford 4526* (BRI); SF 299, Conway, Brandy Creek Road, 8 km SSE of Airlie Beach, Feb 2004, *Forster PIF29971 et al.* (BRI); Brandy Creek Road, *c.* 5.5 km E of Shute Harbour Road & 13 km NE of Proserpine, Nov 1985, *Sharpe 4056 & Perry* (BRI). South Kennedy District: Reserve 60 Ossa, Hidden Valley, Cape Hillsborough, May 1975, *Hyland 4283RFK* (BRI, CANB, L); St Helens Gap area, N side of Calen to Mirami Road, N of Mt Ossa T Junction, Sep 1994, *Champion 1133* (BRI); Cherrytree Creek, Nov 1987, *Canning 307* (BRI). Port Curtis District: Byfield, *s.dat.*, *Simmonds 4* (BRI); Water Board Reserve, Baffle Creek, Fingerboard Road, Feb 2016, *Braddick 4336* (BRI).

***Distribution and habitat*:** *Planchonella myrsinodendron* has a wide distribution from Java to Fiji and in north-east Australia where it occurs in Queensland from Torres Strait to Baffle Creek near Miriam Vale (**Map 19**), in semideciduous and evergreen mesophyll and notophyll vineforests.

***Phenology*:** Flowers have been recorded from November to March; fruit from June to November.

***Note*:** The hairs on the inside of the calyx lobes can only be readily seen on dried material, not on dissected material under water. Previous authors have reported the inside of the calyx lobes to be glabrous.

10. Planchonella obovata (R.Br.) Pierre, *Not. Bot. Sapot.* 36 (1890); *Sersalisia obovata* R.Br., *Prodr. Fl. Nov. Holland.* 530 (1810); *Sideroxylon obovatum* (R.Br.) Sm. in *Rees, Cycl.* 32 (1816), *nom. illeg.*; *Achras obovata* (R.Br.) F.Muell. ex Benth., *Fl. Austral.* 4: 283 (1868); *Sapota obovata* (R.Br.) Radlk. ex Holle, *Thése Erlangen* 17 (1892) (*nom. inval.*?); *Pouteria obovata* (R.Br.) Baehni, *Candollea* 9: 324 (Dec 1942). **Type:** New Holland, [Endeavour River] in 1770, *J. Banks & D. Solander s.n.* (holo: BM; iso: MEL, P).

Sideroxylon brownii F.Muell., *Syst. Census Austral. Pl.* 92 (1883), *nom. nov.*, *non Sideroxylon obovatum* Gaertner *nec non* Lamarck.

***Illustration*:** Hyland *et al.* (2010).

Trees or shrubs to 40 m high. Twigs pale reddish-brown sericeous. Leaves: petiole 10–35 mm long; lamina obovate or oblanceolate, 4.5–24 cm long, 1.5–12(–15) cm wide, apex obtuse, glabrous above, hyaline appressed pubescent below; secondary veins mostly 6–11 pairs; tertiary veins reticulate. Pedicels 3–5(–10) mm long, hyaline or brown sericeous. Calyx lobes broadly ovate to depressed ovate, 2–3 mm long; outer ones puberulous to sericeous outside, glabrous on inside, inner ones glabrous both sides, margins more or less ciliate. Corolla lobes, ovate or linguiform, 2–2.5 mm long. Stamens 3–3.7 mm long, filaments 2.5–3 mm long, anthers *c.* 1 mm long. Staminodes mostly rhomboid or oblong with an acute apex, 1–1.2 mm long. Ovary depressed ovoid, 0.8–1 mm long, embedded in the sericeous disk; style conical, 0.8–1 mm long, glabrous. Fruit broadly obovoid or subglobose, sometimes oblique, 1–1.5 cm long, 1–1.5 cm wide, black, glabrous. Seeds mostly 1 or 2 obliquely ellipsoid, 8–12 mm long, 2–3.5 mm wide, 2–3.5 mm thick.

***Additional selected specimens examined*: Queensland.** Cook District: Deliverance Island, NW Torres Strait, Mar 2001, *Waterhouse BMW6125* (BRI); Gabba Island, Torres Strait, Jan 2007, *Waterhouse BMW7509* (BRI); Yorke Island, Torres Strait, Nov 1999, *Wannan 1449 & Weston* (BRI); Jardine River NP #26, 14 km SW of Furze Point, 38.6 km ESE of Bamaga Catchment of the Escape River, Oct 1993, *Fell DGF3626 & Dibella* (BRI); Perry Island, Home Group near Cape Grenville, Nov 1979, *Curtis 6* (BRI); Rocky Isle, *c.* 4.5 km S of Cape Direction, Nov 1987, *Clarkson 7390* (BRI); Lizard Island, Lizard Head, Sep 1988, *Batianoff 10136* (BRI); Daintree NP, Cape Tribulation beach, Oct 2000, *Forster PIF26371 et al.* (BRI); Whyanbeel Creek, near the inlet between Dayman Point and Newell Beach, Oct 1978, *Moriarty 2502* (BRI); Mossman River mouth, Sep 1948, *Smith & Webb 4000* (BRI, L); Southern end of Palm Beach, Oct 1979, *Clarkson 2664* (BRI); Green Island, Sep 1981, *Fosberg 61527* (BRI); Stephans Island, east of beach, east of Cowley Beach, Sep 2010, *Ford 5777 & Bradford* (BRI). North Kennedy District: Coconut Bay, Dunk Island, Nov 1985, *Sharpe 4241* (BRI); Edmund Kennedy NP near Cardwell, Jan 1992, *Bean 3897* (BRI); Cardwell, Sep 1935, *Blake 9669* (BRI); Hinchinbrook

Island, Ramsay Bay, Oct 1986, *Warrian CW7065* (BRI); *c.* 1.2 km NNW of the Orient Creek mouth, *c.* 22 km SE of Ingham, Dec 1995, *Kemp 1759H* (BRI).

***Distribution and habitat*:** *Planchonella obovata* occurs from the Seychelles to southern China, south-east Asia, New Guinea, Solomon Islands and north-east Queensland. In Queensland it occurs from Torres Strait to south of Ingham (**Map 20**) in littoral and estuarine mesophyll and notophyll vineforest, coastal wind shorn thickets and adjacent open forest, commonly on sandy soil.

***Phenology*:** Flowers have been recorded from September to January and fruit from December to March.

11. Planchonella pohlmaniana (F.Muell.) Pierre ex Dubard, *Ann. Mus. Colon. Marseille* ser. 2, 10: 47 (1912); *Achras pohlmaniana* F.Muell., *Fragm.* 5: 184 (1866); *Sideroxylon pohlmaniana* (F.Muell.) Benth. & Hook.f. ex F.Muell., *Syst. Census Austral. Pl.* 91 (1883); *Sapota pohlmaniana* (F.Muell.) F.Muell. ex Holle, *Thése Erlangen* 17 (1892); *Sersalisia pohlmaniana* (F.Muell.) Domin, *Biblioth. Bot.* 89: 506, fig. 174 (1928); *Pouteria pohlmaniana* (F.Muell.) Baehni, *Candollea* 9: 334 (1942); *Planchonella pohlmaniana* var. *pohlmaniana*, P.Royen, *Blumea* 8: 394 (1957). **Type:** Queensland. [North Kennedy District]: Edgecombe-Bay, 19 June 1863, *J. Dallachy s.n.* (lecto: MEL 2280413, *fide* van Royen 1957: 391).

Sideroxylon dugulla F.M.Bailey, *Queensland Agric. J.* 1: 80 (1897); *Sersalisia dugulla* (F.M.Bailey) Domin, *Biblioth. Bot.* 89: 509 (1928); *Pouteria dugulla* (F.M.Bailey) Baehni, *Candollea* 9: 407 (1942). **Type:** Queensland. Cook District: Barron River, May 1897, *E. Cowley KA1* (holo: BRI; iso: BM, K).

Planchonella pohlmaniana var. *vestita* P.Royen, *Blumea* 8: 395, fig. 42 c,d (1957); *Sideroxylon pohlmaniana* var. *vestita* C.T.White *nom. nud.* **Type:** "White 1409 in NSW" *nom. inval.* Art. 391.1 (ICN 2018).

Planchonella pohlmaniana var. (Gilbert River C.T.White 1409); Jessup (2002, 2010, 2015).

***Illustrations*:** van Royen (1957: 392, fig. 42); Cooper & Cooper (2004: 511); Hyland *et al.* (2010).

Trees to 25 m. Twigs with pale reddish brown to hyaline erect or appressed trichomes or glabrous. Leaves: petiole mostly 5–15 mm long, lamina oblong-obovate or oblanceolate, 5–14 cm long, 1.5–4(–6.5) cm wide, apex mostly obtuse or rounded, base attenuate or acutely cuneate; secondary veins mostly 6–13 pairs; tertiary veins laxly reticulate. Pedicels 1.5–4 mm long with appressed or felted trichomes. Calyx lobes suborbicular or ovate (broadly), 2.5–4 mm long, apices obtuse or rounded, with appressed trichomes or rarely glabrous outside, glabrous inside. Corolla lobes 5, oblong or linguiform, 1.5–2.5 mm long, apices rounded or truncate, entire or ciliolate. Stamens 1.2–1.5 mm long, filaments geniculate, *c.* 0.5 mm long, anthers *c.* 1 mm long or barely formed on straight filaments in female flowers. Staminodes narrowly oblong or narrowly lanceolate, 0.6–1 mm long. Disk obsolete; ovary depressed ovoid-conical, *c.* 1 mm long, red-brown pilose, glabrescent; style conical, 1.2–1.5 mm long, glabrous. Fruit globose or subglobose or depressed globose or broadly ellipsoid or broadly obovoid, sometimes slightly 5-angular, fleshy, dry, or ligneous, 1.5–3 cm long, 1.5–3.6 cm wide, green, mostly glabrous well before maturity. Style remnant with a broad base. Seeds 3–5, ellipsoid, compressed, 10–12 mm long 5–9 mm wide and 3–4 mm thick. *Yellow boxwood*, *Engraver's wood*.

***Additional selected specimens examined*: Queensland.** Cook District: Lake Boranto [Bronto] 3 miles [4.8 km] SW of Somerset, May 1948, *Brass 18804* (BRI); Abandoned Shelburne Bay (Nixon) Homestead, Shelburne Bay area, Jun 2008, *Forster PIF33652 & McDonald* (BRI); 0.7 km SW of King Park Ranger Station, Claudie River, Apr 1992, *Fell DF2490* (BRI); SW corner TR9 (Lankelly Creek), Sep 1971, *Hyland 2541RFK* (BRI); *c.* 14 miles [22.4 km] SE of Coen on Laura – Coen Road, Oct 1962, *Smith 12002* (BRI); Archer River, Merapah Station, Sep 1981, *Smyth s.n.* (BRI [AQ346173]); Cape Melville, Sep 1970, *Hyland 4662* (BRI); Dixie – Oriners Road, near Dixie Station, Jul 2008, *McDonald KRM7827 & Wannan* (BRI); Fairview to Kimba Road, 4.9 km W of St George River, Apr 1980, *Clarkson 3181* (BRI); Beside Bells Camp Waterhole on Staaten River, 2 km W of main Staaten River road crossing, Jun 1990, *Neldner 2965 & Clarkson* (BRI); Sandy Creek, NE of Jowalbinna (25 km SSE of

Laura), Jul 1998, *Wannan BSW905 et al.* (BRI); Torwood Homestead, junction of Lynd and Tate Rivers, Dec 1970, *Macdonald 3* (BRI, K); Blue Hills, 'Mt Surprise', Mar 1988, *Champion 379, 380* (BRI); Near northern boundary of Undara NP, Mar 2005, *McDonald 3378* (BRI); Bridle Creek, 19 miles [30.4 km] ESE of Cairns, Nov 1964, *Dansie s.n.* (BRI [AQ34559]); Rockingham Bay, *c.* 10 m [16 km], SE of Tully, Feb 1965, *Everist 7782* (BRI). Burke District: S of Croydon, at entrance to Croydon tip road, Oct 2001, *Johnson s.n.* (BRI [AQ772207]; 'Esmeralda' SE of Croydon, Jul 1954, *Blake 19623* (BRI, DNA). North Kennedy District: 57 km W of Mt Garnet, Jun 1983, *Reay s.n.* (BRI [AQ628238]); Cungulla, 25 km W of Townsville, Apr 1995, *Fensham 1951* (BRI); About 24 miles [38.4 km] due SW of Ayr, Jun 1949, *Smith 4312* (BRI); Mt Abbot, 50 km W of Bowen, Aug 1992, *Bean 4841* (BRI); 8.5 km E of Mt Cooper Homestead, Jun 1992, *Thompson CHA30 & Sharpe* (BRI). South Kennedy District: Collinsville, Jan 1978, *North s.n.* (BRI [AQ259286]). Port Curtis District: N of Yeppoon, Sep 1977, *Batianoff 540 & McDonald* (BRI). Burnett District: Tessman's Road, 2km NE of Kingaroy, May 2007, *Forster PIF32490 & Fechner* (BRI). Moreton District: Fort Bushland Reserve, Oxley, Brisbane, Jan 2015, *Forster PIF41908 et al.* (BRI); 4 miles [6.4 km] S of Canungra on road to Lamington NP, Sep 1970, *Williams* 34553 (BRI, L, K). **New South Wales.** Unumgar SF 540, Mar 1963, *Jones 2369* (CANB, NSW).

***Distribution and habitat*:** *Planchonella pohlmaniana* is endemic to Australia and occurs from Cape York, north Queensland to the Richmond River, north-east New South Wales (**Map 21**) in notophyll and microphyll vineforest and thickets, adjacent eucalypt forest and *Eucalyptus* and *Corymbia* woodland.

***Phenology*:** Flowers have been recorded throughout the year; fruit from September to June.

***Typification*:** Baehni (1942: 334) nominated a specimen in P as the type, as follows: "Australie; Rockingham Bay (F. v. Muell. s.n.! = type", which appears to be, in effect, the choice of a lectotype. On the sheet in the upper right corner of this specimen are two stamps, one stating "Herb. E. Cosson" and on the other "Herb. E. Durand ancien Herb E. Cosson" and elsewhere on the upper and lower halves of the sheet two distinct groups of mounted fragments of specimens with two separate labels, on each of which is written "*Sersalisia*" "Rockingham Bay" and on two accompanying separate pieces of paper "Ex Herb. F. Mueller Pl. Australiensis". The collector was not Mueller, as stated by Baehni, but rather most likely John Dallachy as Mueller never visited Rockingham Bay. Most importantly though, there is no date recorded anywhere on the sheet therefore it is not possible to determine if the specimens were collected prior to publication of Mueller's name *Achras pohlmaniana* or if Mueller saw the specimens prior to publication. The genus name *Sersalisia* is probably a later annotation as none of the syntypes in MEL or replicates of these elsewhere that I have seen bear the genus name *Sersalisia*. The species was formally transferred to *Sersalisia* by Domin (1928). Therefore, as it is not possible to confirm that any of this material was part of the original listed syntypes, I propose that Baehni's choice of a (lecto) type is not valid and should be rejected.

Van Royen (1957) nominated "Dallachy s.n. in MEL" as the (lecto) type but amongst the list of other specimens seen he cites only Dallachy's Edgecombe Bay collection. As there is more than one Dallachy collection amongst the syntypes I have chosen the sheet MEL 2280413 as a subsequent lectotypification as allowed under Art. 9.17 of the ICN (2018).

***Notes*:** Some specimens with more prominent indumentum on the leaves have been annotated as *Planchonella pohlmaniana* var. *vestita* by van Royen but this is a *nomen nudum*. Van Royen (1957) states "Neither Mr Blake from the Brisbane Herbarium nor the present author were able to trace the description of this variety. Nomen nudum?". These and other specimens at BRI have been annotated with the phrase name *Planchonella pohlmaniana* var. (Gilbert River C.T.White 1409). The indumentum on the foliage of *P. pohlmaniana* varies from almost glabrous, mostly on specimens from rainforest in high rainfall areas such as the Atherton Tableland, eastern parts of Cape York Peninsula and southern Queensland, to densely pilose with erect hairs on specimens from open woodland communities around Croydon such as the Gilbert River specimen (*White 1409*). From Central Queensland to around Townsville most specimens exhibit a moderate density of erect and appressed indumentum on the

leaves and stems and this includes the type from Edgecombe Bay. The density, form and distribution of the indumentum also varies with the maturity and age of the foliage. *Sideroxylon dugulla* F.M.Bailey represents the nearly glabrous forms of this species. The bark of more mature trees in more seasonally dry communities is often markedly tessellated.

12. Planchonella xylocarpa (C.T.White) Swenson, Bartish & Munzinger, *Cladistics* 23: 222 (2007); *Pouteria xylocarpa* C.T.White, *J. Arnold Arbor.* 31: 111 (1950); *Bureavella xylocarpa* (C.T.White) Aubrév., *Adansonia* sér. 2, 3: 332 (1963). **Type:** Papua New Gunea. New Britain: Broken Bay, Namtambu, May 1945, *K. Mair NGF1883* (holo: BRI; iso: K, L, NSW).

Planchonella ripicola P.Royen, *Blumea* 8: 372–374 (1957). **Type:** Indonesia. Papua: Vogelkop Peninsula, Sorong, Roefei, river NW of village, *c.* 1.5 km from river mouth on riverbank, 20 March 1954, *P. van Royen 3098* (holo: L, iso: A, CANB, K, SING).

***Illustrations*:** van Royen (1957: 373, fig. 38 as *P. ripicola*); Hyland *et al.* (2010).

Trees to 30 m high. Twigs glabrescent. Leaves: petiole 2–5 mm long, lamina elliptic, oblanceolate or obovate, 6–23 cm long, 2.4–10 cm wide, apex bluntly acuminate to obtuse, glabrous above, glabrescent below; secondary veins 6–12 pairs; tertiary veins mostly oblique or weakly horizontal and joining the midvein, sometimes weakly reticulate. Pedicels 5–7 mm long, with sparse appressed trichomes, glabrescent. Calyx lobes suborbicular or ovate, 2–2.5 mm long; outside with appressed trichomes, glabrescent, inside glabrous. Corolla 2–2.5 mm long, lobes quadrangular, 1.2–1.5 mm long, apices truncate or with a short blunt acumen. Stamens 0.8–1 mm long, filaments 0.5–0.6 mm long, anthers *c.* 0.6 mm long. Staminodes narrowly lanceolate, truncate at apex, *c.* 1 mm long. Ovary depressed ovoid, *c.* 0.7 mm long, pilose, style 1.4–1.5 mm long, glabrous. Fruit subglobose, ligneous, 3.5–8 cm long, 3–8 cm wide, green or yellow-green towards base. Seeds 2–5, obliquely ellipsoid, 20–30 mm long, 4–8 mm wide, 8–10 mm thick.

***Additional selected specimens examined*: Queensland.** Cook District: Iron Range NP #8, 1.3 km NE of Mt Tozer, 14.2 km WNW of Lockhart River community, May 1994, *Fell DGF4077 et al.* (BRI); Middle Claudie River scrub, Jul 1993, *Forster PIF13566 et al.* (BRI); Claudie River, Oct 1972, *Hyland 6398* (BRI, CNS, K, L); *ibid*, Jan 1973, *Hyland 6633* (BRI, CNS, K, L); *ibid*, Oct 1980, *Hyland 10795* (BRI); *ibid*, Jan 1982, *Hyland 11508* (BRI); *ibid*, Dec 1982, *Hyland 12422* (CNS); *ibid*, Oct 1972, *Hyland 6425* (CNS); *ibid*, Jul 1972, *Hyland 2608RFK* (BRI); *ibid*, Oct 1973, *Hyland 2952RFK* (BRI); Gordon Creek, 10 km ENE of Mt Tozer, Iron Range NP, May 1992, *Fell DF2542* (BRI); 1.5 km ENE of Lamond Hill, 8.5 km NNW of Lockhart River community, Departmental and Official Purposes Reserve, Mar 1994, *Fell DGF4142 & Stanton* (BRI); NE side of Lamond Hill, Iron Range, Nov 1986, *Jessup 784* (BRI); 11.7 km NW of Lockhart River community, vacant Crown Land, Mar 1994, *Fell DGF4177 & Stanton* (BRI); Iron Range NP, CSIRO EP/42, *c.* 300 m SW of Claudie River crossing off Iron Range Road, Sep 2008, *Ford AF5428 et al.* (BRI); Iron Range, Jul 1963, *Volck 2585* (BRI); Hill E of Mt Tozer, Iron Range area, Nov 1977, *Tracey 14218* (BRI).

***Distribution and habitat*:** *Planchonella xylocarpa* occurs on Cape York Peninsula, north Queensland in the catchment of the Claudie River (**Map 17**), and in Papua New Guinea and Indonesian Papua in mesophyll and notophyll vineforest.

***Phenology*:** Flowers have been recorded in January and fruit July.

***Conservation status*:** *Planchonella xylocarpa* is listed as **Near Threatened** under the Queensland *Nature Conservation Act 1992*.

9. SERSALISIA

Sersalisia R.Br., *Prodr. Fl. Nov. Holland.* 529 (1810). **Type:** *S. sericea* (Sol. ex Aiton) R.Br.

Shrubs or trees, hermaphrodite. Leaves spirally arranged, entire; stipules absent. Tertiary and higher order venation areolate. Inflorescence axillary. Flowers fasciculate, 5-merous, sepals quincuncial, pubescent outside, pubescent or glabrous inside, persistent in fruit. Corolla tubular, the tube longer than the lobes. Stamens inserted just below the tube orifice, glabrous, included; anthers ovate, apiculate, basifixed. Staminodes inserted in the corolla sinus, narrowly triangular-ovate, flattened at apex, glabrous with a few hairs at apex. Gynoecium with a narrow style, the apex with round stigmatic areas. Fruit a berry, ellipsoid

or ovoid; seeds 1–4; seed scar elliptical or very broad and 90–100% of seed length; testa thin and shining, brown; cotyledons plano-convex, radicle included, endosperm absent.

A genus of about seven species distributed from the Philippines to Australia including Borneo, Sulawesi and New Guinea with 4 species in Australia.

Key to the Australian species of *Sersalisia*

1 Corolla lobe margins ciliate; fruit reddish-brown setose with erect irritant trichomes until maturity . . . . . **4. S. unmackiana**
1. Corolla lobe margins glabrous or with a few trichomes; fruit glabrous or soon nearly so **2**

2 Calyx lobes 3.2–4 mm long, glabrous on inside; fruit 2–2.5 cm long . . . . . **1. S. sericea**
2. Calyx lobes more than 5 mm long, on inside sericeous or tomentose; fruit more than 2.5 cm long **3**

3 Calyx lobes 5–8 mm long; corolla 7–8 mm long, lobes shortly oblong to broadly obovate, truncate or emarginate, 1.9–2.3 mm long . . . . . **2. S. sessiliflora**
3. Calyx lobes 8.5–10 mm long; corolla 9–11 mm long, lobes broadly ovate, 2.3–2.5 mm long . . . . . **3. S. obpyriformis**

1. Sersalisia sericea (Sol. ex Aiton) R.Br., *Prodr. Fl. Nov. Holland.* 530 (1810); *Sideroxylon sericeum* Sol. ex Aiton, *Hort. Kew.* 1: 262 (1789); *Lucuma sericea* (Sol. ex Aiton) Benth. & Hook.f., *Gen. Pl.* 2: 654 (1876); *Pouteria sericea* (Sol. ex Aiton) Baehni, *Candollea* 9: 375 (1942). **Type:** [Australia. Cook District:] Bay of Inlets and Endeavour River, in 1770, *J. Banks & D. Solander s.n.* (syn: BM); Hort. Kew, in 1778, [collector unknown, probably W. Aiton] (syn: BM; isosyn: MEL).

Planchonella sericea Dubard, *Ann. Mus. Colon. Marseille* 20: 47 (1912). **Type:** Australia. Rockingham Bay, *J. Dallachy s.n.* (holo: P).

***Illustrations*:** Cooper & Cooper (2004: 512); Hyland *et al*. (2010).

Shrubs or trees to 10 m. Twigs felted. Leaves: petiole 2–7(–9) mm long; lamina ovate, suborbicular, obovate or elliptic, 2–7(–12) cm long, 1.5–4(–5.7) cm wide, apex obtuse to emarginate, persistently reddish brown or grey pubescent above and below; secondary veins 5–15 pairs; tertiary and higher order veins areolate. Pedicels 1.7–2.5(–3) mm long, tomentose. Calyx (4–)5-lobed, lobes ovate, 3.2–4 mm long, with appressed or felted trichomes on outside, glabrous on inside. Corolla 6.2–7.8 mm long, lobes suborbicular, 2–2.7 mm long, sericeous outside, shortly auriculate or sagittate at base, apical margin with a few trichomes. Stamens 1.5–1.7 mm long, anthers 1.2–1.3 mm long, filaments 0.3–0.5 mm long. Staminodes narrowly deltoid, *c*. 1.5 mm long, with a few trichomes near apex. Ovary conical, sericeous; style 4.5–5.5 mm long, sericeous near base. Fruit ellipsoid, 2–2.5 cm long, 1–1.5 cm wide, blue-black, glabrescent or glabrous, fleshy. Seed 1, ellipsoid, 16–19 mm long, 7–10 mm wide, 8–10 mm thick; hilum scar *c*. 4 mm wide; testa less than 0.5 mm thick. *Wild prune*, *mongo*.

***Additional selected specimens examined*: Western Australia.** Gupungi Road, Broome, May 1987, *Kenneally 9870* (BRI); Norman Creek, *c.* 10 km SW of Beagle Bay, Dampier Peninsula, Aug 2007, *Mitchell 8700* (BRI); Cape Leveque, Jul 1973, *Webb & Tracey 13144* (BRI); Cockatoo Island, Yampi Sound, Nov 1955, *Bateman s.n.* (BRI [AQ34690]); Near Crusher Pool, Mitchell Plateau, May 1981, *Webb & Tracey 15230* (BRI). **Northern Territory.** 2 km S of Fitzmaurice River narrows, May 1994, *Cowie 5009 & Albrecht* (BRI); Berry Springs Reserve, Nov 1978, *Rankin 1610* (BRI, CANB); Karslake Point, Melville Island, Jan 1966, *Stocker GSI9* (BRI); Yirrkala, Aug 1948, *Specht 928* (BRI); Little Lagoon, Groote Eylandt, Apr 1948, *Specht 247* (BRI). **Queensland.** Burke District: Westmoreland, Lagoon Creek, off track to Camp Ridgeway, May 1997, *Forster PIF21007 & Booth* (BRI); Musselbrook Creek Gorge, 27.6 km by road NE of Musselbrook Mining Camp, 175

km N of Camooweal, Apr 1995, *Thomas MRS618 & Johnson* (BRI). Cook District: Ulu (Saddle Islet), 62 km NE of Horn Island Airfield, Torres Strait, Oct 2011, *Fell DGF10725* (BRI); Batavia Downs, 12.4 km from Peninsula Development Road on a seismic line running NE towards the Olive River, Oct 1989, *Neldner 2822 & Clarkson* (BRI); Coconut Creek, 7.5 km NNE of Beagle North Camp, *c.* 32 km S of Weipa, Dec 1981, *Clarkson 4185* (BRI); Cape Melville NP, Altanmoui Range Section, 1.6 km E of Flat Hill, 62.6 km NE of Lakefield Homestead, May 1993, *Fell DGF3195 & Stanton* (BRI); Morgans Folly, 38 km along road to Blackdown Station, off Chillagoe to Wrotham Park Road, Feb 1994, *Forster PIF14746* (BRI). North Kennedy District: Edmund Kennedy NP, near Cardwell, Dec 1991, *Bean 3883* (BRI); SSW of Townsville, Oct 1950, *Blake 18716* (BRI, CANB, L). South Kennedy District: R.60 Ossa, Cape Hillsborough, Hidden Valley, May 1975, *Hyland 8254* (BRI). Port Curtis District: Near One Mile Beach, Shoalwater Bay Training Area, N of Rockhampton, Apr 2011, *Bean 30993 & Halford* (BRI); Mt Maria, *c.* 65 km NW of Bundaberg, Nov 1993, *Bean 7001* (BRI).

***Distribution and habitat*:** *Sersalisia sericea* occurs from Broome, Western Australia, through northern parts of the Northern Territory across the Gulf of Carpentaria into Queensland where it is found from Torres Strait to just north of Bundaberg (**Map 22**). It occurs in semi-evergreen mesophyll vineforest, semideciduous notophyll vineforest, deciduous microphyll vinethicket, riparian forest, open forest and woodland on a wide range of soil types including laterite, coastal sands and limestone.

***Phenology*:** Flowers have been recorded from August to June and fruit from June to December.

***Typification*:** Hermann-Erlee & van Royen (1957), selected a Robert Brown specimen as a "lectotype" (neotype) overlooking the sheet in BM that has several specimens mounted on it including those collected by Banks and Solander and a specimen from Hort. Kew probably collected by Aiton. The Banks specimen from New South Wales is clearly mentioned by Aiton in contrast to Hermann-Erlee & van Royen's (1957: 461) claim to the contrary, *viz.* "Sideroxylon sericeum 3. S. inerme, foliis ovatis subtus tomentoso-sericeis. Silky Iron-wood. Nat. of New South Wales. Sir Joseph Banks, Bart. [Baronet] Introd. 1772. Fl. Stove Shrubby".

***Note*:** When Dubard published the name *Planchonella sericea* he did not cite the basionym *Sideroxylon sericeum* but a nomenclatural synonym (*Sersalisia sericea*), so in effect described a new species with a new type. His species was included as a synonym by Baehni (1942) under *Pouteria sericea* (Ait.) Baehni.

2. Sersalisia sessiliflora (C.T.White) Aubrév., *Adansonia* ser. 2,3: 333 (1964); *Lucuma sessiliflora* C.T.White, *Proc. Roy. Soc. Queensland* 47: 68 (20 May 1936). **Type:** Queensland. Cook District: Mount Demi, 6 February 1932, *L.J. Brass 2088* (holo: BRI; iso: A, G, MEL, MO, P).

Pouteria sylvatica Baehni, *Candollea* 9: 294 (1942), *non P. sessiliflora* (Sw.) Poir., *Encyc. Suppl.* 4. 546 (1816).

***Illustration*:** Hyland *et al.* (2010). Photo of flowers only.

Small trees to 12 m high. Twigs reddish to pale brown tomentose or felted. Leaves: petiole 10–15 mm long; lamina oblanceolate, obovate or elliptic, 4–10(–15) cm long, 2–5(–8.5) cm wide, apex bluntly acuminate or obtuse, reddish brown felted on both surfaces when young, becoming glabrous above and leaving a persistent closely appressed hyaline indumentum below; secondary veins 4–7 pairs, tertiary veins mostly oblique, the higher order veins areolate. Pedicels up to 1 mm long, reddish brown tomentose or felted. Calyx lobes 5, ovate, 5–8 mm long, on outside densely tomentose or felted, on inside lightly tomentose, margins fimbriate. Corolla 7–8 mm long, lobes shortly oblong to broadly obovate, truncate or emarginate at the apex, 1.9–2.3 mm long, apical margin glabrous. Stamens *c.* 1.5 mm long, anthers *c.* 1 mm long, filaments *c.* 0.5 mm long. Staminodes oblong or narrowly deltoid, *c.* 1.5 mm long, glabrous. Stamens *c.* 1.5 mm long, anthers *c.* 1 mm long, filaments *c.* 0.5 mm long. Staminodes oblong or narrowly deltoid, *c.* 1.5 mm long, glabrous. Ovary broadly ovoid, sericeous, *c.* 1.5 mm long; style narrowly conical), 7.5–8.5 mm long, sericeous, glabrous on distal one-third. Fruit (immature) oblong or narrowly obovoid,

c. 3 cm long and 1.2 cm wide, glabrous or nearly so and bearing a thin style remnant 5 mm long. Seed not seen. **Figs. 8A–C, 9, 10.**

***Additional selected specimens examined*: Queensland.** Cook District: Mt Lewis road, S Mary LA, 16 km NNW of Mt Molloy, Nov 1988, *Jessup GJM1521 et al.* (BRI); Mt Lewis FR, 100 m NW of (sandy) Mary Creek crossing, Mt Lewis Road, Dec 2004, *Ford 4543 & Metcalfe* (BRI); Mt Lewis FR, *c.* 200 m NW of sandy Mary Creek crossing, near Julatten, Dec 2005, *Ford AF4777 & Cinelli* (BRI); Mt Lewis vascular plant survey 0.1 ha plot, Dec 2008, *Costion 1549* (BRI).

***Distribution and habitat*:** *Sersalisia sessiliflora* is endemic to the Wet Tropics of north-east Queensland and occurs at Mt Demi near Mossman and in the vicinity of Mt Lewis (**Map 23**), in simple notophyll vineforest and microphyll vine-fern forest and thicket on granitic soils mostly above 900m.

***Phenology*:** Flowers have been recorded in November and December and immature fruit in November.

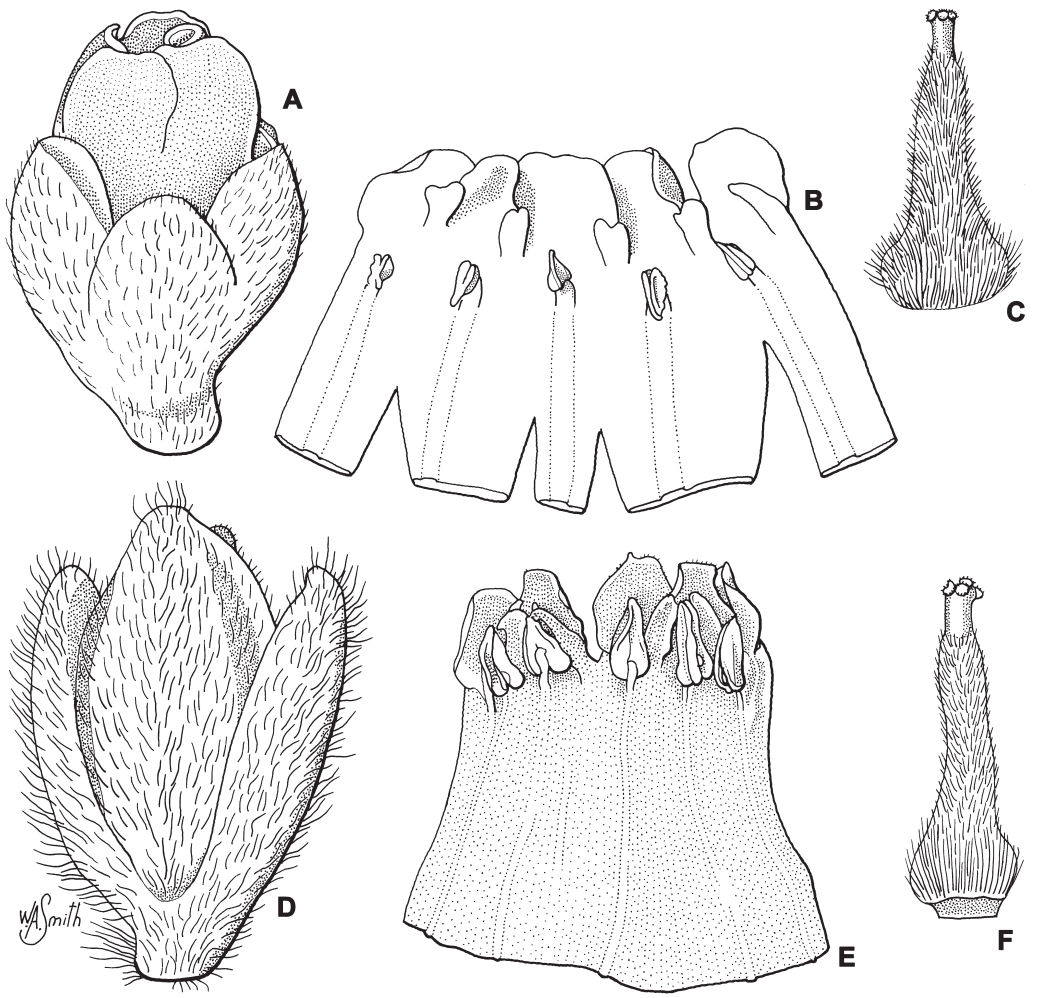

Fig. 8. A–C. ***Sersalisia sessiliflora***. A. flower ×6. B. dissected corolla ×6. C. dissected ovary and style ×6. A–C from *Ford AF4777 & Cinelli* (BRI); **D–F**. ***Sersalisia obpyriformis*.** D. flower ×6. E. dissected corolla ×6. F. dissected ovary and style ×6. D–F from *Hyland 25265RFK* (BRI).

Fig. 9. ***Sersalisia sessiliflora***, branchlet viewed from below (no voucher). Photo: G. Sankowsky.

Fig. 10. ***Sersalisia sessiliflora*** flowers (no voucher). Photo: G. Sankowsky.

***Notes*:** The anthers seem small and underdeveloped in the flowers observed in both *Jessup GJM1521 et al*. and *Ford AF4777 & Cinelli* collections. Also a tree in cultivation which has produced flowers a number of times has never set fruit (G. Sankowsky *pers. comm*.). Further collections of flowering material are needed to determine if some or all flowers are functionally one sex.

3. Sersalisia obpyriformis (F.M.Bailey) Jessup **comb. nov.**; *Lucuma obpyriformis* F.M. Bailey, *Queensland Agric. J.* 15: 492 (1904); *Pouteria obpyriformis* (F.M.Bailey) Baehni, *Candollea* 9: 412 (1942). **Type:** Queensland. Cook District: "Meston's Bellenden-Ker Expedition, 1904" (holo: BRI† [material lost or destroyed]); State Forest Reserve 755 Palmerston, Brewer Logging Area, Dec 1987, *B.P. Hyland 25266RFK* (neo: BRI [here selected]).

Pouteria sp. (Barong M. Tucker 22); Jessup (1994, 1997, 2002).

***Illustration*:** Hyland *et al.* (2010). Photos of fruit and seedlings only.

Small trees to 10 m high. Twigs reddish to pale brown tomentose or felted. Leaves: petiole 8–15 mm long; lamina oblanceolate, obovate or elliptic, 4–10(–20) cm long, 2–5(–8.5) cm wide, apex bluntly acuminate or obtuse, reddish brown felted on both surfaces

when young, becoming glabrous above and leaving a persistent closely appressed hyaline indumentum below; secondary veins 7(–11) pairs, tertiary veins mostly oblique, the higher order veins areolate. Pedicels up to 1 mm long, reddish brown tomentose or felted. Calyx lobes 5, oblong or narrowly ovate, 8.5–10 mm long, on outside densely tomentose or felted, on inside sericeous, margins fimbriate. Corolla 9–11 mm long, lobes broadly ovate, 2.3–2.5 mm long, apical margin glabrous or with a few minute trichomes. Stamens *c*. 2 mm long, anthers *c*. 1.5 mm long, filaments 0.3–0.5mm long. Staminodes oblong or narrowly deltoid, 2–2.5 mm long, glabrous. Ovary broadly ovoid, sericeous, *c*. 1.5 mm long; style narrowly conical, 7.5–8.5 mm long, sericeous, glabrous on distal one-third. Fruit narrowly obpyriform, fleshy, 5–9 cm long, 2.5–4 cm wide, dark purple, glabrous or nearly so. Seed 1, ellipsoid, 30–45 mm long, 9–12 mm wide, 10–13 mm thick, hilum scar *c*. 8 mm wide; testa less than 1 mm thick, brown. **Fig. 8D–F, 11–13.**

Fig. 11. ***Sersalisia obpyriformis*** flowers (*Tucker 22*, BRI). Photo: G. Sankowsky.

Fig. 12. ***Sersalisia obpyriformis*** flowers (*Tucker 22*, BRI). Photo: G. Sankowsky.

Fig. 13. ***Sersalisia obpyriformis*** fruit (*Tucker 22*, BRI). Photo: G. Sankowsky.

***Additional selected specimens examined*: Queensland.** Cook District: SFR 755, Barong LA, Oct 1976, *Hyland 9163* (BRI); *ibid*, Jan 1977, *Hyland 9293* (BRI); *ibid*, Jan 1977, *Hyland 9296* (BRI); *ibid*, Jul 1975, *Hyland 3240RFK* (BRI); *ibid*, Jul 1975, *Hyland 3243RFK* (BRI); *ibid*, Feb 1979, *Stocker 1722* (BRI); SFR 755 Palmerston, Brewer LA, Dec 1987, *Hyland 25265RFK* (BRI); *ibid*, Dec 1987, *Hyland 25266RFK* (BRI); Top bank of Johnstone River (north) off Walton Road, W of Innisfail, Aug 2005, *Ford 4676* (BRI); Junction of Alexandra Creek and Russell River, Sep 1996, *Jensen 803* (BRI); Alexandra Creek, Russell River Valley, Sep 1996, *Jago*

4087 et al. (BRI); Edge of Russell River (*c.* 20 km in off highway from Russell River crossing), Dec 1985, *Tucker 22* (BRI); Barong via Woopen Creek, Dec 2006, *Jensen 1558* (BRI).

***Distribution and habitat*:** *Sersalisia obpyriformis* is endemic to the Wet Tropics bioregion of north-east Queensland and occurs in and around Wooroonooran NP (**Map 23**), in mesophyll vineforest, mostly below 200 m.

***Phenology*:** Flowers have been recorded from August to January and fruit in December and February.

***Typification*:** Only fruit were collected and later used by Bailey to describe the species and these have since been lost, hence the need to select a neotype.

4. Sersalisia unmackiana (F.M.Bailey) Domin, *Biblioth. Bot.* 89: 508 (1928); *Lucuma unmackiana* F.M.Bailey, *Bot. Bull. Dept. Agric. Queensland* 4: 12 (1891); *Pouteria unmackiana* (F.M.Bailey) Erlee, *Blumea* 8: 470 (1957); *Bureavella unmackiana* (F.M.Bailey) Aubrév. (as '*unmarkiana*'), *Adansonia* ser. 2, 3: 332 (1964); *Richardella unmackiana* (F.M.Bailey) Baehni, *Boissiera* 11: 99 (1965). **Type:** Queensland. Cook District: Musgrave E.T. Station, Cape York Peninsula, in 1891, *G. Jacobson s.n.* (holo: BRI [AQ226606]; iso K, MEL).

***Illustrations*:** Cooper & Cooper (2004: 512); Hyland *et al.* (2010).

Trees to 10 m high. Twigs pale reddish brown tomentose or felted. Leaves: petiole 3–5 mm long; lamina broadly ovate, obovate or oblanceolate, 2–7.5 cm long, 1.2–5.5 cm wide, apex obtuse or sometimes apiculate, persistently persistent above and below; secondary veins 4–8 pairs; tertiary veins oblique, the higher order veins areolate. Pedicels *c.* 1 mm long. Outer calyx lobes broadly ovate, acute, 6–8 mm long, inner ones ovate, acuminate, 9–12 mm long, both tomentose outside, sericeous inside on upper half. Corolla 11.2–11.5 mm long, lobes broadly ovate, 4.2–4.5 mm long, upper margins ciliate. Stamens 3.5–3.7 mm long, filaments *c.* 2.5 mm long, anthers 1.8–2 mm long. Staminodes oblong-deltoid, 2.5–2.7 mm long, with sparse or moderately dense trichomes towards apex. Ovary ovoid to subglobose, sericeous; style terete, 8.8–9 mm long, glabrous. Fruit subglobose, broadly obovoid or oblate, subligneous, 4–7 cm long, 3–6 cm wide, red and with a dense covering of *c.* 3 mm long reddish-brown setaceous trichomes. Seeds 1–2(–3), globose, to 45 mm long, to 40 mm wide; scar covering 75% of seed; testa 1.5–3 mm thick.

***Additional selected specimens examined*: Queensland.** Cook District: Long Beach, Prince of Wales Island, Torres Strait, Oct 2005, *Waterhouse BMW7324* (BRI); Track to rubbish dump at QPWS Heathlands Ranger Base, Cape York Peninsula, Jun 2008, *Forster PIF34063 & McDonald* (BRI); Maloney's Springs, 40 km E by road of Moreton Telegraph Station, Jun 1989, *Forster PIF5464 & Tucker* (BRI); Bromley Station – Pascoe River, Sep 1976, *Hyland 9015* (BRI, CANB, CNS, K, L); Rocky Point, near Weipa, Jan 1989, *O'Reilly 100* (BRI); 11.25 km N of Weipa Mission, Jul 1974, *Specht W546 & Salt* (BRI); Amban (False Pera Head), Aug 1999, *Smith NMS4420* (BRI); Mungkan Kandju NP (on Peninsula Development Road), NW of Coen, Jul 2001, *Cooper WWC1561 & Cooper* (BRI); 113 km W of Merapah on the blazed track to Peret, *c.* 30 km S of Aurukun, Oct 1982, *Clarkson 4556* (BRI); Head of Pinnacle Creek – Coen River, on boundary of Crystal Vale Station and Rokeby NP, 26 km WSW of Coen, Aug 1990, *Fell DF2171* (BRI); Hann River, Jun 1997, *Hyland 25950RFK* (BRI); Baas Outstation, *c.* 35 km S of Pormpuraaw, Oct 2008, *McDonald KRM8054 & Winter* (BRI); 'New Laura', Calders Yard, Lakefied NP, Oct 1985, *Williams 85271* (BRI); 134 km by road N of Coen PO on Kennedy Road towards Pascoe River, Sep 1975, *Coveny 7083 & Hind* (BRI); E bank of Wenlock River, Portland Roads Road, Sep 2003, *Waterhouse BMW6748* (BRI); 0.6 km from Holroyd River crossing on Holroyd to Southwell Road, Jul 1993, *Clarkson 10127 & Neldner* (BRI); Morehead River, Sep 1971, *Irvine 55* (BRI, K, L); Melsonby NP, N of Battle Camp Road, NW of Cooktown, May 2010, *Forster PIF36823 & Thomas* (BRI); 7 miles [11.3 km] NW of Laura, W of Little Laura River, Oct 1962, *Smith 11688* (BRI, CANB, K, L); 8 km SE of Laura on road to Quinkan art site, Jul 1990, *Bean 1820* (BRI).

***Distribution and habitat*:** *Sersalisia unmackiana* is endemic to Cape York Peninsula in far north Queensland and occurs from Torres Strait to south of Laura on the eastern side and to north of Karumba on the western side (**Map 24**). It occurs mostly in *Eucalyptus* and *Corymbia* open woodland but also in littoral forest, semideciduous notophyll vineforest and deciduous vinethickets.

***Phenology*:** Flowers have been recorded in January, May, July and August and fruit from June to January.

10. DONELLA

Donella Pierre ex Baillon, *Hist. Pl.* 11: 294 (1891). **Type:** *D. roxburghii* (G.Don) Pierre ex Lecomte, *Fl. Indo-Chine [P.H. Lecomte et al.]* 3: 897 (1930).

Trees. Leaves distichous. Stipules absent. Lamina venation brochidodromous with a submarginal vein and intersecondary and tertiary veins frequently parallel to the close secondary veins and scarcely distinguishable from them, the leaf appearing finely striate. Flowers bisexual or unisexual. Calyx a single whorl of 5 sepals. Corolla lobes 5. Stamens 5, attached to the lower half of the corolla tube, included; anthers often bearing an apical tuft of hairs. Staminodes absent. Disk absent. Ovary 5-locular, style included, stigmatic lobes small but distinct. Fruit ellipsoid to subglobose, with up to 5 seeds. Seed ellipsoid, laterally compressed, with an adaxial scar; testa smooth and shining; cotyledons thin, foliaceous, endosperm abundant.

A genus of about 10 species from Africa and India through south-east Asia to Australia, 1 species in Australia.

Donella lanceolata (Blume) Aubrév., *Fl. Cambodge, Laos & Vietnam* 3: 64 (1963); *Nycterisition lanceolatum* Blume, *Bijdr. Fl. Ned. Ind.* 12: 676 (1826); *Chrysophyllum lanceolatum* (Blume) DC., *Prodr. [A. P. de Candolle]* 8: 162 (1844), *nom. illegit. non* Casaretto (1843). **Type:** Java, *s.dat.*, *Blume 775* (lecto: L, *fide* Vink 1958: 29).

Chrysophyllum roxburghii G.Don, *Gen. Hist.* 4: 33 (1838); *Donella roxburghii* (G.Don) Pierre ex Lecomte, *Fl. Indo-Chine [P.H.Lecomte et al.]* 3: 897 (1930); *C. acuminatum* Roxb., *Fl. Indica* 2: 345 (1824), *nom. illegit. non* Lamarck (1794). **Type:** Silhet, *s.dat.*, *F. de Silva s.n.* (syn: K [Wallich herb. 4160A]).

***Illustrations*:** Aubréville (1963: Pl. XI); Cooper & Cooper (2004: 505); Hyland *et al.* (2010) [latter two both as *Chrysophyllum roxburghii*].

Trees to 55 m. Twigs with reddish-brown felted trichomes fading to white, glabrescent. Leaves with petiole 3–7.5 mm long, tomentose; lamina lanceolate or elliptic, 4–11 cm long, 1.7–3.5 cm wide, apex acuminate, base shortly attenuate or cuneate, glabrescent above and below; secondary veins 12–40 pairs. Flowers fasciculate; pedicels 3–6 mm long, reddish brown sericeous or felted; calyx lobes ovate or suborbicular, 1.2–1.5 mm long, glabrescent outside, glabrous inside, margin entire or ciliate. Corolla tube 0.9–1.2 mm long, lobes linguiform or trapeziform, 1–1.5 mm long, apex truncate or obtuse, margins ciliate. Stamens attached near the base of corolla tube, 1.3–1.5 mm long. Ovary ovoid, pilose; style narrowly conical, *c.* 1 mm long, glabrous; stigmatic lobes small but discrete. Fruit globose or broadly ovoid, fleshy, 4–6 cm long, 4–6 cm wide, pale brown to yellow. Seeds 1–5, oblong-obovoid, compressed, 20–25 mm long, 10–12 mm wide, testa brown.

***Additional selected specimens examined*: Queensland.** Cook District: Banks Peak, Moa Island, Torres Strait, Jul 2008, *Fell DGF9738 & Stanton* (BRI); Iron Range NP, S side of Pascoe River, Sep 2004, *Sankowsky 2509 & Sankowsky* (BRI); Iron Range, Jun 1948, *Brass 19111* (BRI, K, L); *ibid*, Sep 1962, *Volck 2404* (BRI);); *ibid*, Jul 1963, *Volck 2586* (BRI); Claudie River between Portland Roads and Iron Range, Oct 1968, *Webb & Tracey 8527* (BRI); West Claudie River, Jul 1972, *Hyland 6211* (BRI); Claudie River, Oct 1972, *Hyland 6397* (BRI); *ibid*, Jan 1973, *Hyland 6645* (BRI); *ibid*, Jan 1973, *Hyland 6654* (BRI, K, L); *ibid*, Jan 1982, *Hyland 11532* (CNS); *ibid*, Oct 1982, *Hyland 25092RFK* (BRI); McIlwraith Range, NE of Coen, in 1962, *Webb & Tracey 7326* (BRI); Leo Creek and Nesbit River confluence, Silver Plains, Jul 1997, *Forster PIF21309 et al.* (BRI); TR 14, McIlwraith Range – Leo Creek, Sep 1975, *Hyland 8452* (BRI); Rocky River on E foothills of McIlwraith Range, Oct 1969, *Webb & Tracey 9377* (BRI); Rocky River, Sep 1971, *Hyland 5443* (BRI, L); *ibid*, Sep 1973, *Hyland 2832RFK* (BRI); 4 km W of Isabella Falls on Battle Camp road, Nov 1989, *Jessup GJD3027 et al.* (BRI).

***Distribution and habitat*:** *Donella lanceolata* occurs in south-east Asia and Malesia to the Solomon Islands and in Australia in north-east Queensland from Torres Strait to Cooktown (**Map 24**) in mesophyll and notophyll vineforest.

***Phenology*:** Flowers have been recorded in June, July and October and fruit in September.

***Conservation status*:** *Donella lanceolata* is listed as **Near Threatened** under the Queensland *Nature Conservation Act 1992*.

11. CHRYSOPHYLLUM

Chrysophyllum L., *Sp. Pl.* 192 (1753). **Type:** *C. cainito* L.

Small to medium-sized trees. Stipules absent. Leaves usually distichous. Venation brochidodromous with intersecondary and tertiary veins frequently parallel to the secondary veins. Inflorescence mostly axillary. Flowers bisexual. Calyx a single whorl of (4–)5(–6) imbricate or quincuncial sepals. Corolla lobes (4–)5(–8). Stamens (4–)5(–8), attached at the top of the corolla tube, included; anthers extrorse in bud. Staminodes absent. Disk absent. Ovary (4–)5(–12)-locular, style included, stigmatic lobes distinct. Fruit a 1–many-seeded berry. Seed ellipsoid, usually not laterally compressed, with an adaxial scar; testa usually smooth and shining. Cotyledons thin, foliaceous, or (not in Australia) thick, endosperm abundant.

The genus is represented by 15–20 species in the New World Tropics (Cronquist 1945) but a few species are widely cultivated and often naturalised (Peterson *et al*. 2012).

Key to the species of *Chrysophyllum* in Australia

1 Pedicels 9–12 mm long; stigma lobes mostly 7–12; fruit globular, several-seeded, 7 cm or more diameter; foliage trichomes mostly 0.2–0.5 mm long . . . . . **1. C. cainito**

1. Pedicels 4–7 mm. long; stigma lobes mostly 5; fruit mostly ellipsoid, 1-seeded, up to 2 cm long and 1 cm wide; foliage trichomes mostly 0.5–1 mm long . . . . . **2. C. oliviforme**

1. Chrysophyllum cainito L. *Sp. Pl*. 192 (1753). **Type:** Icon in Sloane, *Voy. Jamaica* 2: 170, t. 229 (1725) (lecto: *fide* Howard 1989: 57).

Trees to 6 m or more. Twigs densely felted-sericeous. Leaves with petiole 10–17 mm long; lamina elliptic or oblong, 6–15 cm long, 2.5–8 cm wide, apex shortly acuminate, base obtuse or acute, glabrescent above, densely rufous-sericeous beneath; secondary veins 12–20. Flowers numerous in axillary clusters, pedicels 9–12 mm long, felted-sericeous; calyx lobes suborbicular 1–1.2 mm long, felted outside, glabrous inside; corolla tube *c*. 1.5 mm long, appressed pubescent distally on outside, lobes ovate, *c*. 2 mm long, with appressed trichomes outside except on margins. Staminal filaments *c*. 0.5 mm long, anthers *c*. 0.7 mm. long. Ovary ovoid, appressed pubescent; style 0.3–0.4 mm long, glabrous; stigma discoid, 7–12-lobed. Fruit globular, 7 cm or more diameter, dark purple. Seeds several, flattened and obliquely obovate, with a broad scar nearly the length of the seed. *Star-apple*, *cainito*.

***Additional specimens examined*: Queensland.** Cook District: Barron Gorge NP, Stoney Creek section, Sep 2008, *McKenna SGM302* (BRI); Clump Mountain NP, off Boyett Road, North Mission Beach, Jan 2009, *Ford AF5457 & Lawson* (BRI).

***Distribution and habitat*:** *Chrysophyllum cainito* is reported to be native to the West Indies but is widely cultivated in the tropics and subtropics. It is sometimes encountered as a garden remnant but has also been noted to be naturalised at two localities in the Wet Tropics of north-east Queensland (**Map 25**).

***Phenology*:** Flowers have been recorded in February and May. No fruiting specimen records were available for Australia.

2. Chrysophyllum oliviforme L., *Syst*. ed. 10. 2: 937 (1759). **Type:** Icon "*Chrysophyllum*" in Plumier in Burman, *Pl. Amer.* 57, t. 69 (1756) (lecto: *fide* Vink 1958: 28).

Trees to 10 m. Twigs densely felted-sericeous. Leaves with petiole 8–14 mm long; lamina elliptic or oblong, 4–9 cm long, 2–5.5 cm wide, apex shortly acuminate, base obtuse or acute, glabrescent above, densely rufous-

sericeous beneath; secondary veins 12–20. Flowers numerous or few in the axillary clusters, pedicels 4–7 mm long, felted. Calyx lobes broadly ovate or suborbicular, 1.5–1.7 mm long, felted-sericeous outside, glabrous inside. Corolla tube *c*. 2.5 mm long, appressed pubescent outside, glabrous inside, lobes broadly ovate, *c*. 1.5 mm long, appressed pubescent only at the base outside. Staminal filaments *c*. 1 mm long; anthers 0.6–0.8 mm long. Ovary ovoid, appressed pubescent; style 0.5–0.6 mm long, glabrous; stigma discoid, 5-lobed. Fruit ellipsoid, to 2 cm long, *c*. 1 cm wide, dark purple. Seeds single, flattened and with a broad basilateral scar. *Satin leaf.*

***Additional selected specimens examined*: Queensland.** Moreton District: Holly Conservation Area – off Caroline Cres., Buderim, Oct 2017, *Flenady BF17-BHCA1* (BRI); Along Enoggera Creek, The Gap, Brisbane, Feb 2007, *Navie & Morton s.n.* (BRI [AQ617814]); Council reserve adjacent to Thornycroft St., Tarragindi, 7 km S of Brisbane CBD, Oct 2009, *Bean 29240* (BRI).

***Distribution and habitat*:** *Chrysophyllum oliviforme* is native to southern Florida, the Bahama Islands, and the Greater Antilles and is widely cultivated as an ornamental. It is recorded as naturalised in southeast Queensland (**Map 25**).

***Phenology*:** Flowers have been recorded in October, February, March and May and fruit in October.

Excluded name

Sideroxylon argenteum Thunb., *Prodr. Pl. Cap.* 36 (1794). **Type:** (not cited).

Sprengel (1824: 666) incorrectly placed *Sideroxylon obovatum* R.Br. (= *Planchonella obovata* (R.Br.) Pierre) from New Holland as a synonym of *S. argenteum* Thunb. (= *Heeria argentea* (Thunb.) Meisn., (Anacardiaceae); see Palmer & Pitman 1972: 1207).

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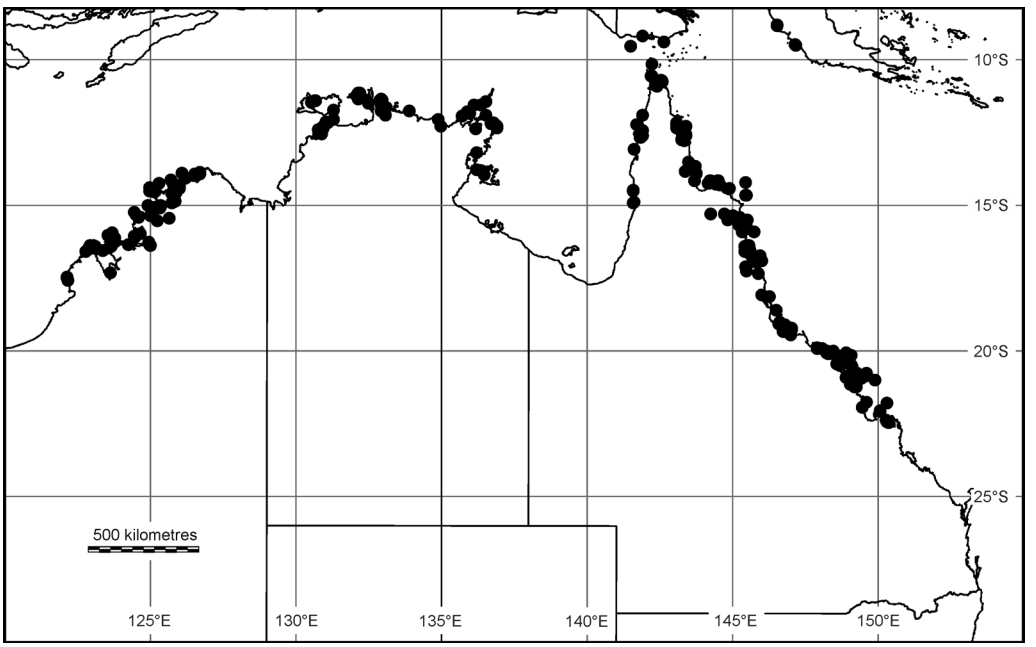
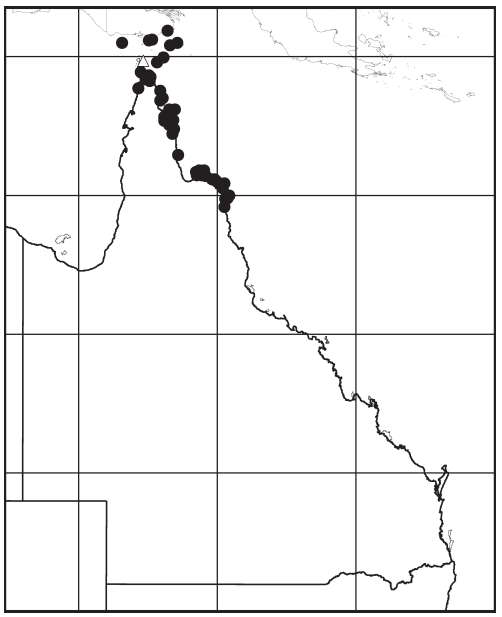
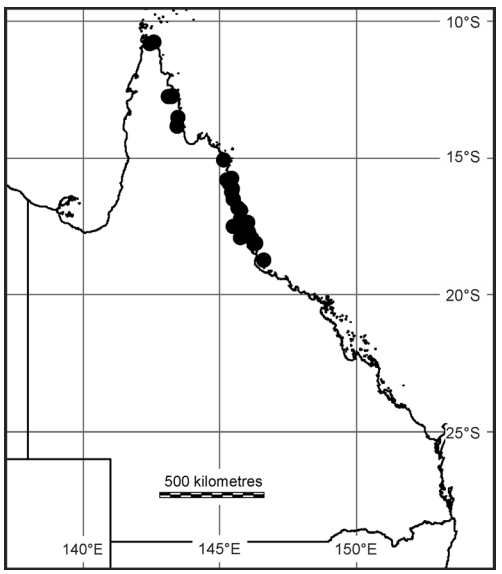


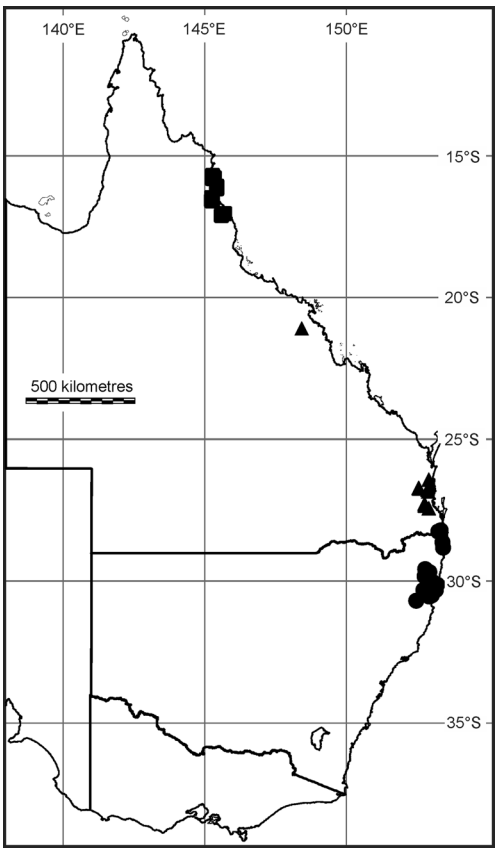
Map 1. Distribution of ***Mimusops elengi*** in Australia.



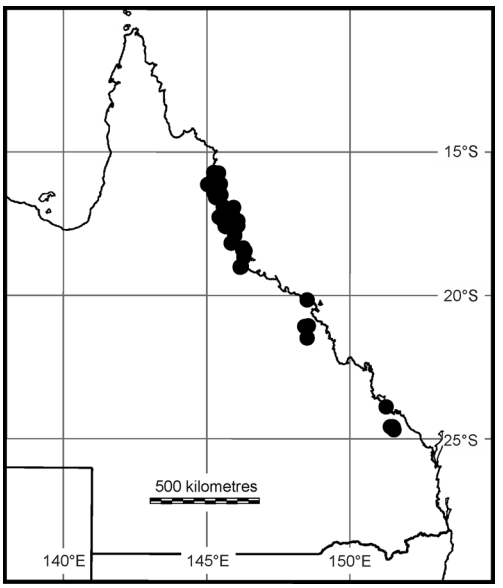
Map 2. Distribution of ***Manilkara kauki*** ● and ***M. kanosiensis*** △ in Australia.



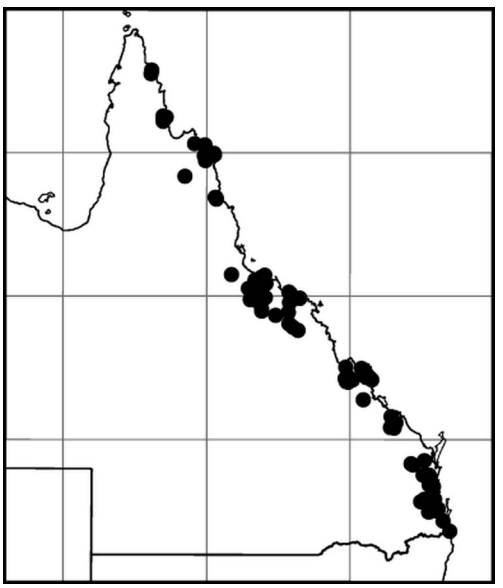
Map 3. Distribution of ***Palaquium galactoxylon*** in Australia.



Map 4. Distribution of ***Niemeyera chartacea*** ▲, ***N. discolor*** ■ and ***N. whitei*** ●.

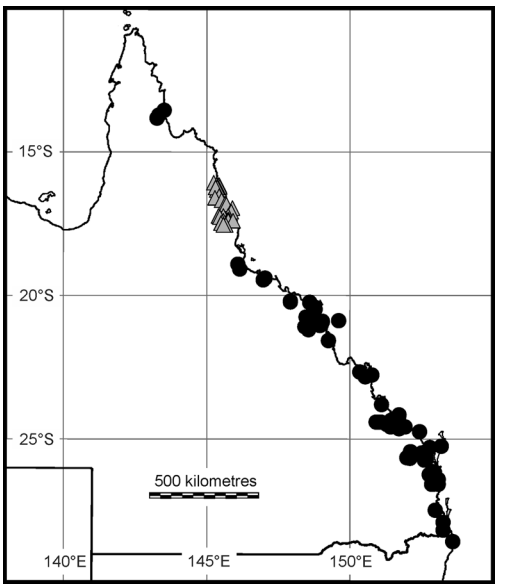


Map 5. Distribution of ***Niemeyera prunifera***.

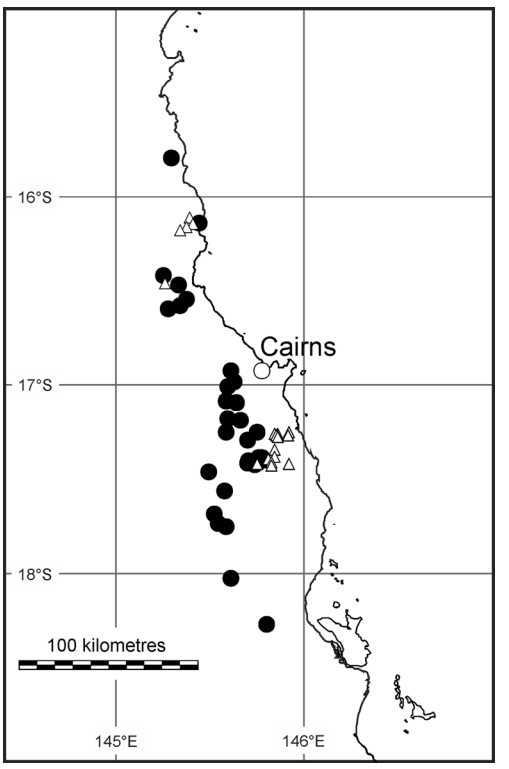


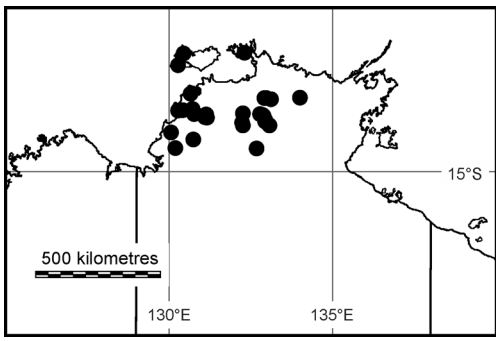
Map 6. Distribution of ***Amorphospermum antilogum*** in Australia.

Map 8. Distribution of ***Pleioluma brownlessiana*** ● and ***P. singuliflora*** △. ➔

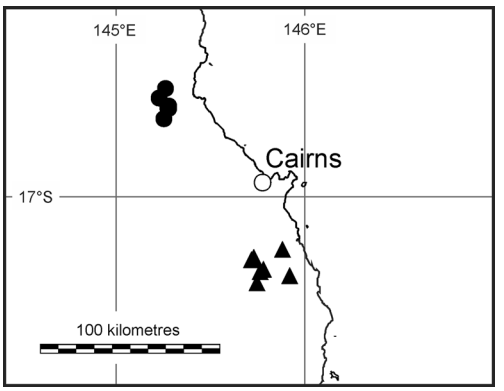


Map 7. Distribution of ***Pleioluma queenslandica*** ● and ***Van-royena castanosperma*** ▲, the latter only for the Australian occurrence.

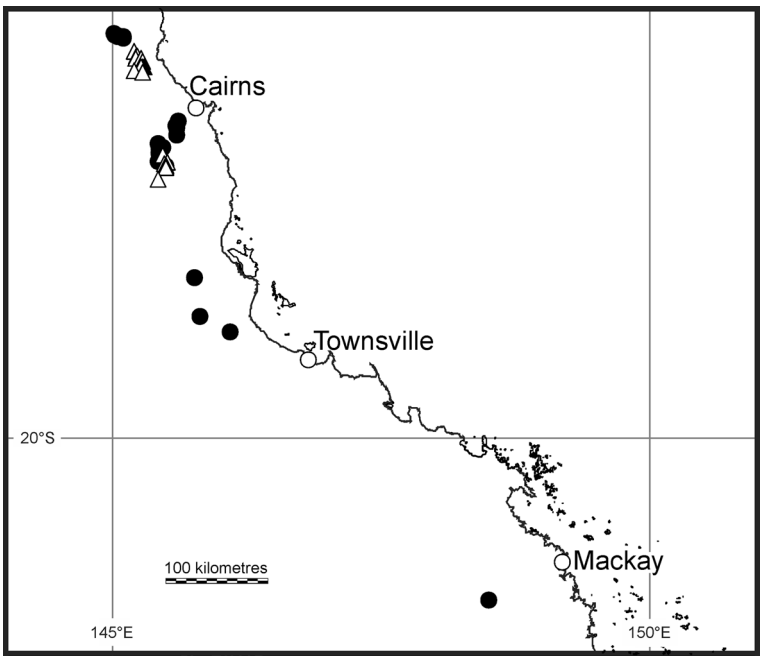




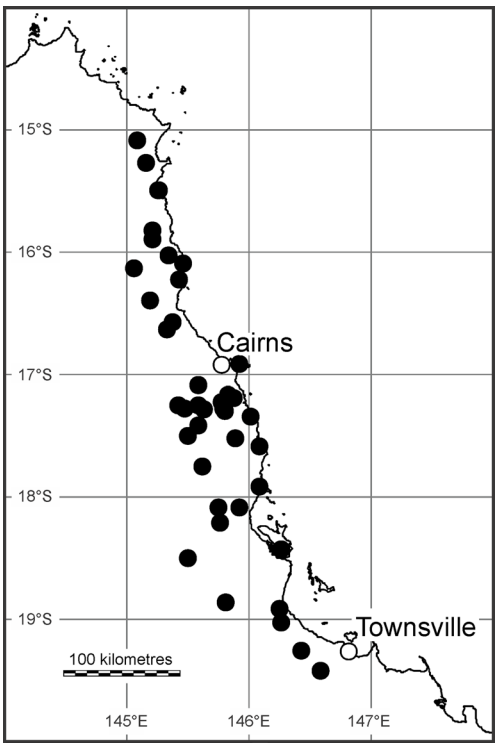
Map 9. Distribution of ***Pleioluma laurifolia*** in Australia.



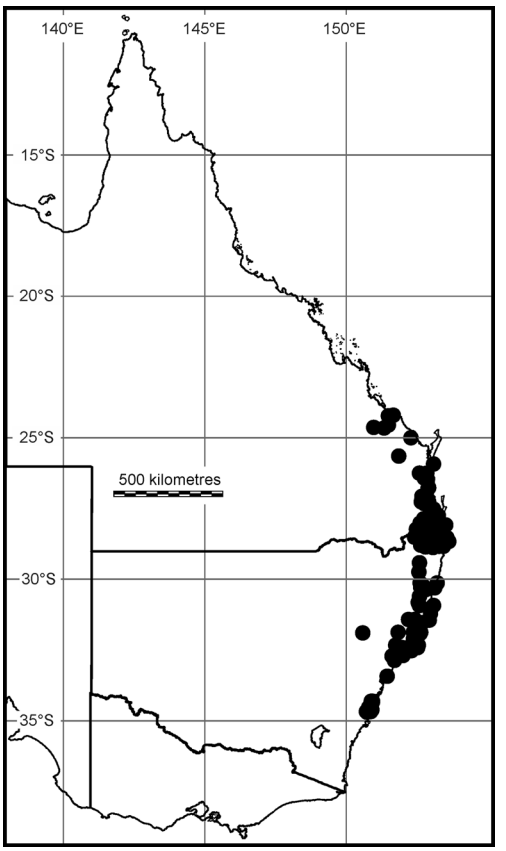
Map 11. Distribution of ***Pleioluma ferruginea*** ● and ***P. pilosa*** ▲.



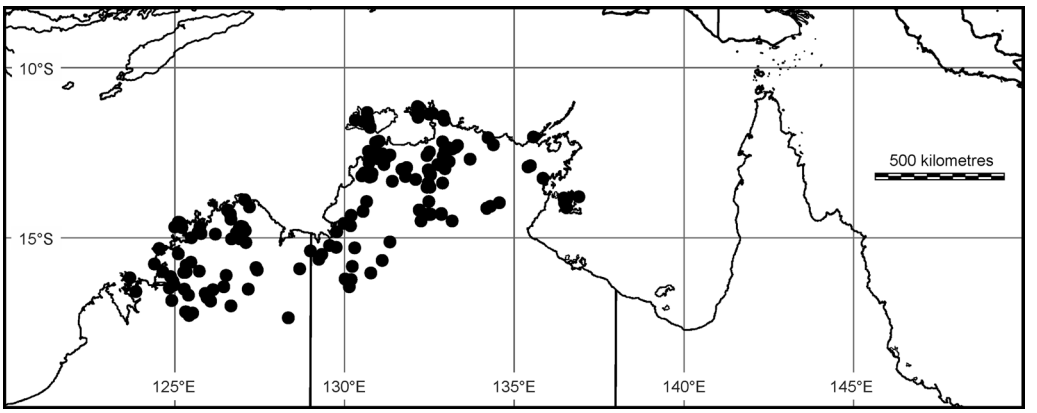
Map 10. Distribution of ***Pleioluma macrocarpa*** ● and ***P. papyracea*** △.



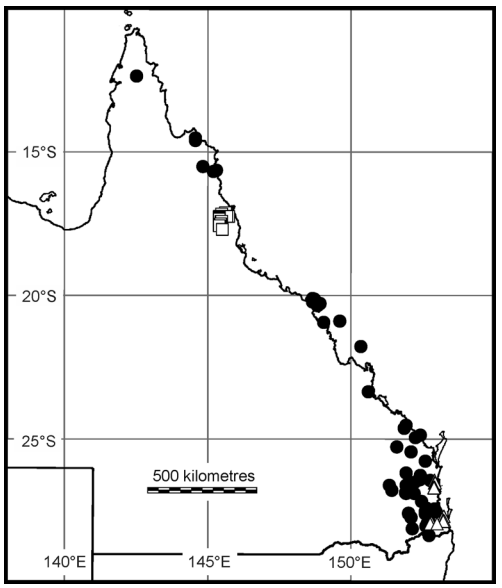
Map 12. Distribution of ***Pleioluma xerocarpa***.



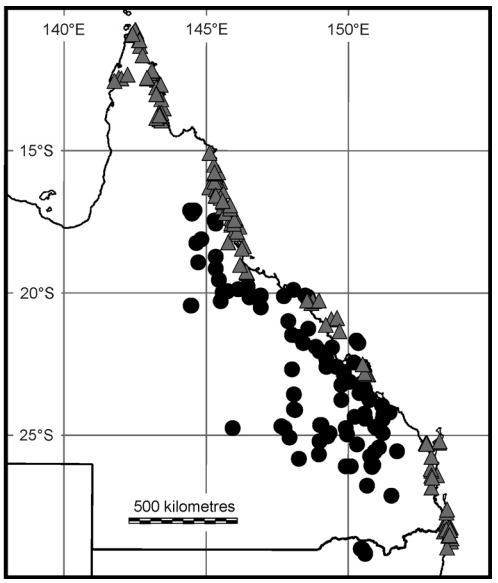
Map 14. Distribution of ***Planchonella australis***.



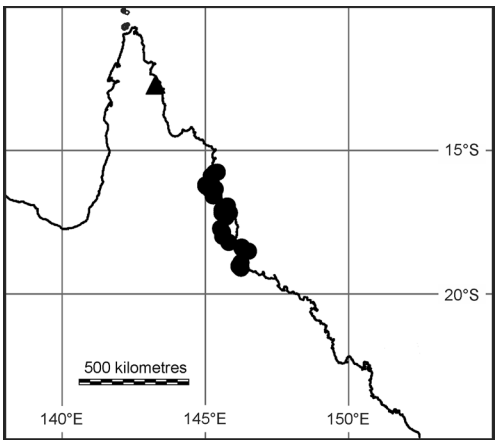
Map 13. Distribution of ***Planchonella arnhemica***.



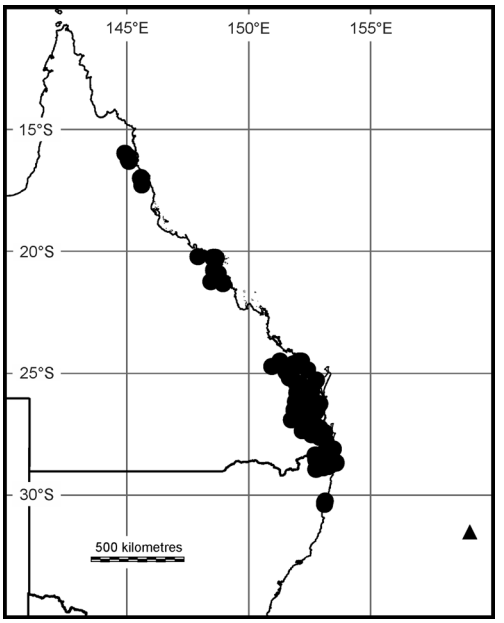
Map 15. Distribution of ***Planchonella asterocarpon*** □, ***P. cotinifolia*** var. ***cotinifolia*** ● and ***P. eerwah*** △.



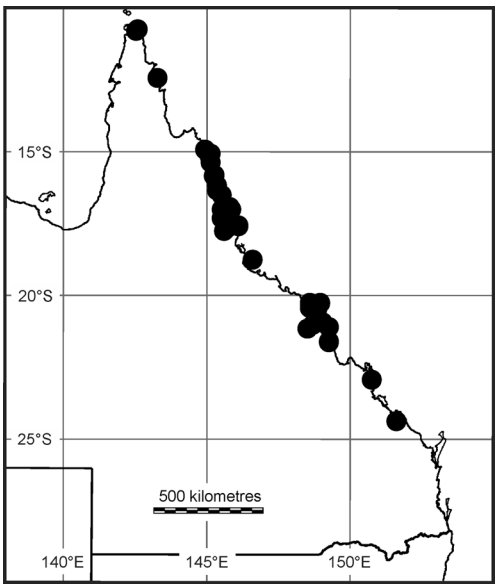
Map 16. Distribution of ***Planchonella chartacea*** ▲ and ***P. cotinifolia*** var. ***pubescens*** ●.



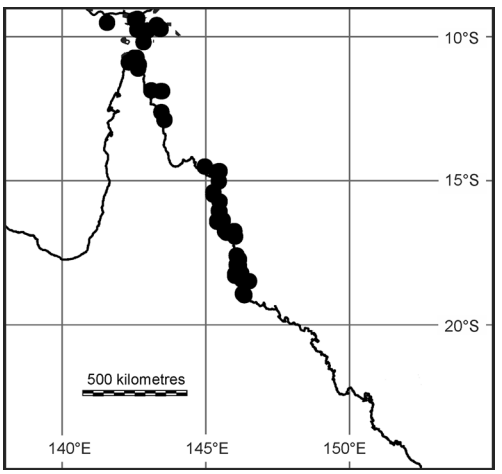
Map 17. Distribution of ***Planchonella euphlebia*** ● and ***P. xylocarpa*** ▲, the latter only for the Australian occurrence.



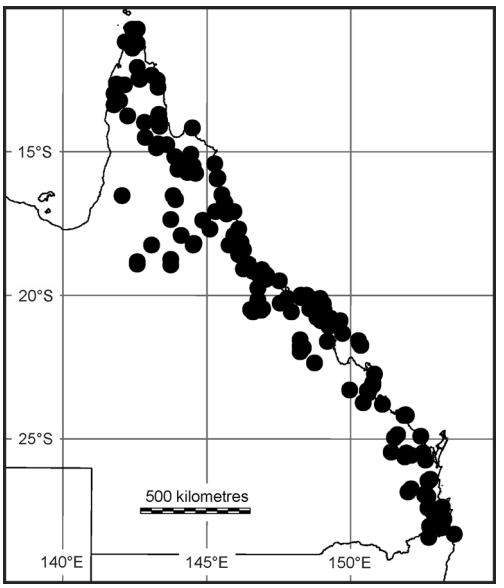
Map 18. Distribution of ***Planchonella myrsinifolia*** subsp. ***myrsinifolia*** ● and ***P. myrsinifolia*** subsp. ***howeana*** ▲.



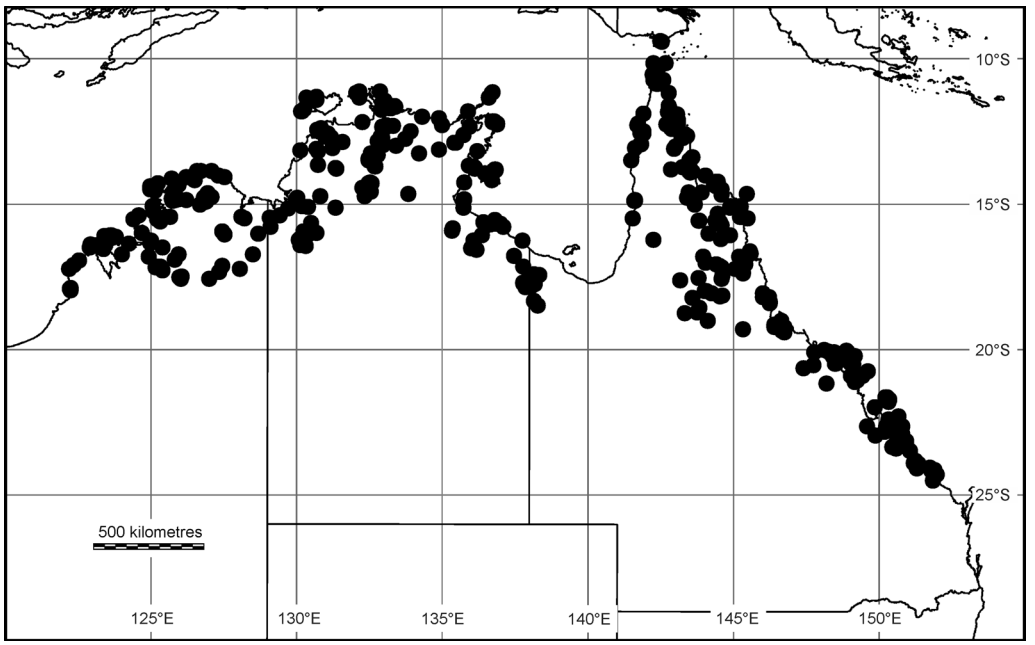
Map 19. Distribution of ***Planchonella myrsinodendron*** in Australia.



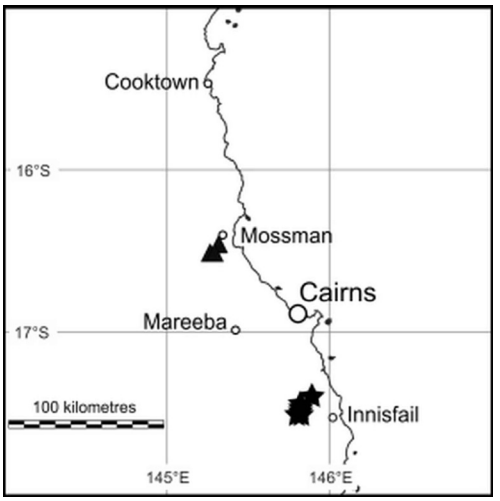
Map 20. Distribution of ***Planchonella obovata*** in Australia.



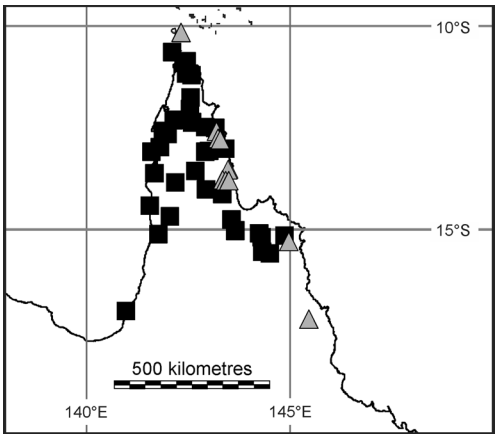
Map 21. Distribution of ***Planchonella pohlmaniana***.



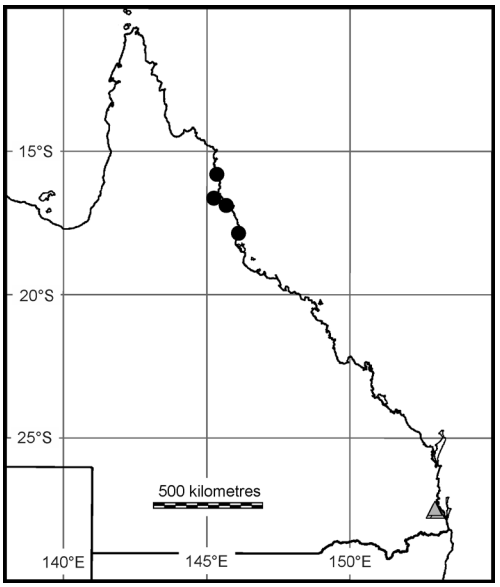
Map 22. Distribution of ***Sersalisia sericea***.



Map 23. Distribution of ***Sersalisia obpyriformis*** ★ and ***S. sessiliflora*** ▲.



Map 24. Distribution of ***Sersalisia unmackiana*** ■ and ***Donella lanceolata*** ▲ the latter only for the Australian occurrence.



Map 25. Distribution of naturalised populations of ***Chrysophyllum cainito*** ● and ***C. oliviforme*** ▲ in Australia.