

New taxa of rainforest Myrtaceae from northern Queensland

Peter G. Wilson and B.P.M. Hyland

Abstract

Wilson, Peter G.¹, & Hyland, B.P.M.² (¹National Herbarium of New South Wales, Royal Botanic Gardens, Sydney, Australia 2000; ²CSIRO Division of Plant Industry, Atherton, Australia 4883) 1988. New taxa of rainforest Myrtaceae from northern Queensland. *Telopea* 3(2): 257–271. — Three new genera, **Barongia**, **Sphaerantia** and **Mitrantia**, are described together with the new species **B. lophandra**, **S. discolor**, **S. chartacea** and **M. bivalvis**. In addition to these, two further species of *Ristantia* Wilson & Waterhouse are described: **R. gouldii** and **R. waterhousei**. All the taxa are illustrated, and their affinities discussed.

Introduction

In the past 15 years, two new genera of rainforest capsular Myrtaceae have been described. The first, *Lindsayomyrtus*, is unusual in that its fruit is not strictly a capsule and its embryo is large, with thick cotyledons (Hyland & van Steenis 1973); it is now thought to be distantly related to the Malesian genera *Whiteodendron* and *Kjellbergiodendron* (Wilson, unpublished observations; Johnson & Briggs 1985). The second, *Ristantia* (Wilson & Waterhouse 1982), is also thought to occupy an isolated, unspecialised position in the family. In the present paper three new genera are added to these, of which two appear to be closely related to *Ristantia* while the third is of uncertain affinity.

All taxa have been observed in the field by one or both authors. Leaf and fruit descriptions are based on herbarium material and floral descriptions on spirit or reconstituted material. Inflorescence terminology is based on Briggs and Johnson (1979) and leaf venation terminology follows Hickey (1973). The Conservation Codings are given in the form adopted by Leigh *et al.* (1981).

Barongia Peter G. Wilson & B. Hyland, gen. nov.

Genus novum proprium ab aliis generibus Myrtacearum australiensibus floribus luteis, staminibus in phalanges lineares connatis, semine persaepe unico trigono, cotyledonibus foliaceis, in embryone reflexis et replicatis facile distinguendum.

TYPE SPECIES: *Barongia lophandra* Peter G. Wilson & B. Hyland

Trees. *Juvenile leaves* spirally arranged. *Adult leaves* opposite. *Inflorescence* a panicle. *Flowers* 5-merous, yellow. *Hypanthium* shallow, margin equal to or slightly lower than the ovary summit. *Stamens* very numerous, yellow, the filaments of varying lengths and united into linear, brush-like fascicles opposite the petals. *Ovary* half-inferior, 3-(rarely 4-) locular, incompletely septate at the apex with a broad compitum connecting the loculi; placentas basal, ovules anatropous. *Style* terminal on the ovary, much shorter than the staminal

fascicles; stigma slightly dilated. *Capsule* not very woody, loculicidal but with a single cavity containing one, very rarely two, relatively large seed(s). *Embryo* with broad cotyledons that do not enclose one another but are sharply reflexed from the top of the hypocotyl then folded back on themselves.

This monotypic genus has no close affinities with any other Australian genus; the flowers and fruits bear a passing resemblance to *Welchiodendron*, but it differs from that genus in phyllotaxis, morphology of the staminal fascicle, placentation, fruit structure, seed and embryo morphology, and in lacking oil ducts in the stem and petiole (see Wilson & Waterhouse 1982).

In the structure of the flower and fruit it is superficially similar to the genus *Whiteodendron* from Sarawak (van Steenis 1952) but it differs from that genus in having the staminal fascicles free from one another rather than joined at the base into a tube, leaves consistently opposite rather than spiral in the adult, lack of an intramarginal vein, lack of a curved apical bud, cotyledons separate rather than one enclosing the other in the embryo, and in lacking oil ducts in the stem and petiole.

The genus shows more similarities with *Ristantia pachysperma* in the general morphology (but not the woodiness) of the fruit of that species and in the leaf venation. The embryo of *Barongia*, although different, could be a less specialised form of the *Ristantia*-type of embryo with the cotyledons broader and reflexed and folded back on themselves, rather than reniform with the lobes rolled. The main differences between *Barongia* and *Ristantia*, and between *Barongia* and the two new genera described below, are the yellow flowers, the long staminal fascicles, the trigonous seed, the spiral-then-opposite phyllotaxis, and the lack of oil glands in the pith. Spiral-then-opposite phyllotaxis does occur in some species of *Xanthostemon* s. lat. but this genus is otherwise quite different from *Barongia*.

The generic name is derived from the only known locality for the species, viz. the Barong Logging Area.

***Barongia lophandra* Peter G. Wilson & B. Hyland, sp. nov.**

Foliis anguste ovatis-ellipticis usque ad 20 cm longis, nervo intramarginali deficienti, inflorescentiis apparenter paniculatis, floribus luteis, phalangibus staminum usque ad 1 cm longis, capsulis exsertis loculicidis et seminibus flavidis, persaepe solitariis trigonis.

HOLOTYPE: QUEENSLAND: State Forest Reserve 755, Barong Logging Area, 17°31'S 145°50'E, Gray 400, 23.3.1977 (QRS). ISOTYPES: NSW, UNSW.

Rainforest tree to over 30 m tall, with flaky bark and prominent buttresses; young twigs finely puberulent. *Leaves* narrowly ovate to elliptical; petiole short, 0.4–0.8 cm long; lamina 10–20 cm long, 4–8.5 cm broad, venation eucamptodromous with 7–9 pairs of secondary veins, definite intramarginal vein not formed, obtuse to cordate at base, shortly acuminate at apex, oil glands numerous. *Inflorescence* axillary, apparently an irregularly-branched panicle. *Flowers* hermaphrodite. *Hypanthium* 0.9–1.0 cm broad. *Sepals* rounded-triangular, 1.5–2.0 mm long, 2.5–4.5 mm wide. *Petals* yellow, gland-dotted, more or less orbicular, 6–9 mm long, 6–7 mm broad. *Stamens* multiseriate, very numerous; staminal fascicles 5, opposite the petals, slender and brush-like due to the spreading free ends of the filaments, base circular in cross-section, c. 1 mm diam., gradually tapering towards apex, 8–10 mm long; anthers all fertile,



Fig. 1. *Barongia lophandra* Peter G. Wilson & B. Hyland. **A**, flowering branchlet (X 0.5). **B**, seedling (X 0.5). **C-F**, fruit (X 1.4). **G**, flower bud (X 1.8). **H**, flower (X 1.8). **I**, longitudinal section of flower (X 2.3). **J**, staminal bundle (X 5.5). **K, L**, front and back views of anther (X 14). **M, N**, seed (X 2). (**A, G-L** from *Gray 400*; **D-F, M, N** from *Irvine 1875*; **B** from *Irvine 1882*; **C** from *Gray 739*).

dorsifixed, versatile, the connective gland-tipped. *Ovary* finely pubescent; ovules 9–11 per loculus. *Style* short, c. 2 mm long; stigma slightly dilated, flat-topped. *Fruit* a thin-walled capsule with a rounded or conical summit shortly exerted from the fruiting hypanthium, 10–14 mm across; seed yellowish, c. 6 mm long, 3-angled at distal end. Figure 1.

This species is listed as *Tristania* sp., code 765, in Hyland (1982); it is confined to the area known as Barong Logging Area in the lower part of the North Johnstone River. Its conservation status has been determined as 2R by Thomas and McDonald (1987).

SPECIMENS EXAMINED: QUEENSLAND: **Cook:** S.F.R. 755, Barong L.A., *Briggs* 7409, 30.8.1983 (NSW); *Gray* 347, 2.3.1977 (NSW, QRS, UNSW), 399, 23.3.1977 (QRS, UNSW), 591, 21.6.1977 (NSW, QRS, UNSW), 618, 13.7.1977 (QRS, UNSW), 659, 18.8.1977 (QRS, UNSW), 739, 11.10.1977 (QRS, UNSW); *Hyland* 3470, 3471 *RFK*, 28.10.1976 (QRS, UNSW), 3495 *RFK*, 13.1.1977 (QRS, UNSW), 9288, 13.1.1977 (QRS, UNSW); *Irvine* 1875, 21.10.1977 (NSW, QRS, UNSW), 1882, 21.10.1977 (QRS); *Stocker* 1589, 6.9.1977 (QRS, UNSW).

Sphaerantia Peter G. Wilson & B. Hyland, **gen. nov.**

Ristantiae affinis foliis oppositis, capsula inclusa in hypanthio truncato-globoso leviter lignoso distinguendum.

TYPE SPECIES: *Sphaerantia discolor* Peter G. Wilson & B. Hyland.

Andromonoecious trees, oil glands present in the pith of young stems and petioles. *Leaves* opposite in both juvenile and adult plants; venation brochidodromous, intramarginal vein poorly developed. *Inflorescence* a terminal or axillary thyrsoid or metabotryoid. *Petals* 4 or 5, white to cream. *Sepals* 4 or 5, persistent on the fruit. *Hypanthium* dish-shaped, exceeding the ovary summit. *Stamens* numerous, the filaments of various lengths, aggregated into five basally connate fascicles opposite the petals. *Ovary* half-inferior, 2- to 3-locular; placentas basal, ovules numerous, anatropous. *Style* inserted in a slight depression on the ovary summit, not exceeding the staminal fascicles; stigma dilated, convex. *Fruit* only lightly lignified, truncate-globose; capsule included within the fruiting hypanthium, loculicidal, containing one or more seeds. *Embryo* with circinate cotyledons.

A genus of two species, clearly related to *Ristantia* by reason of the shared occurrence of the distinctive *Ristantia*-type of embryo and by the oil glands in the pith. The major differences are the regularly opposite leaves, the lack of sterile anthers, the numerous ovules and the included, lightly lignified capsule.

This genus and the next one are further examples of andromonoecy in the Myrtaceae; this condition has not often been reported but may be more common than previously thought. It occurs in *Lysicarpus*, *Eucalyptus calophylla* and related species (Carr *et al.* 1971), *E. petraea* (Carr & Carr 1983), and *Leptospermum* (Thompson, pers. comm.; Primack & Lloyd 1980), while Byrnes (1984, 1985, 1986) cites at least 15 species of *Melaleuca* that have male and hermaphrodite flowers.

The generic name is derived from *sphaera* (globe or sphere), referring to the truncate-globose fruiting hypanthium, and the suffix *-antia* alluding to the relationship with *Ristantia*.

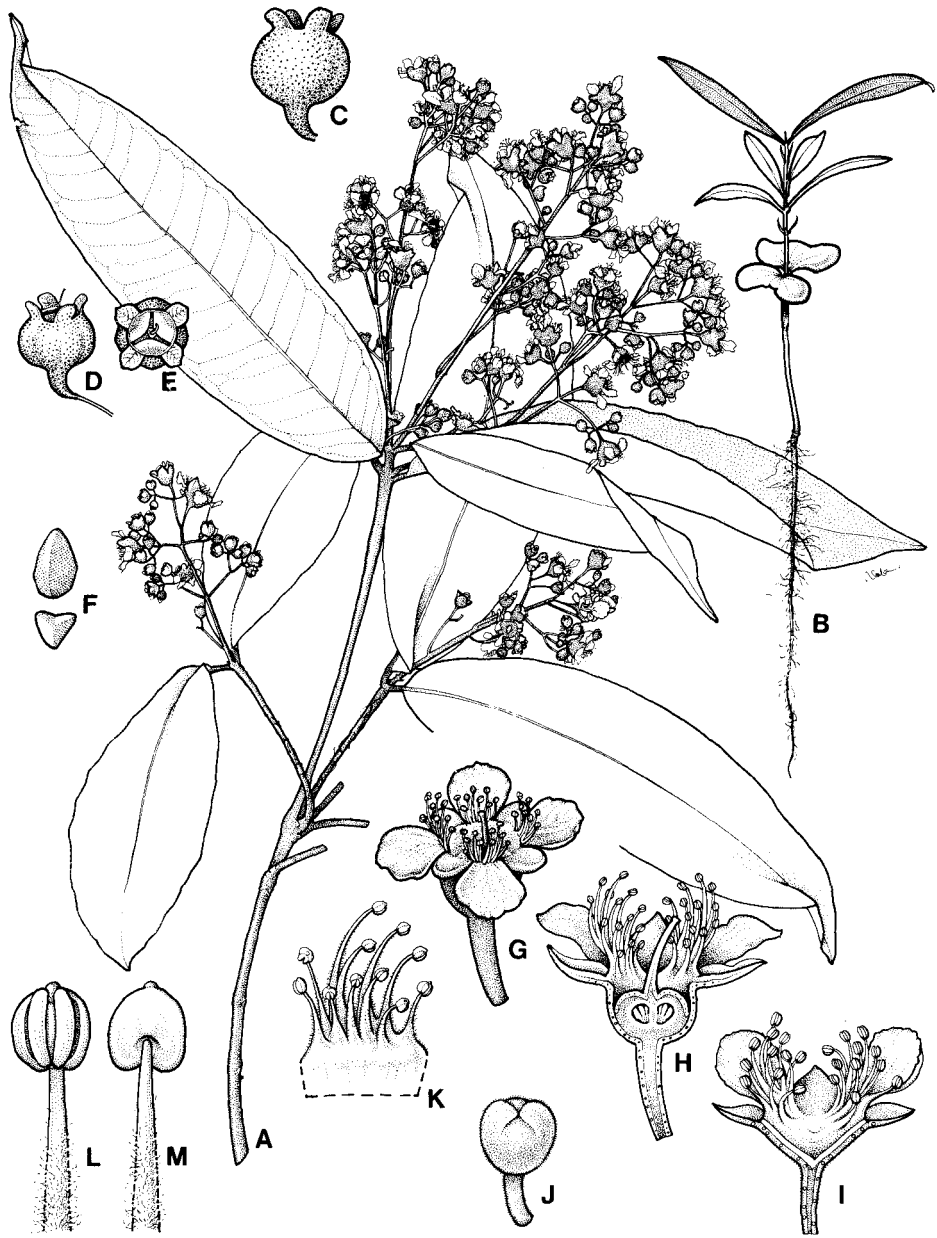


Fig. 2. *Sphaerantia discolor* Peter G. Wilson & B. Hyland. **A**, flowering branchlet (X 0.5). **B**, seedling (X 0.5). **C**, fruit (X 1). **D**, **E**, fruit (X 0.8). **F**, seeds (X 1.8). **G**, open flower (X 1.8). **H**, longitudinal section of hermaphrodite flower (X 2.5). **I**, longitudinal section of male flower (X 2.5). **J**, flower bud (X 2.2). **K**, staminal bundle (X 4.5). **L**, **M**, front and back views of anther (X 22). (**A**, **G**–**M** from Hyland 3565 RFK; **B**–**F** from Gray 848).

Key to species

- Leaves discolorous, usually rather leathery, mostly 9–16 cm long, oil-glands scattered **1. *S. discolor***
- Leaves \pm concolorous, chartaceous, mostly 6–9 cm long, oil-glands dense **2. *S. chartacea***

1. *Sphaerantia discolor* Peter G. Wilson & B. Hyland, *sp. nov.*

Foliis discoloribus plerumque 9–16 cm longis, lamina plus minusve coriacea, sparsim glanduloso-punctatis; inflorescentiis plerumque thyrsoides; filamentis staminum pilos patulos gerentibus.

HOLOTYPE: QUEENSLAND: State Forest Reserve 756, East McNamee Logging Area, 17°40'S 145°30'E, *Hyland 3565 RFK*, 13.9.1977 (QRS). ISOTYPE: NSW.

Tree with buttresses, to at least 20 metres tall and 80 cm d.b.h.; bark flaky. *Leaves* discolorous, narrowly ovate or elliptical, purplish red when young; petiole short, 0.3–0.5 cm long, somewhat thickened; lamina rather coriaceous, 9.5–14(–16) cm long, 3–5(–6.5) cm broad, secondary veins 4–9 mm apart, obtuse to sub-cordate at base, acuminate at apex, oil glands scattered. *Inflorescence* a thyrsoid, less often a metabotryoid, mostly axillary, up to 12 cm long. *Hypanthium* 4–5 mm broad, covered with a fine, short indumentum. *Sepals* 4, semicircular to oblong, 1.5–2.5 mm long, 2–3.5 mm broad, dotted with oil glands, clothed with same indumentum as hypanthium with the margin woolly-ciliate. *Petals* 4, white, orbicular, 3–3.5 mm broad, both surfaces covered with same indumentum as sepals but with the margin glabrous, oil glands absent or obscure. *Stamens* numerous, apparently in three series, 9–15 in each fascicle; filaments 0.5–2.5 mm long, bearing short, spreading hairs for most of their length; anthers all fertile, dorsifixed, versatile, the connective gland-tipped. *Ovary* bearing an indumentum of white hairs; ovules numerous, up to 35 per loculus. *Style* 3–5 mm long; stigma capitate, convex. *Fruit* dark brown, 10–14 mm diam.; seeds pale brown, irregularly ovoid, 5–6 mm long. Figure 2.

This species is listed as *Tristania* sp., code 93, in Hyland (1982); it is restricted to a small area in the region around the Russell and Johnstone Rivers. Its conservation status has been assessed as 2R by Thomas and McDonald (1987).

Gadek and Martin (1981) examined the pollen of this species (as ‘gen. nov. ‘McNamee’’); they found a similarity with the pollen of the two *Ristantia* species included in their study and noted further that the pollen of the three taxa showed a combination of character-states that had ‘not been found elsewhere in the *Metrosiderinae*’.

SPECIMENS EXAMINED: QUEENSLAND: **Cook:** S.F.R. 755, Tewon L.A., Russell River, 17°27'S 145°47'E, *Irvine 1938*, 11.7.1979 (NSW, QRS); S.F.R. 756, East McNamee L.A., *Gray 794*, 15.11.1977 (QRS, UNSW), *836*, 20.12.1977 (NSW, QRS, UNSW), *848*, 10.1.1978 (QRS, UNSW); *Hyland 3566, 3567 RFK*, 13.9.1977 (QRS, UNSW), *5631*, 3.11.1971 (QRS, UNSW).

2. *Sphaerantia chartacea* Peter G. Wilson & B. Hyland, *sp. nov.*

Foliis plus minusve concoloribus plerumque 6–9 cm longis, lamina chartacea, dense glanduloso-punctatis; inflorescentiis plerumque metabotryoides; filamentis staminum pro parte majore glabris.

HOLOTYPE: QUEENSLAND: Timber Reserve 176, Monkhouse, Shipton Logging Area, 15°48'S 145°16'E, Hyland 12301, 21.10.1982 (QRS). ISOTYPES: NSW, UNSW.

Tree to at least 10 metres tall and 20 cm d.b.h.; bark usually flaky. Leaves \pm concolorous, narrowly elliptical to oblong; petiole 0.4–0.7(–0.9) cm long, slightly thickened at the base; lamina chartaceous, (5.5–)6–9(–13.2) cm long and (1.5–)2–3.5(–4.7) cm broad, secondary veins (2–4(–6) mm apart, acute at base,



Fig. 3. *Sphaerantia chartacea* Peter G. Wilson and B. Hyland. A, flowering branchlet (X 0.75). B, C, fruit (X 0.75). D, staminal bundle (X 5.5). E, longitudinal section of flower (X 3). (A, D, E from Hyland 12301; B, C from Hyland 12516).

acuminate at apex, oil glands dense. *Inflorescence* a metabotryoid, terminal, up to 12 cm long. *Hypanthium* 5–7 mm broad, covered with a fine, short indumentum. *Sepals* 4 or 5, broadly deltoid to semicircular, c. 2 mm long, 2–3.5 mm broad, dotted with oil glands, both surfaces covered with a fine, short indumentum, the margin woolly-ciliate. *Petals* 4 or 5, cream, ovate-orbicular, 2.5–3.5 mm long, 2–3 mm broad, indumentum denser on outer surface, margin glabrous, dotted with oil glands. *Stamens* numerous, apparently in 3 series, 16–22 in each fascicle; filaments 0.9–3.2 mm long, with a few spreading hairs at the base; anthers all fertile, dorsifixed, versatile, the connective gland-tipped. *Ovary* bearing a sparse indumentum of fine, short hairs; ovules numerous, 20–30 per loculus. *Style* up to 3 mm long; stigma dilated, slightly convex. *Fruit* pale to dark brown, 12–16 mm diam.; seeds yellowish, irregularly ovoid, c. 6 mm long, 4–5 mm broad. Figure 3.

This species was the basis of the 'gen. aff. *Tristania* ("Parrot Creek")' discussed by Briggs and Johnson (1979) and was listed as *Allosyncarpia* sp. vel aff., code 755, in Hyland (1982). It is only found in the vicinity of Mount Finnegan, near Cooktown; its conservation status has been classed as 2RC by Thomas and McDonald (1987).

SPECIMENS EXAMINED: QUEENSLAND: **Cook:** T.R. 176, Shipton L.A., *Hyland* 12516, 8.2.1983 (NSW, QRS, UNSW); T.R. 146, Shipton L.A., 15°50'S 145°15'E, *Hyland* 3229, 3230, 3231, 3233 RFK, 10.7.1975 (QRS); Parrot Creek, 15°50'S 145°16'E, *Webb & Tracey* 12693 [*H. Dick* 4], 2.1973 (QRS); Mt Finnegan, 15°47'S 145°17'E, *Webb & Tracey* 10860, 25.8.1972 (BRI, NSW, QRS).

***Mitrantia* Peter G. Wilson & B. Hyland, gen. nov.**

Ristantiae affinis sed capsula conica bilocularis leviter lignosa differt.

TYPE SPECIES: *Mitrantia bilocularis* Peter G. Wilson & B. Hyland.

Andromonoecious trees, oil glands frequent in the pith of young stems and petioles. *Leaves* alternate; venation weakly brochidodromous, intramarginal vein poorly developed. *Inflorescence* a terminal or axillary thyrsoid. *Flowers* 5-merous, white. *Hypanthium* cup-shaped, exceeding the ovary summit. *Stamens* in a single series, aggregated into five groups opposite the petals; filaments free. *Ovary* half-inferior, 2-locular; placentas basal, ovules few, anatropous, arranged in a semicircle on each placenta. *Style* terminal on the ovary; stigma dilated. *Capsule* exerted, lightly lignified, loculicidal, the base cupped by the fruiting hypanthium; seeds 1 or 2. *Embryo* with circinate cotyledons.

This genus is, on current knowledge, monotypic. It is related to *Ristantia* and *Sphaerantia* in its embryo type and in the occurrence of oil glands in the pith. The major differences are the much-reduced staminal fascicles and the distinctive fruit form. The fruit is somewhat similar to that of the monotypic *Basisperma* in that the capsule is two-valved, much exerted, and contains a single seed. However, a study of specimens and published descriptions of *B. lanceolatum* (White 1942, Foreman 1978) revealed a number of major differences: the leaves are opposite or irregularly ternate and have a definite intramarginal vein; the inflorescence is a dichasium; the ovules are scattered on the placenta; the fruit is small and subglobose, rounded at the summit and looks *Pittosporum*-like when fully opened, and the testa is described as red and subcarnose. In addition, the embryo, judging from the illustration of the seed in Foreman's paper, could be quite different. The exact relationships of

Basisperma are still unclear; it has been suggested by Briggs and Johnson (1979) that its affinities lie with the 'Kania alliance' but this has been disputed (Wilson 1982) and a relationship with *Ristantia* suggested (Wilson & Waterhouse 1982). The question of the relationships of *Basisperma* cannot be completely resolved until the precise arrangement of the cotyledons in its embryo can be determined; Foreman (1978) merely states that they are folded. The generic name is derived from *mitra* (a cap or turban), referring to the shape of the exerted capsule, and the suffix *-antia* alluding to the relationship with *Ristantia*.

***Mitrantia bilocularis* Peter G. Wilson & B. Hyland, sp. nov.**

Foliis obovatis-ellipticis 7–12(–14.3) cm longis et (2.2–)3–5 cm latis, nervo intramarginali inconspicuo; inflorescentiis thyrsoides, floribus albidis, staminibus paucis ante petala aggregatis; capsulis conicis exsertis.

HOLOTYPE: QUEENSLAND: Timber Reserve 55, Whyanbeel, 16°22'S 145°20'E, Hyland 8689, 30.3.1976 (QRS). ISOTYPES: NSW, UNSW.

Tree, slightly buttressed, to at least 25 metres tall and 80 cm d.b.h.; bark flaky, fissured. *Leaves* obovate-elliptical; petiole 0.4–1 cm long, thickened at base; lamina rather coriaceous, 7–12(–14.3) cm long, (2.2–)3–5 cm broad, the base acute, the apex generally obtuse and bluntly acuminate, oil glands dense. *Inflorescence* a thyrsoid, terminal or axillary, up to 12 cm long. *Hypanthium* 2–3 mm broad, covered with a dense indumentum of short to long soft hairs (also present on sepals and petals). *Sepals* 5, irregularly square or rectangular, up to 1.5 cm long, dotted with oil glands. *Petals* 5, cream, ± orbicular, oil glands present. *Stamens* in small groups of 1–3 opposite the petals; one long stamen c. 0.7 mm long always present in front of the petal with up to two shorter stamens c. 0.4 mm long flanking it towards the margins of the adjacent sepals; anthers all fertile, dorsifixed, versatile, the connective gland-tipped. *Ovary* with an indumentum of very short hairs; ovules 3–5 per locus. *Style* 0.6–1 mm long; stigma capitate, flat-topped. *Fruit* brown, 6.5–10.5 mm diam., valves projecting 4–5 mm from fruiting hypanthium; seeds pale brown, irregularly ovoid, 6–8 mm long. Figure 4.

M. bilocularis was listed as *Tristania* sp., code 455, in Hyland (1982). The species has been collected only from Timber Reserve 55 north-west of Whyanbeel; its conservation status is given as 2R by Thomas and McDonald (1987).

Pollen of this species (as "gen. nov. 'Whyanbeel'") was examined by Gadek and Martin (1981) who found that the combination of its pollen characters was unique among the species examined in their study.

SPECIMENS EXAMINED: QUEENSLAND: **Cook:** T.R. 55, Whyanbeel, Hyland 1115, 1116 RFK, 12.10.1967 (QRS), 3024 RFK, 1.7.1974 (QRS, UNSW), 3025, 3026, 1.7.1974 (QRS), 7974A, 7.1.1975 (QRS, UNSW), 8690, 30.3.1976 (QRS, UNSW), 8784, 13.5.1976 (QRS), 8907, 2.9.1976 (NSW, QRS, UNSW); **Irvine** 1615, 1616, 9.10.1975 (QRS), 1716, 17.12.1975 (QRS).

***Ristantia* Peter G. Wilson & Waterhouse**
Austral. J. Bot. 30: 442 (1982)

TYPE SPECIES: *Ristantia pachysperma* (F. Muell. & F. Bailey) Peter G. Wilson & Waterhouse.

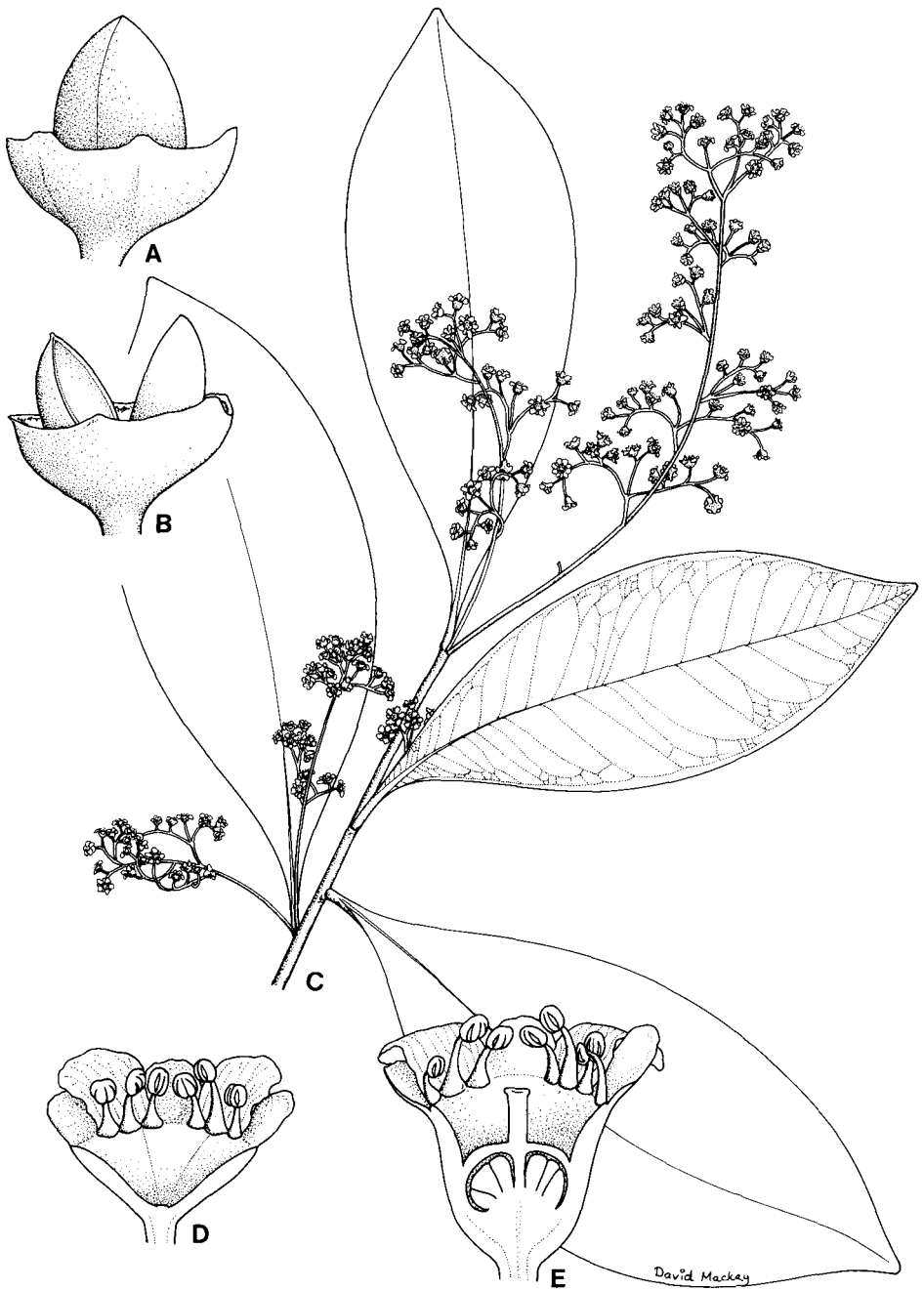


Fig. 4. *Mitrantia bilocularis* Peter G. Wilson & B. Hyland. **A, B**, fruit (X 5). **C**, flowering branchlet (X 0.7). **D**, longitudinal section of male flower (X 10). **E**, longitudinal section of hermaphrodite flower (X 10). (**A, B** from Hyland 8907; **C-E** from Hyland 8689).

Trees, oil glands present in the pith of young stems and petioles. *Leaves* alternate; venation eucamptodromous, intramarginal vein not formed. *Inflorescence* a panicle or metabotryoid, axillary; flowers mostly hermaphrodite. *Petals* 4 or 5, white to cream. *Sepals* 4 or 5, not, or barely, apparent in the fruit. *Hypanthium* dish-shaped, exceeding the ovary summit. *Stamens* numerous, the filaments of various lengths, with at least some of them irregularly grouped in front of the petals; sterile anthers present, lacking an oil gland. *Ovary* half-inferior, 3-locular; placentas basal, ovules 2 per loculus, anatropous. *Style* terminal on the ovary, shorter than or barely exceeding the stamens; stigma capitate. *Fruit* strongly lignified; capsule globose, exserted from the fruiting hypanthium, loculicidal, containing one or more seeds. *Embryo* with circinate cotyledons.

A very distinct genus of three species. In the protologue, it was stated that neither the sterile stamens nor the grouped stamens described for *R. pachysperma* were diagnostic of the genus. This has proved to be untrue; the sterile anthers and the grouped stamens are merely less conspicuous in the two new species described below.

Key to species

- 1 Fruit splitting almost completely to the base; fruiting hypanthium scarcely developing, everted beneath the fruit **1. *R. gouldii***
- 1* Fruit dehiscence limited by the thickened fruiting hypanthium which is well developed beneath the capsule **2**
- 2 Fruiting hypanthium \pm flat with the free rim deflexed **2. *R. waterhousei***
- 2* Fruiting hypanthium flat to very broadly obconical, rim not deflexed ***R. pachysperma***

1. *Ristantia gouldii* Peter G. Wilson & B. Hyland, sp. nov.

A speciebus aliis *Ristantiae* capsula omnino exserta ad basem findenti, hypanthio vix evoluto sub fructu everso differt.

HOLOTYPE: QUEENSLAND: Timber Reserve 1230, Boonjee Logging Area, 17°25'S 145°45'E, *Hyland 6764*, 18.7.1973 (QRS). ISOTYPES: NSW, UNSW.

Tree to at least 30 metres tall and 100 cm d.b.h.; bark pale brown, slightly flaky. *Leaves* chartaceous to subcoriaceous; petiole (0.5-)1-2(-2.5) cm long, thickened at base; lamina elliptical, (4-)5-9(-11) cm long, (2-)2.5-5 cm broad, attenuate at base and obtuse to bluntly acuminate at apex; oil glands dense. *Inflorescence* a metabotryoid, axillary, up to 4 cm long; flowers all hermaphrodite. *Hypanthium* 3.5-4.5 mm broad, bearing scattered short hairs, glabrescent. *Sepals* 5, \pm triangular, c. 1.5 mm long, 1.5-2 mm broad, dotted with oil glands, both surfaces clothed with hairs (but longer and denser on inner surface), margins very shortly woolly-ciliate. *Petals* 5, white, obovate to orbicular, c. 2 mm long, dotted with oil glands, indumentum as for sepals. *Stamens* numerous, c. 25-35, apparently in 2 series, the outer \pm continuous but irregular so that gaps may occur in front of sepals, the inner aggregated in front of the petals; filaments 1-2.5 mm long; anthers dorsifixed, versatile, gland-tipped, sterile anthers few, 0.5-0.6 mm long, darker and equal to or slightly larger than the fertile anthers. *Ovary* \pm glabrous. *Style* 2.5 mm long; stigma dilated, flat-topped. *Fruit* brown, rugose, 1-1.5 cm diam.; capsule fully exserted,

splitting to base, style base often persistent on the summit as a short apiculum; fruiting hypanthium barely developed, small and everted beneath fruit; seeds pale brown, ovoid. Figure 5 B, F, J.

This species is listed as *Tristania* sp., code 686, in Hyland (1982). It is rather rare, its conservation status being classed as 2V by Thomas and McDonald (1987); it is only known from small populations at three widely separated localities. We have named the species in honour of Mr Keith Gould (formerly Forester in the Atherton district) who first drew this species to our attention.

Gadek and Martin (1981) examined the pollen of this species (as 'sp. aff. *Tristania pachysperma*') and found it to be very similar to *R. pachysperma* except that the grains were not anisopolar.

SPECIMENS EXAMINED: QUEENSLAND: Cook: T.R. 165, Pieter Botte L.A., 16°06'S 145°23'E, Hyland 3506 RFK, 1.6.1977 (QRS); T.R. 1230, Boonjee L.A., Briggs 7414, 1.9.1983 (NSW), Hyland 6926, 11.10.1973 (QRS, UNSW), 7147, 29.11.1973 (QRS), 7193, 15.2.1974 (QRS), 12481, 1.9.1983 (QRS), 2781, 2782 RFK, 7.2.1973 (QRS), Irvine 1093, 5.12.1974 (QRS), Wilson UNSW 3737, 5.12.1974 (NSW, UNSW); S.F.R. 756, Velvin L.A., 17°43'S 145° 36'E, Dansie AFO 3965, 6.10.1966 (QRS).

2. *Ristantia waterhousei* Peter G. Wilson & B. Hyland, sp. nov.

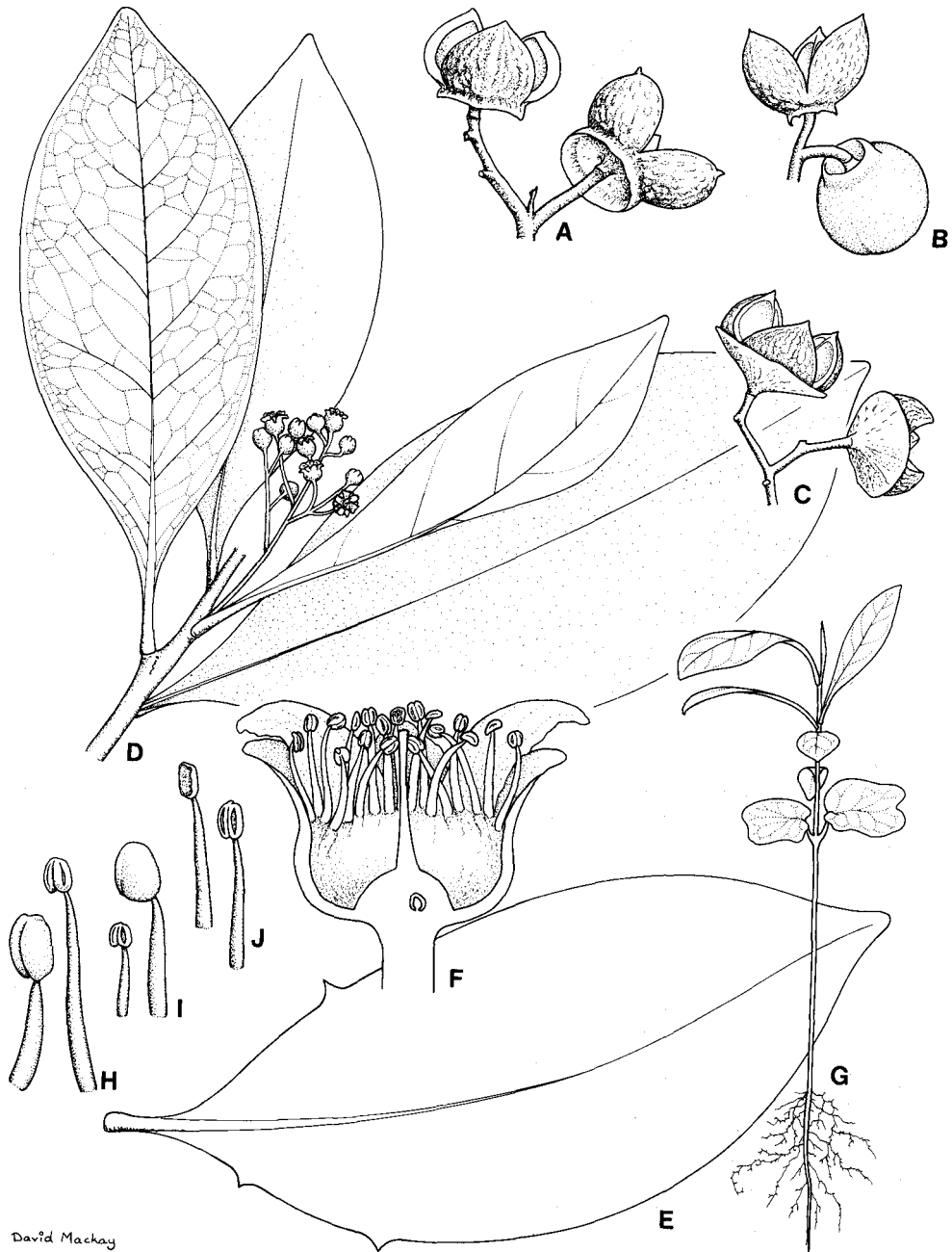
R. gouldii similis sed capsula tantum ad hypanthium findenti, hypanthio sub fructu plano cum parte libro deflexo, staminibus plus numerosis, antheris sterilibus majoribus, stylo longiore differt.

HOLOTYPE: QUEENSLAND: Mount Dryander, 20°15'S, 148°32'E, Wilson & Puttock UNSW 13291, 12.4.1982 (NSW). ISOTYPES: QRS, UNSW.

Tree to over 20 metres tall and 65 cm d.b.h.; bark brownish, the surface tessellated with thin flakes. *Leaves* chartaceous to subcoriaceous; petiole 0.6–1.0(–1.3) cm long, thickened at base; lamina elliptical (4–)5–12(–16) cm long and (1.8–)3–5(–5.8) cm broad, often with a few tooth-like extensions of the margin, attenuate at base, obtuse to acute or acuminate at apex; oil glands dense. *Inflorescence* a metabotryoid or thyrsoid, up to 4 cm long; flowers hermaphrodite or very rarely male. *Hypanthium* 4–5 mm broad, ± glabrous. *Sepals* 4 or 5, semicircular, 1–1.5(–2) mm long, 1.5–3(–4) mm broad, dotted with oil glands, margin minutely ciliate. *Petals* 4 or 5, white, orbicular, 2.5–3 mm long, oil glands absent or obscure, the outer surface covered with short hairs. *Stamens* very numerous, 80–100, apparently in 2–3 series but in distinct groups of 19–26, the outer series ± continuous but with distinct gaps opposite the centre of the sepals, the inner stamens aggregated in front of the petals; filaments 1–3.5 mm long; anthers dorsifixed, versatile, gland-tipped, the fertile ones 0.4–0.5 mm long and 0.3–0.4 mm broad, the sterile ones few, pale orange, 1 mm long and 0.6–0.7 mm broad. *Ovary* ± glabrous. *Style* 5 mm long; stigma dilated, convex. *Fruit* brown, rugose, 1–1.5 cm diam., capsule strongly exerted, splitting as far as the broad, flat fruiting hypanthium which has its free margin deflexed; seeds pale brown, ovoid. Figure 5 A, D, E, G, H.

We have named this species in honour of our late friend and colleague John T. Waterhouse who saw this species in the field and whose interest in the Myrtaceae was a great inspiration to us.

The species is apparently restricted to Mt Dryander, NE of Proserpine. It is the dominant tree on the more sheltered southern side of the mountain and



David Mackay

Fig. 5. *Ristantia waterhousei* Peter G. Wilson & B. Hyland. **A**, fruit (X 1). **D**, flowering branchlet [coppice growth] (X 1). **E**, leaf showing teeth (X 1). **G**, seedling (X 0.5). **H**, sterile (left) and fertile (right) stamens (X 10). *R. gouldii* Peter G. Wilson & B. Hyland. **B**, fruit (X 1). **F**, longitudinal section of flower (X 8). **J**, sterile (left) and fertile (right) stamens (X 10). *R. pachysperma* (F. Muell. & F. Bailey) Peter G. Wilson & Waterhouse. **C**, fruit (X 1). **I**, fertile (left) and sterile (right) stamens (X 10). (**A**, **D**, **G**, **H** from Wilson & Puttock UNSW 13291; **B** from Hyland 6926; **C** from Wilson UNSW 3732; **E** from Wilson & Waterhouse UNSW 3802b; **F**, **J** from Hyland 6764; **I** from Hyland 6033).

occurs from the foothills to the summit; Thomas and McDonald (1987) give its conservation status as 2R.

R. waterhousei is unusual in the Myrtaceae in having tooth-like projections from the lamina margin of some leaves (fig. 5E). These are not homologous with the tooth-like marginal projections of the epidermis of some *Baeckea* species (Johnson & Briggs 1985: 714), nor are they true teeth since they lack a central, principal vein (Hickey & Wolfe 1975). These 'teeth' do not occur on all leaves and are variable in number when they do occur. Of the other two *Ristantia* species it is closest to *R. gouldii* but differs from that species in its more numerous stamens, its larger sterile anthers, its longer style and in having a broad fruiting hypanthium.

R. pachysperma differs from both of the above species in having hard, thick, furrowed bark, generally larger more coriaceous leaves, longer, more branched inflorescences, stamens more distinctly grouped, sterile anthers more numerous and on distinctly longer filaments (fig. 5I), style very short, and fruiting hypanthium flat to very broadly obconical (fig. 5C).

SPECIMENS EXAMINED: QUEENSLAND: **North Kennedy:** Mt Dryander, *Guymer* 1722, 1736, 3.7.1982 (BRI), *Lavarack* 6-7.1972 (QRS, UNSW), *McLain* 3.11.1979 (QRS), *Moriarty* 1901, 1902, 21.7.1974 (QRS), *L.S. Smith* 27.5.1969 (BRI), *Webb & Tracey* 12235 [P. Stanton s.n.], 1.12.1973 (QRS), *Wilson & Waterhouse* UNSW 3802a, b, 14.6.1974 (UNSW), *Wilson & Puttock* UNSW 13292, 12.4.1982 (UNSW).

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