

Ehretia dissita A.R.Bean (Ehretiaceae), a new species from tropical rainforest in Queensland, Australia

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Summary

Bean, A.R. (2021). *Ehretia dissita* A.R.Bean (Ehretiaceae), a new species from tropical rainforest in Queensland, Australia. *Austrobaileya* 11: 34–40. *Ehretia dissita* is described as new and compared to its putative closest relative *E. membranifolia*. A key to the Australian species of *Ehretia*, and images of domatia, leaf venation and flower types are provided. Notes are given on floral dimorphism, conservation status, habitat and phenology. The new species is known from three subpopulation centres in the Wet Tropics and Central Queensland Coast bioregions.

Key Words: Ehretiaceae; *Ehretia*; *Ehretia dissita*; Queensland flora; new species; taxonomy; identification key

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Introduction

The genus *Ehretia* P.Browne has between 33 and 40 species (Retief & Van Wyk 2001; Gottschling *et al.* 2016), distributed in the tropics of both the Old and New World. It has sometimes been included in the family Boraginaceae, but phylogenetic studies advocate its placement in the separate family Ehretiaceae (Weigend *et al.* 2014; Gottschling *et al.* 2016; Luebert *et al.* 2016). Mainland Australia has five named species (CHAH 2020; Thompson 2020): *E. acuminata* R.Br., *E. grahamii* Randell, *E. membranifolia* R.Br. (sometimes referred to as *E. saligna* var. *membranifolia* (R.Br.) Randell), *E. microphylla* Lam. and *E. saligna* R.Br. In addition to these, an unnamed species has been recognised for many years from the high-rainfall areas of tropical Queensland with the phrase name *Ehretia* sp. (Whitfield Range R.Jago 17) (Holland 1997; Halford 2002; Thompson 2007, 2010, 2020). The latter is named here as *Ehretia dissita* A.R.Bean, with a distribution map, images of domatia, leaf venation and flower types, and notes on conservation status, habitat and phenology. A key to the Australian species of *Ehretia* is provided.

Materials and methods

This paper is based on an examination of specimens at BRI. Descriptions of flowers and fruits are based on material preserved in 70% alcohol and glycerol, while other plant structures were described or measured from dried specimens.

Abbreviations used in the specimen citations include NP/NPR (National Park/National Park Reserve), SFR (State Forest Reserve), Mt (Mountain) and TR (Timber Reserve). Measurements are inclusive (i.e. 1.0–2.7 is given as 1–2.7).

Taxonomy

***Ehretia dissita* A.R.Bean sp. nov.** with affinity to *E. membranifolia* but differing by the much sparser indumentum on the calyx, the raised tertiary venation on the underside of the leaves, the ‘pocket’-type domatia and the shorter petioles. **Typus:** Queensland. COOK DISTRICT: “Painted Forest”, near Cedar Park rainforest resort, off Clohesy River road, 22 April 2002, *A. Ford AF3349* & *J. Holmes* (holo: BRI [AQ559157: 1 sheet + spirit]; iso: CNS; A, AD, CANB, K, MEL, NSW, *distribuendi*).

Ehretia sp. (Whitfield Range R.Jago 17); Holland (1997: 35); Halford (2002: 35); Thompson (2007: 34, 2010: 29, 2020).

Ehretia sp. (Whitfield Range); Cooper & Cooper (2004: 94).

Ehretia sp. Whitfield Range (R.Jago 17) Qld Herbarium; CHAH (2006).

Shrub or small tree 3–7 m high, all vegetative parts glabrous except domatia. Leaves simple, alternate. Lamina elliptic to ovate, 78–125 × 29–47 mm, 2.3–3.2 times longer than wide, discolorous, penninerved, with the secondary veins looping inside the margin and not forming a distinct intramarginal vein, tertiary veins reticulate, prominent and raised on the lower surface (in dried material); domatia sometimes absent, but often present (“pockets” at vein angles, with a few hairs at the opening of the pocket); apex acute to attenuate, base cuneate, margins entire; glands and nectaries absent. Petioles 6–13 mm long, 6–14% length of lamina. Inflorescence a terminal or lateral paniculate cyme, 20–50 mm long. Inflorescence axis and pedicels not noticeably flattened or ribbed, very sparsely hairy with simple hairs < 0.1 mm long. Flowers dimorphic (short-styled or long-styled), calyx 5-merous, gamosepalous, pedicels 1–2.8 mm long. Calyx tube hemispherical, 0.5–0.8 mm long, with sparse simple hairs < 0.1 mm long on outer surface; calyx lobes deltate, 0.5–1 mm long, all ± equal, with sparse simple hairs < 0.1 mm long on outer surface, apex obtuse. Corolla 5-merous, gamopetalous, corolla tube cylindrical, glabrous; corolla lobes spreading, obtuse, 1.9–2.4 mm long, glabrous apart from a few marginal cilia. Stamens 5, all fertile, exserted, antesealous; basal part of filaments adnate to the corolla tube for *c.* 0.8 mm, free part of filaments glabrous; anthers versatile, 0.6–1 mm long, dehiscing by longitudinal slits. Ovary superior, syncarpous, 2-locular; style glabrous, deeply bifid, stigmas 2. Short-styled flowers with corolla tube 1.9–2.3 mm long, free part of staminal filaments 2–2.3 mm long, style 0.7–0.9 mm long. Long-styled flowers with corolla tube 1–1.3 mm long, free part of staminal filaments 0.8–1 mm long, style 1.7–2.2 mm long. Fruit indehiscent, drupaceous, globose to slightly oblate, 5.5–6.5

mm long, 6.5–8 mm diameter, glabrous, red (*Lyons 106*) or white (*Jago 5222*) at maturity; calyx persistent at base of fruit, not expanded or lengthened compared to the flowering stage; the drupe separating at maturity into 4 pyrenes, each containing 1 seed. **Figs. 1–4.**

Additional specimens examined: Queensland. COOK DISTRICT: Turtle Creek, Macalister Range, 3 km NW of Wangetti, Dec 2000, *Ford AF2552 & Holmes* (BRI); Hill behind Cairns campus of James Cook University, Sep 1998, *Jago 4994 & Gadek* (BRI); Hills behind JCU, Smithfield, Apr 1998, *Jago 5222* (BRI); Bottom of the Kuranda Range, Oct 1987, *Sankowsky 651 & Sankowsky* (BRI); *c.* 2 km W of the Kennedy Highway between Kuranda & Mareeba, Jun 1999, *Jago 5292 & Wannan* (BRI); Cairns, between Palm Cove & Clifton Beach, Dec 1992, *Lyons 127* (BRI); Fitzroy Island, Feb 2002, *Jago 6182 & Gandini* (BRI); Cairns, S end of Nisbet Range, Sep 1992, *Lyons 122* (BRI); Brown Creek, beside Yarrabah road, E of Cairns, Nov 1994, *Lyons 154* (BRI); Cairns, 1.5 km N of Mt Yarrabah, Brown Creek, Dec 1991, *Lyons 106* (BRI); Whitfield Range near Cairns, Dec 1977, *Jago 17* (BRI); Barron River gorge, near footbridge, Jan 2000, *Ford 2322* (BRI). NORTH KENNEDY DISTRICT: Jourama NP, 20 km S of Ingham, Feb 1992, *Bean 3968* (BRI; MEL, *distribuenti*); SFR 268, Seaview Range, Waterview Creek, 400 m NW of Peak “772”, Dec 2002, *Ford 3739 & Holmes* (BRI); NPR 629, Paluma Range, Rollingsstone Creek (east branch), May 2003, *Ford AF3900* (BRI). SOUTH KENNEDY DISTRICT: Black Mt area, *c.* 7 km NW of Koumala, Sep 1993, *Champion 871* (BRI); Black Mt, WNW of Koumala township, Mar 1996, *Champion 1344 & Canning* (BRI; CANB, DNA, MEL, NSW, *distribuenti*); TR 179, Kalvin, 6 km W of Koumala, Apr 1991, *Forster PIF8043 & McDonald* (BRI).

Distribution and habitat: *Ehretia dissita* is known from three broad areas; Cairns and hinterland, the Paluma Range NW of Townsville, and the Connors Range to the west of Koumala (**Map 1**). It grows in simple or complex notophyll rainforest or at the boundary between rainforest and open forest. Soils are shallow over a variety of substrates at altitudes ranging from 10 to 740 metres.

Phenology: Flowers have been collected in most months of the year, but mainly November to March; fruits have been collected in April, September and December.

Affinities: *Ehretia dissita* is morphologically similar to *E. membranifolia*. The flowers of these two species are about the same size, shape and colour, and in both species are either short-styled or long-styled. Mature fruits of *E. dissita* are apparently either red or white;

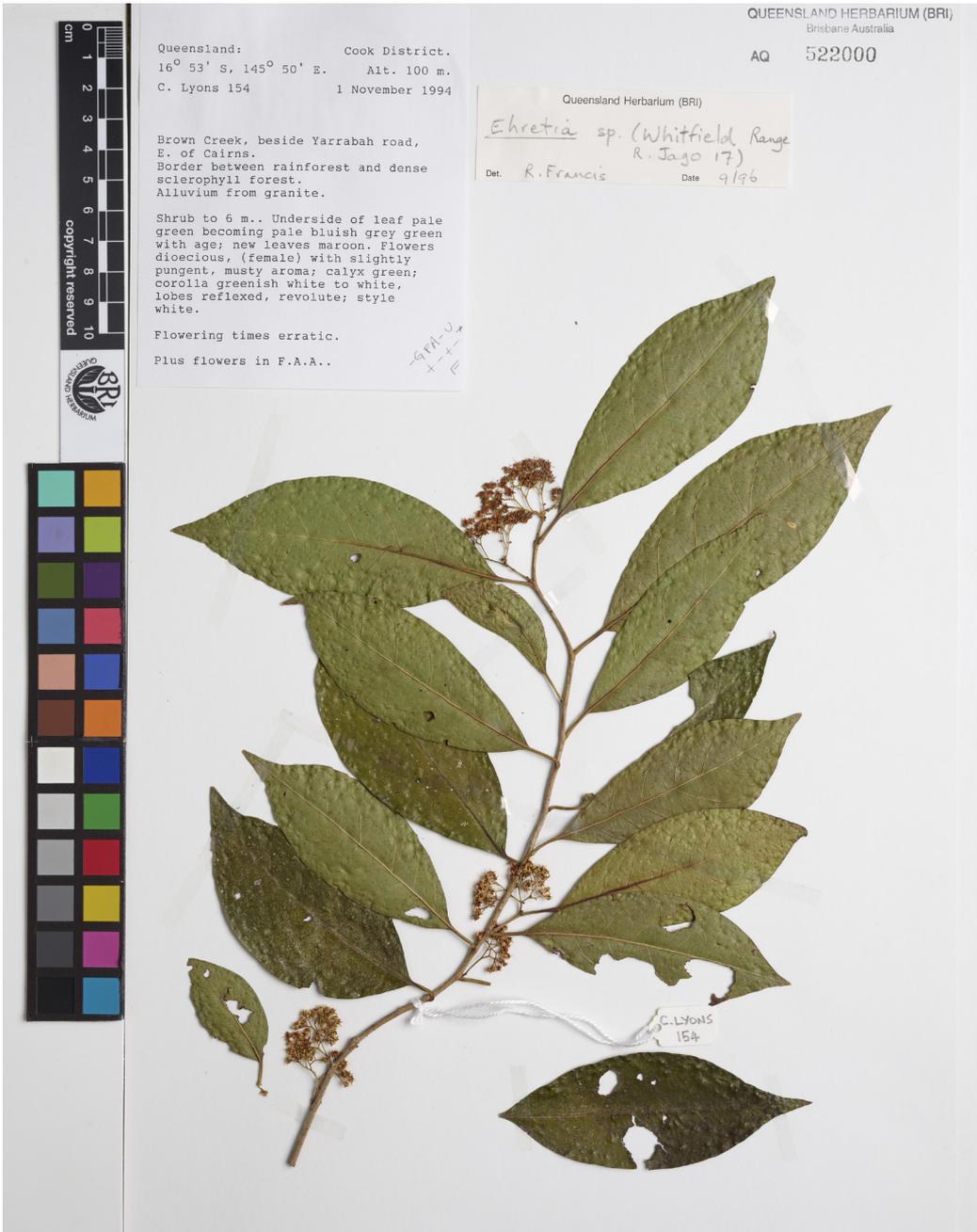


Fig. 1. Representative specimen of *Ehretia dissita* (Lyons 154, BRI).



Fig. 2. Pocket-type domatia and raised tertiary venation on the underside of a leaf of *Ehretia dissita* (Sankowsky 651 & Sankowsky, BRI).



Fig. 3. Short-styled flowers of *Ehretia dissita* (Lyons 122, BRI).



Fig. 4. Long-styled flowers of *Ehretia dissita* (Lyons 154, BRI).

mature fruits of *E. membranifolia* are often described as red, but several collectors give the mature colour as black. *Ehretia dissita* differs from *E. membranifolia* by the raised tertiary venation on the lower leaf surface (Fig. 2), the much sparser indumentum on the calyx, and the petioles 6–14% of the lamina length (19–45% of lamina length for *E. membranifolia*). Both species can have domatia on the lower leaf surface, but those of *E. dissita* are the ‘pocket’ type (Fig. 2), while *E. membranifolia* has ‘pit’ domatia.

Notes: All the flowers on a given herbarium specimen of *Ehretia dissita* are either short-styled (Fig. 3) with reduced style and long staminal filaments, or long-styled (Fig. 4) with short staminal filaments and style exceeding

anthers. It is not known whether this pattern of dimorphism can be extrapolated to the whole plant, nor whether the short-styled flowers are functionally male.

According to the label of Lyons 106 (BRI), the mature fruits are juicy and sweet to taste.

Conservation status: Least concern (IUCN 2012). There are an estimated 14 known subpopulations of this species, all in rainforest habitat, several of which are within National Park land tenure. There are no apparent significant threats.

Etymology: From the Latin *dissitus* meaning ‘removed’. This is a reference to the species being geographically and ecologically separated from all other Australian *Ehretia* species except *E. acuminata*.

Key to the Australian species of *Ehretia*

- 1 Leaves and branchlets sparsely to densely hairy 2
- 1. Leaves and branchlets glabrous (except for hairy domatia) 5
- 2 Leaves 120–180 × 55–100 mm; inflorescences 130–170 mm long **E. acuminata**
- 2. Leaves 15–45 × 5–32 mm; inflorescences 7–15 mm long 3
- 3 Leaves strongly lobed in upper half; sepals longer than fruits **E. microphylla**
- 3. Leaves entire, or appearing ± denticulate throughout due to tuberculate hairs on margins; sepals shorter than fruits 4
- 4 Tuberculate hairs frequent on upper leaf surface **E. grahamii**
- 4. Tuberculate hairs absent or infrequent on upper leaf surface **E. grahamii** × **E. membranifolia**
- 5 Leaf margins toothed **E. acuminata**
- 5. Leaf margins entire 6
- 6 Leaves 9–23 times longer than wide, tertiary venation invisible or obscure. **E. saligna**
- 6. Leaves 1.5–7 times longer than wide, tertiary venation readily visible 7
- 7 Tertiary venation raised on lower surface; petioles 8–14% length of lamina **E. dissita**
- 7. Tertiary venation flush with lower surface; petioles 19–45% length of lamina **E. membranifolia**

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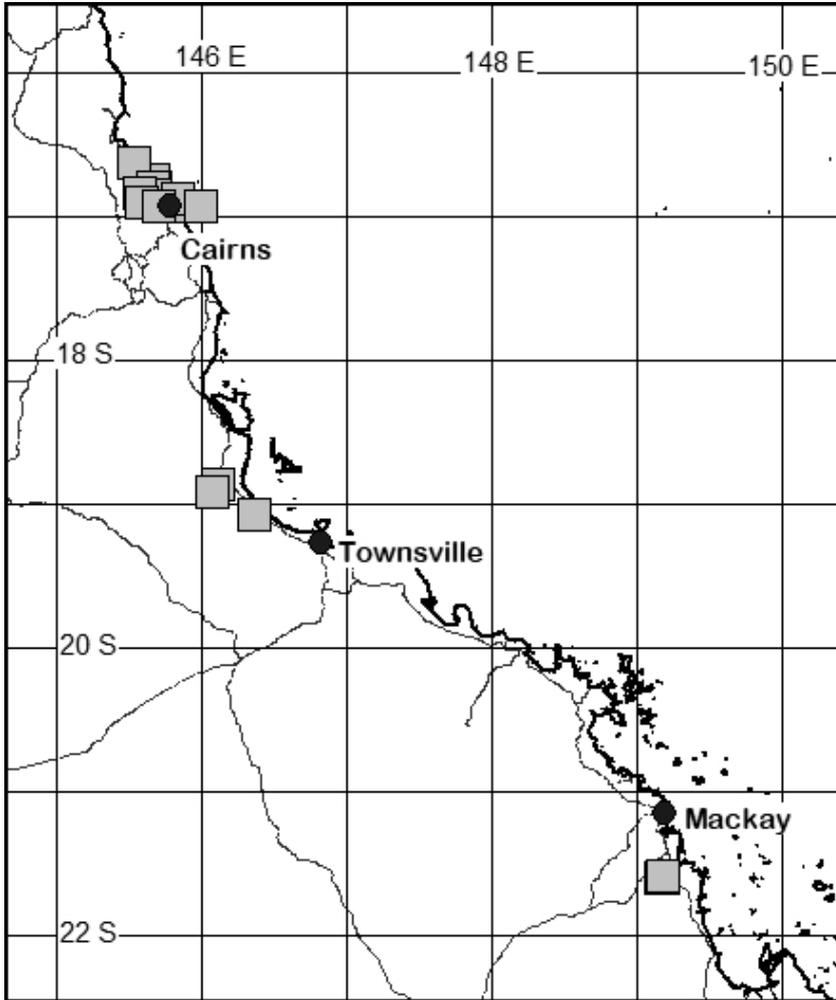
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Map 1. Distribution of *Ehretia dissita* in three subpopulation centres.