

Reinstatement of *Ericomyrtus* (Myrtaceae: Chamelaucieae), with three new combinations

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Abstract

Rye, B.L. Reinstatement of *Ericomyrtus* (Myrtaceae: Chamelaucieae), with three new combinations. *Nuytsia* 25: 131–143 (2015). The south-western Australian genus *Ericomyrtus* Turcz. is reinstated as a small genus comprising the type species *E. drummondii* Turcz., and three species transferred into the genus as *E. parvifolia* (Turcz.) Rye, *E. serpyllifolia* (Turcz.) Rye and *E. tenuior* (Ewart) Rye. A lectotype is selected for the base name of the last of those species, *Baeckea crispiflora* var. *tenuior* Ewart. It appears that the genus has a tetraploid base number of $x = 22$. Maps, descriptions and a key are provided for the four named members of the genus.

Introduction

Ericomyrtus Turcz. was erected by Turczaninow (1847) for a single species of Myrtaceae tribe Chamelaucieae DC. and has since slipped into obscurity. It is one of many genera that Bentham (1867) regarded as synonyms of *Baeckea* L. s. lat. and that Niedenzu (1893) included within *B.* subg. *Hysterobaeckea* Nied. In Bentham's treatment, the type species of *Ericomyrtus* was described under a misapplied name, while two related species were treated using synonyms as Bentham was unaware of their original names. This very unsatisfactory state of the group's nomenclature has persisted to the present day, except that a phrase name, *Baeckea* sp. fine-leaved (C.M. Lewis 517), has been used for the type species since 2003.

The molecular data (see below) and morphological data place *Ericomyrtus* within the large *Hysterobaeckea* group. Generic boundaries within the *Hysterobaeckea* group are still far from resolved, but if all the currently recognised genera are retained, then reinstatement of *Ericomyrtus* appears to be warranted. At some later stage it may prove necessary to amalgamate some of these genera, in which case *Ericomyrtus* might need to be reduced to a section of one of the earlier genera. As an interim measure to allow the correct epithets to be applied to members of this species group, *Ericomyrtus* is reinstated here and three species related to its type species are transferred into the genus.

History

When Turczaninow (1847) named the south-western Australian genus *Ericomyrtus* and its type species *E. drummondii* Turcz., he did not compare it with any other genera apart from *Scholtzia* Schauer,

which differs in having fewer ovules and an indehiscent fruit. Later, Turczaninow (1852) described two closely related Western Australian species but placed them in *Harmogia* Schauer, a genus based on an eastern Australian species. These two Western Australian species were *H. parvifolia* Turcz. and *H. serpyllifolia* Turcz.

In *Flora Australiensis*, Bentham (1867) included Turczaninow's three species under different names, treating them as *Baeckea corymbulosa* Benth., *B. crispiflora* (F.Muell.) F.Muell. and *B. pulchella* DC. He placed *B. crispiflora* in sect. *Oxymyrrhine* (Schauer) Benth. and the other two species in sect. *Babingtonia* (Lindl.) Benth. Clearly there were problems with Bentham's distribution of species between these two sections, which were distinguished using anther morphology. The *Ericomyrtus* species have very reduced, more or less globular anthers, making their morphology difficult to interpret.

One further member of the *Ericomyrtus* group was described by Ewart (1907) as *B. crispiflora* var. *tenuior* Ewart. In 1994, Malcolm Trudgen placed determinavit slips on PERTH specimens to establish three informal subspecies for *B. crispiflora* but only one of these, subsp. Ongerup (A. Scougall & C. Garawanta E35), belonged to *Ericomyrtus*, the other two being species of *Oxymyrrhine* Schauer. This reinforced the link between *Oxymyrrhine* and *Ericomyrtus* that had been suggested by Bentham's (1867) placement of *B. crispiflora* in sect. *Oxymyrrhine*.

Rye (2009b) reinstated *Oxymyrrhine* as a distinct genus of four species, including the two new species that had previously been treated as informal subspecies of *B. crispiflora*. At that stage it was considered that there was insufficient evidence to include *B. crispiflora* and its allies in *Oxymyrrhine*, since *Oxymyrrhine* s. str. differed from them in several characters, such as the broad cavity in the summit of its fully inferior fruit and in having its stamens in a full circle rather than in antisepalous groups.

Note that Rye (2009b: 150) incorrectly assumed that *Harmogia leptophylla* Turcz. was closely related to *H. serpyllifolia* and *H. parvifolia*, perhaps because of the misapplication in Blackall and Grieve (1980: 85) of the name *Baeckea leptophylla* (Turcz.) Domin to the species now known as *Ericomyrtus parviflora* (Turcz.) Rye. The identity of *H. leptophylla* is not yet clear but the species appears to belong to another south-western genus, *Tetrapora* Schauer, rather than to *Ericomyrtus*. *Harmogia* is now considered to be a monotypic genus restricted to eastern Australia (Wilson *et al.* 2007).

Molecular evidence

Published cladistic analyses of chloroplast sequences for a wide range of species of Chamelaucieae (Lam *et al.* 2002; Wilson *et al.* 2004) sampled one species of *Ericomyrtus* [as *B. crispiflora*], which grouped with *Cheyniana microphylla* (C.A.Gardner) Rye [as *Balaustion microphyllum* C.A.Gardner].

When the ETS nuclear region was examined (Peter Wilson pers. comm. 2007), *Oxymyrrhine gracilis* Schauer and *O. coronata* Rye & Trudgen were sister taxa, as were two species of *Ericomyrtus* [as *Baeckea crispiflora* and *B. sp. fine-leaved*]. These two pairs of species formed part of a much larger clade comprising a number of the species groups with *Hysterobaeckea* anther morphology, including *Babingtonia* Lindl. and eastern Australian groups.

The combined chloroplast and ETS data currently place *Ericomyrtus* as sister to the much more recently named genus *Cheyniana* Rye. ETS data alone place *Oxymyrrhine* as sister to the *Ericomyrtus*-*Cheyniana* clade but with no support (Peter Wilson pers. comm. 2014).

Future studies

Resolution of the generic boundaries of the *Hysterobaeckea* group needs to be given priority because the generic placement of most of the Western Australia species currently housed under *Baeckea* is uncertain. The relationship between *Ericomyrtus* and the earlier-named *Oxymyrrhine* needs to be examined further. The later named genus *Cheyntiana* possibly needs to be reduced to a section, although it is certainly morphologically distinct from *Ericomyrtus* and all other genera (see Rye 2009a).

The group comprising *Ericomyrtus serpyllifolia* (Turcz.) Rye and its closest allies, referred to in Rye (2009b) as the *Baeckea crispiflora* complex and here as the *E. serpyllifolia* complex, is widespread and extremely variable. Two of the previously named taxa are treated here as distinct species, including one that was previously treated only as a variety. The remaining specimens included under *E. serpyllifolia* are still sufficiently variable to warrant further investigation to determine whether additional taxa should be formally recognised. In particular, the status of a narrow-leaved variant, which was given the phrase name *Baeckea crispiflora* subsp. Mt Lesueur (E.A. Griffin 2325) in 2003, remains unresolved.

Methods

Descriptions are based on well pressed, dried material, and on field observations. Type specimens currently on loan to PERTH from AD, MEL and NSW were examined, and images of types housed elsewhere were examined through *Global Plants* (see <http://plants.jstor.org/>). Distribution maps were produced using Quantum GIS Desktop (1.8.0).

Key to the species of *Ericomyrtus*

1. Leaves sessile, thick, not narrowed at base. Mature style green, 0.8–1 mm long; stigma capitate, c. 0.15 mm diam. (Ballidu–S of Borden–Frank Hann NP) **E. drummondii**
- 1: Leaves usually with a petiole 0.1–0.8 mm long, rarely sessile, much broader than thick, narrowed at base. Mature style red, 1.3–2.7 mm long; stigma peltate, 0.2–0.4 mm diam.
 2. Leaf blades ovate to obovate to almost circular, 4.5–8 × 3–7.5 mm. Flowers 8–11 mm diam. Mature style 1.6–2.7 mm long. Seeds 0.8–1.2 mm long (Yuna–Perth area–Yoting–Muntadgin) **E. tenuior**
 - 2: Leaf blades narrowly obovate to almost circular, 1.8–5.5 × 1–3 mm, if over 4.5 mm long then 1–1.5 mm wide. Flowers 5–8 mm diam. Mature style 1.3–1.8 mm long. Seeds 0.5–0.95 mm long
 3. Leaf blades 1.8–2.4 × 1–1.4 mm (Tammin area–Collie–Perup River–Ravensthorpe area) **E. parviflora**
 - 3: Leaf blades usually 2.5–4.5 × 1.5–3 mm, rarely 4–5.5 × 1–1.5 mm (Walkaway–Morawa–Cheyne Bay–Kalgoorlie–S of Balladonia) **E. serpyllifolia**

Descriptions

Ericomyrtus Turcz., *Bull. Soc. Imp. Naturalistes Moscou* 20: 154–155 (1847). Type: *Ericomyrtus drummondii* Turcz. [as *drummondii*].

Small or rarely medium-sized *shrubs* up to 2 m high, single-stemmed (but often multi-branched) at the base, glabrous. *Leaves* opposite and decussate, small, sessile or shortly petiolate, entire; apex somewhat

incurved. Peduncles (0.7–)1.5–11 mm long, 1-flowered. *Bracteoles* opposite, persistent, rather leaf-like. *Pedicels* up to 3 mm long. Flowers 5–11 mm diam. *Hypanthium* green and somewhat 5-ribbed in bud, with prominent oil glands, adnate to the ovary for about 2/3 of its length, the free distal part somewhat spreading, becoming ± cup-shaped in fruit. *Sepals* herbaceous, green or partially to fully dark pink or reddish, entire, often somewhat keeled, persistent in fruit. *Petals* deciduous, white or pale pink, often with a dark pink to red blotch on the outer two or three petals where they were exposed to the sun in bud. *Stamens* 8–23, in antisealous groups, the marginal ones of each group largest and those directly opposite the sepals the smallest. *Filaments* free, more or less terete, often pink. *Anthers* small, with the thecae and connective gland fused into a 3-lobed or transversely subreniform structure, opening by 2 long pores or short slits located on lines that diverge towards the base. *Ovary* inferior, 3-locular; ovules 12–21 per loculus, on a more or less sessile or shortly stalked placenta. *Style* with base deeply inset below the ovary summit; stigma large and peltate in most species but small and capitate in the type species. *Fruits* fully inferior except for 3 convex lobes protruding upwards on the summit, 3-valvate, thin-walled, fragile; placentas ± obconic to almost cylindric. *Seeds* radially arranged, strongly faceted, somewhat wedge-shaped, 0.45–1.2 mm long; testa smooth but with rows of cells visible, shiny, pale to medium brown. *Chaff pieces* tending to be darker than the seeds.

Size and distribution. Currently four species are recognised in *Ericomyrtus*, which is widespread in the south-west of Western Australia, extending from Yuna south to near the south coast, south-east to the Balladonia area and inland to the Kalgoorlie area.

Etymology. From the Greek words *ereike* (Heather) and *myrtos* (Myrtle), presumably likening this taxon to Heather (genus *Erica*).

Chromosome numbers. Tetraploid numbers of $n = 22$ have been recorded (Rye 1979 – see details under individual species below) from three out of the four species of *Ericomyrtus*. This suggests that the genus as a whole is tetraploid. If so it may be the only tetraploid genus in the family; certainly the available chromosome counts for all other genera of Chamelaucieae are either entirely diploid or a mixture of diploid and polyploid.

Co-occurring taxa. All four members of this genus overlap considerably in their distributions and have been observed growing together in the field without any obvious intermediates, and it is not unusual to find two or three of the taxa growing together. At one locality near Tammin all four species were collected (B.L. Rye 241105–241108 & M.E. Trudgen) in early November 2004 and all of them were in full flower. The habitat at this locality was described as gravelly (lateritic) brown silty sand over laterite on the east-facing slopes of a rounded hill with *Allocasuarina campestris* shrubland. At a second locality visited nearby on the same day, *E. drummondii* and *E. serpyllifolia* were observed together on a hillside, with *E. parviflora* (B.L. Rye 241112 & M.E. Trudgen) growing at a lower position than the other two species. These three species were also observed growing together near York (F. Hort 3818, 3819 & 3820) in late October 2013.

There are no obvious flowering time differences to account for the co-occurrences of these taxa, and micro-habitat differences appear to be only slight, so *Ericomyrtus* would be an interesting group to study further to determine what breeding barriers are in place.

The type species, *E. drummondii*, differs from the *E. serpyllifolia* complex (comprising the other three species of *Ericomyrtus*) in having a green style with a fairly small stigma. A distinctive characteristic of the *E. serpyllifolia* complex is the red colour and large, peltate stigma of the mature style. Whether the difference in the style is significant in terms of pollinators has yet to be determined.

Notes. Since many shared characters are covered in the generic description above, the species descriptions are fairly short. Some specimens of all taxa are somewhat glaucous on the leaves and/or hypanthium. The hypanthium tends to have more prominent oil glands on the adnate part than on the free part.

Ericomyrtus drummondii Turcz., *Bull. Soc. Imp. Naturalistes Moscou* 20: 154–155 (1847). *Type:* south-western Australia [north and east of Bolgart and Stirling Range to King George Sound and Cape Riche, Western Australia], 1843–1844, *J. Drummond* coll. 3, n. 36 (*holo:* KW *n.v.*; *iso:* K 000821683–000821685, MEL, NSW, PERTH 03418235).

Baeckea pulchella sensu Benth. *non* DC., *Fl. Austral.* 3: 86 (1867).

Baeckea sp. fine-leaved (C.M. Lewis 517); Western Australian Herbarium, in *FloraBase*, <http://florabase.dpaw.wa.gov.au/> [accessed 2 June 2014].

Illustrations. W.E. Blackall & B.J. Grieve, *How Know W. Austral. Wildfl.* 3A: 83 (1980) [as *Baeckea pulchella*]; drawing on *C.A. Gardner s.n.* (PERTH 03418219).

Shrub 0.2–0.6(–0.8) m high, usually 0.1–1.2 m wide. *Leaves* sessile, narrowly or very narrowly oblong in outline, 2.5–3.5 mm long, 0.3–0.8 mm wide, 0.25–0.5 mm thick, not or scarcely mucronate, with 1–3 main rows of oil glands on each side. *Peduncles* 1.5–3.5 mm long. *Bracteoles* 1.5–2.3 mm long. *Pedicels* 1.3–3 mm long. *Flowers* 5–6 mm diam. *Hypanthium* 1.4–1.6 mm long. *Sepals* triangular or depressed-ovate, 0.5–0.7 mm long, reddish with a pale margin. *Petals* 1.7–2.4 mm long, white. *Stamens* (11–)16–23, with 2–6 opposite each sepal. *Longest filaments* 0.5–0.6 mm long. *Ovules* 10–14 per loculus. *Style* 0.8–1 mm long, green; stigma capitate, 0.1–0.15 mm diam. *Fruits* 1.2–1.4 mm long, 1.7–2.5 mm diam. *Seeds* 0.45–0.65 mm long, 0.3–0.35 mm wide, 0.2–0.25 mm thick.

Selected specimens examined. WESTERN AUSTRALIA: Dragon Rocks Nature Reserve, adjacent to E boundary, 26 Oct. 1991, *A.M. Coates* 3355 (CANB, MEL, PERTH); 3.3 km SE of Mt Gibbs, 10 Nov. 2005, *G.F. Craig* 7030 (PERTH); 1 km NE of South Kulin, 25 Oct. 1983, *R.J. Cranfield* 4746 (PERTH); 6 miles [10 km] S of Ballidu, 3 Nov. 1956, *J.W. Green* 796 (PERTH); 13 km SW of Wickepin on road to Harrismith, 8 Oct. 1974, *B.L. Powell* 74108 (PERTH); Frank Hann National Park, 11 Dec. 1971, *R.D. Royce* 10258 (PERTH); Badjaling North Rd, 1.2 km S of Goldfields Rd, SW of Tammin, 3 Nov. 2004, *B.L. Rye* 241110 & *M.E. Trudgen* (AD, BRI, PERTH).

Distribution and habitat. Extends from Ballidu south-east to the Borden area and to Frank Hann National Park (Figure 1A), usually in sandy soils, sometimes with granite or laterite.

Phenology. Flowers mainly from September to January, with fruits recorded mainly from October onwards.

Conservation status. A common species in the central wheat belt of south-western Australia.

Chromosome number. $n = c. 22$, *fide* B.L. Rye, *Austral. J. Bot.* 27: 571 (1979) [as *Baeckea leptophylla*]. Voucher: *B.L. Powell* 74108.

Etymology. Named after James Drummond (*c.* 1784–1863), the most important botanical collector during the early history of the Swan River Colony.

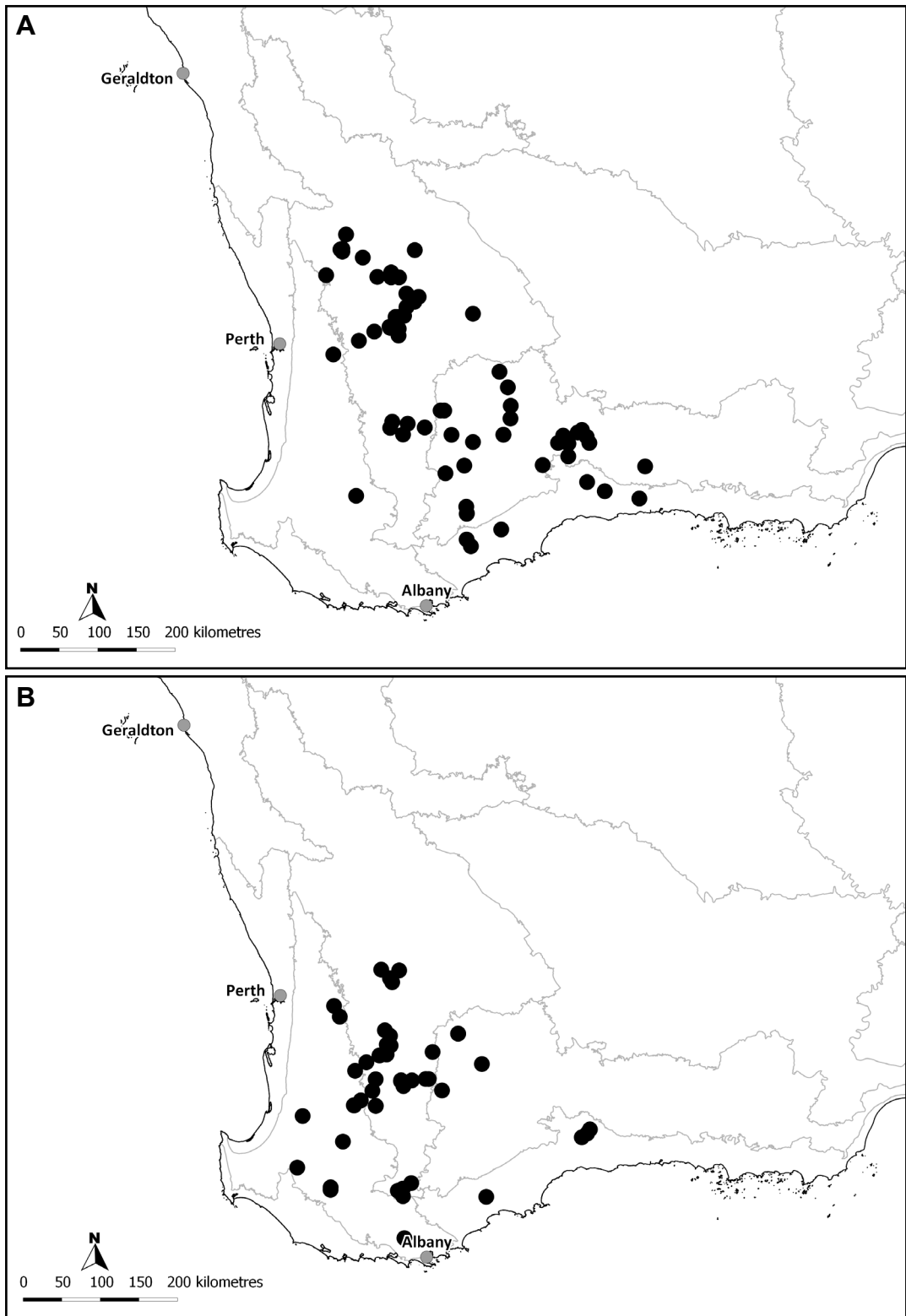


Figure 1. Distribution of *Ericomyrtus drummondii* (A) and *E. parviflora* (B).

Affinities. A very distinctive species, distinguished from all others currently included in *Ericomyrtus* by its strictly sessile, thick leaves, green style and small stigma.

Notes. Type material of *Baeckea pulchella* was not examined by Bentham (1867) but he thought the brief protologue fitted *E. drummondii* better than any other species and therefore recognised the earlier name. However, *B. pulchella* is now known to be an *Astartea* species. The new combination *A. pulchella* (DC.) Rye has recently been made with *A. laricifolia* Schauer reduced to synonymy (see Rye 2015).

Ericomyrtus drummondii is very variable in stamen number. When there are numerous stamens the antisepalous groups may not be obvious as the gaps between them are narrow.

At maturity, the shrub is sometimes widely spreading, with one specimen (*M.E. Trudgen* MET 23157) reported to be 2 m across.

Ericomyrtus parvifolia* (Turcz.) Rye, *comb. nov.

Harmogia parvifolia Turcz., *Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg* 10: 330 (1852). *Type:* south-western Australia [Mullean, Western Australia], 1847–1849, *J. Drummond* coll. 5, suppl. n. 25 (*holo:* KW 001001293; *iso:* K 000821688, MEL 72573, PERTH 01829610).

Baeckea corymbulosa Benth., *Fl. Austral.* 3: 89 (1867). *Type:* south-western Australia [Mullean, Western Australia], 1847–1849, *J. Drummond* coll. 5, suppl. n. 25 (*holo:* K 000821688; *iso:* KW 001001293, MEL 72573, PERTH 01829610).

Illustrations. W.E. Blackall & B.J. Grieve, *How Know W. Austral. Wildfl.* 3A: 85 (1980) [as *Baeckea leptophylla*]; drawings on *C.A. Gardner s.n.* (PERTH 03418146).

Shrub 0.3–1.3 m high, commonly 0.3–1 m wide. *Petioles* 0.2–0.3 mm long. *Leaf blades* obovate to elliptic, 1.8–3 mm long, 1.2–1.4 mm wide, with 1–3 main rows of oil glands on each side of midvein. *Peduncles* 2.5–4.5 mm long. *Bracteoles* 1.5–2.2 mm long. *Pedicels* 1.3–3 mm long. *Flowers* 5–7 mm diam. *Hypanthium* 1.2–1.5 mm long. *Sepals* broadly ovate-triangular, 0.4–0.8 mm long. *Petals* 2–3 mm long, white or pale pink. *Stamens* 10–19, with 1–5 opposite each sepal. *Longest filaments* c. 1 mm long. *Ovules* 12–18 per loculus. *Style* 1.3–1.6 mm long, red at maturity; stigma peltate, 0.25–0.35 mm diam. *Fruits* 1.4–1.8 mm long, 1.5–2.2 mm diam. *Seeds* 0.5–0.6 mm long, 0.3–0.4 mm wide, 0.2–0.25 mm thick.

Selected specimens examined. WESTERN AUSTRALIA: Bending, Aug. 1992, *C.A. Gardner s.n.* (PERTH); 1 km N of Yornaning Rd on Forestry Rd, Dryandra State Forest, 15 Oct. 1997, *T.R. Lally* 1462 & *B. Fuhrer* (PERTH); Wandoo National Park, Gunapin Block, Gunapin Ridge Rd, York, 25 Oct. 2013, *F. Hort* 3819 (PERTH); c. 15 km due NE of Ravensthorpe, 10 Oct. 1975, *B.R. Maslin* 3928 (PERTH); Rabbit Proof South Rd, 0.25 km N of Goldfields Rd, SW of Tammin, 3 Nov. 2004, *B.L. Rye* 241107 & *M.E. Trudgen* (AD, CANB, PERTH); Yarrabin, upper Blackwood River, 1893, *W. Webb s.n.* (PERTH).

Distribution and habitat. Extends from the Tammin area south-west to Collie and Perup River and south-east to the Ravensthorpe area (Figure 1B), often in laterite with Wandoo and/or *Allocasuarina*.

Phenology. Flowers mainly from September to November, with fruits recorded mainly from October to December.

Conservation status. A fairly common species in south-western Australia.

Chromosome number. This is the only species of *Ericomyrtus* for which no chromosome numbers have been recorded.

Etymology. From the Latin *parvus* (small) and *folium* (leaf).

Affinities. This species is part of the *E. serpyllifolia* complex, but differs in its smaller leaves. It has the smallest seeds in the complex and possibly the shortest hypanthium in the genus.

Notes. This is the taxon referred to as *Baeckea crispiflora* (narrow leaf variant) in Obbens and Sage (2004), while *E. serpyllifolia* was recorded as *Baeckea crispiflora* (round leaf variant). Other vegetation surveys may have failed to distinguish the *Ericomyrtus* species individually, referring to all of them as *B. crispiflora*.

Ericomyrtus serpyllifolia* (Turcz.) Rye, *comb. nov.

Harmogia serpyllifolia Turcz., *Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg* 10: 330 (1852). *Baeckea serpyllifolia* (Turcz.) F.Muell., *Fragm.* 10: 30 (1876). *Type:* south-western Australia [north and east of Bolgart and Stirling Range to King George Sound and Cape Riche, Western Australia], 1843–1844, *J. Drummond* coll. 3, n. 38 (*holo:* KW 001001294; *iso:* K 000843434, MEL 72647, NSW 139866, PERTH 01605135).

Harmogia crispiflora F.Muell., *Fragm.* 2: 31 (1860). *Baeckea crispiflora* (F.Muell.) F.Muell., *Fragm.* 4: 72 (1864). *Babingtonia crispiflora* (F.Muell.) F.Muell., *Fragm.* 4: 74 (1864). *Type:* Phillips Range [Western Australia], *G. Maxwell s.n.* (*holo:* MEL 72646).

Baeckea platycephala E.Pritz., *Bot. Jahrb. Syst.* 35: 419 (1904). *Baeckea crispiflora* var. *platycephala* W.E.Blackall, in W.E. Blackall & B.J. Grieve, *How Know W. Austral. Wildfl.* 1: 287 (1954), *nom. inval.* *Type:* Watheroo, Western Australia, December 1901, *E. Pritzel* 1012 (*syn:* A 00068847, AD 96827182, BM 000797541, BR 0000005232611, GH 00068848, K 000821740, M 0137566, NSW 139768, PERTH 03418103, US 00118343).

Baeckea thymoides S.Moore, *J. Linn. Soc., Bot.* 45: 177 (1920). *Type:* Nungarin, Western Australia, *F. Stoward* 346 (*holo:* BM 000797543; *iso:* MEL 73061).

Baeckea crispiflora subsp. *Ongerup* (A. Scougal & C. Garawanta E35), in G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Descr. Cat.* 347 (2000); Western Australian Herbarium, in *FloraBase*, <http://florabase.dpaw.wa.gov.au/> [accessed 2 June 2014].

Illustrations. W.E. Blackall & B.J. Grieve, *How Know W. Austral. Wildfl.* 3A: 73, 84 & 86 (1980) [as *Baeckea crispiflora*, *B. pachyphylla* and *B. thymoides*]; drawings by C.A. Gardner on W.E. Blackall 3520 (PERTH 03353036), *W.V. Fitzgerald* 1295 (PERTH 03353001) and *I.H. Gregory s.n.* (PERTH 03417697).

Shrub 0.3–1.6 m high, single-stemmed and erect at first, becoming multi-branched at or near base and more spreading, usually 0.2–1.5 m wide but up to 2 m across; basal stem up to 35 mm diam. *Petioles* absent or up to 0.6 mm long. *Leaf blades* mostly obovate to almost circular, 2.5–4.5 mm long, 1.5–3 mm wide, with 3–5 main rows of oil glands on each side. *Peduncles* 2.5–4.5 mm long. *Bracteoles* 1.5–2.5 mm long. *Pedicels* 1.5–3 mm long. *Flowers* 5–8.5 mm diam. *Hypanthium* 1.5–2 mm long. *Sepals* depressed-ovate, 0.4–0.7 mm long. *Petals* 2–3.5 mm long, white or pale pink. *Stamens* usually 10–15, with 1–4 opposite each sepal. *Longest filaments* 0.8–1.6 mm long. *Ovules* 13–20 per loculus. *Style* 1.4–1.8 mm long, red at maturity; stigma peltate, 0.25–0.4 mm diam. *Fruits* 1.6–2.2 mm long, 2.2–2.6 mm diam. *Seeds* 0.55–0.95 mm long, 0.5–0.55 mm wide, 0.3–0.4 mm thick. (Figure 2)

Selected specimens examined. WESTERNAUSTRALIA: Great Eastern Hwy, 11.1 km E of Merredin, 24 Sep. 1990, *N. Gibson & M. Lyons* 0038 (AD, BRI, CANB, K, MEL, PERTH); Gillingarra Nature Reserve, 6 Oct. 2008, *M. Hislop* 3833 (PERTH); Wandoo National Park, Gunapin Ridge Rd, York, 2 Nov. 2013, *F. Hort & J. Hort* 3834 (PERTH); Merredin, 9 Nov. 1923, *M. Koch* 2958 (NSW); on Mingenew–Morawa road, 4.8 km W of Yandanooka North East Rd and 4.65 km E of Franco Rd, 8 Sep. 2003, *B.L. Rye* 239024 & *M.E. Trudgen* (DNA, NSW, PERTH).

Distribution and habitat. Extends from near Walkaway and Morawa south-east to the Albany area and to south of Balladonia, and inland to near Kalgoorlie (Figure 3A), in varied habitats that are often sandy or lateritic. Two specimens collected by Cecil Andrews in 1902 (PERTH 03349306 & 03349829) have the locality given as Albany, but this may be an inexact locality as no other collections have been made from Albany.

This species is extremely versatile in terms of the habitats it occupies, occurring at many sites where no or very few other Chamelaucieae are found and also at sites where many other members of the tribe are present.

Phenology. Flowers mainly from August to early December, also sometimes in mid-winter, with fruiting soon following flowering.

Conservation status. Perhaps the most common species of all the tribe in south-western Australia; certainly one of the most commonly collected species.

Chromosome number. $n=22$, *vide* B.L. Rye, *Austral. J. Bot.* 27: 570–571 (1979) [as *Baeckea crispiflora*]. Vouchers: *B.L. Powell* 74037, 74062–74064, 74066 and 74147 (all PERTH).

Etymology. From the Latin *serpyllum* (wild thyme) and *folius* (leaf).

Affinities. See under the other taxa.

Notes. This very variable taxon needs further study to determine whether any variants warrant formal recognition. Two apparently distinct variants collected near granite (*B.L. Rye* 241004 & 241005 & *M.E. Trudgen*) were evidently associated with micro-habitat differences, because one of them was growing in a runoff area. At another location two variants were observed growing side by side (*B.L. Rye* 239023 & 239024 & *M.E. Trudgen*), but this was on a disturbed road verge.

Specimens are mostly acutely branched but may sometimes tend to be divaricately branched as is more common in *E. tenuior* (Ewart) Rye. *Baeckea thymoides* is a variant with sessile leaves.



Figure 2. *Ericomyrtus serpyllifolia* buds and flowers at various stages, with the arrowed flower half-way through pollen release showing the partially elongated style with a greenish stigma. Images taken in Wandoo National Park by Jean Hort; voucher B.L. Rye 281107, F. Hort & J. Hort.

A narrow-leaved variant known as *Baeckea crispiflora* subsp. Mt Lesueur (E.A. Griffin 2325) differs from the above description in usually having narrowly obovate to obovate leaves 4–5.5 mm long and 1–1.5 mm wide. It occurs along the north-west edge of the range of *E. serpyllifolia* from near Mt Adams south to near Mt Lesueur, in lateritic gravel or in sandstone habitats, but seems to overlap the range of the typical variant, with some specimens apparently intermediate. Subsp. Mt Lesueur needs to be examined in the field to determine whether it is lignotuberous, as suggested by the thickened base bearing very numerous stems on the PERTH specimen R.J. Hnatiuk 800044. A lignotuberous habit, if present, would distinguish it from all other members of the genus.

As in all or the great majority of Chamelaucieae, *Ericomyrtus* species are protandrous. In *E. serpyllifolia* the stamens may dehisce sequentially, as can be seen from the flowers in various stages in Figure 2. When a bud opens, the stamens are all incurved towards the centre of the flower. First the longer stamens (mostly those on the margins of each antisealous cluster, i.e. closest to the petals) release their pollen; they form a circle surrounding, but well above, the immature style. These stamens then become more erect and their shrunken anther becomes dark, while the shorter stamens with a larger, pale-coloured anther start to release their pollen. The style has partially elongated at this stage and still has a greenish stigma as in the arrowed flower of Figure 2. After all the stamens have shed their pollen, the style completes its elongation and the stigma becomes red.

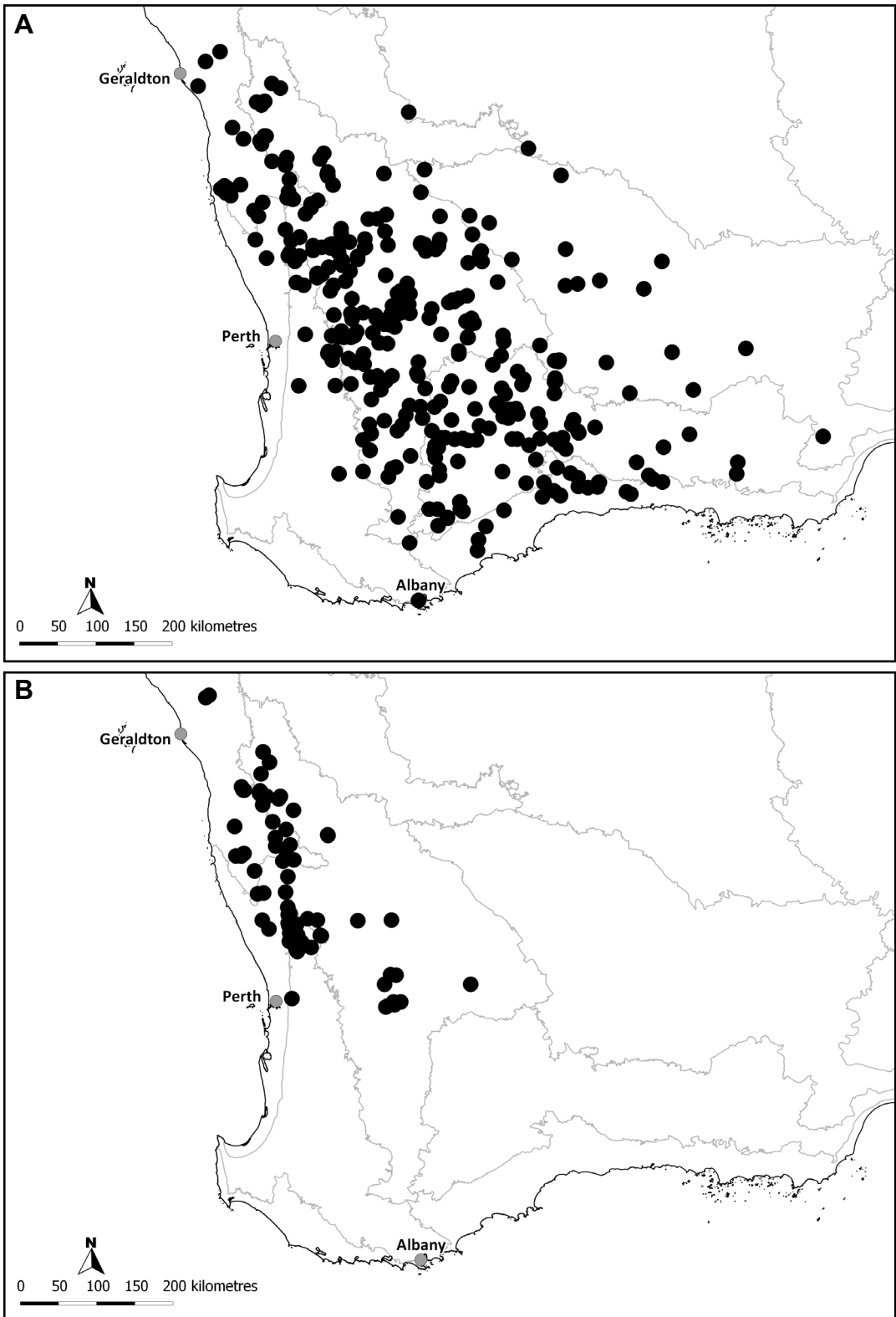


Figure 3. Distribution of *Ericomyrtus serpyllifolia* (A) and *E. tenuior* (B).

Ericomyrtus tenuior (Ewart), Rye, *comb. nov.*

Baeckea crispiflora var. *tenuior* Ewart, *Proc. Roy. Soc. Victoria* ser. 2, 20: 76 (1907). *Type citation*: 'Elder exploring expedition No. 2. Kangaroo Hill, R. Helms. 1891. Cowcowing, W.A., M. Koch, 1904.' *Type specimens*: Cowcowing, Western Australia, September 1904, M. Koch 1229 (*lecto*: MEL 72650, here designated; *isolecto*: AD 96827142, PERTH 01605127). West of Red Kangaroo Hill, Elder exploring expedition No. 2, Western Australia, November 1891, R. Helms *s.n.* (*syn*: AD 97448070, MEL 72648).

Shrub 0.6–2 m high, erect and rather spindly, single-stemmed or multi-branched at base, 0.4–2.4 m across. *Petioles* 0.5–0.8 mm long. *Leaf blades* ovate to obovate to almost circular, 4.5–8 mm long, 3–7.5 mm wide, with 6–10 main rows of oil glands on each side. *Peduncles* 4–9 mm long. *Bracteoles* 2–4 mm long. *Pedicels* 0.8–2.5 mm long. *Flowers* 8–11 mm diam. *Hypanthium* 1.8–2.2 mm long. *Sepals* depressed-ovate to depressed-semicircular, 0.7–1 mm long. *Petals* 3–4 mm long, white. *Stamens* 14–23, with 2–6 opposite each sepal. *Longest filaments* 1.2–1.8 mm long. *Ovules* 13–21 per loculus. *Style* 1.6–2.7 mm long, red at maturity; stigma peltate, 0.3–0.4 mm diam. *Fruits* 2–2.6 mm long, 3–3.2 mm diam. *Seeds* 0.8–1.2 mm long, 0.5–0.75 mm wide, 0.3–0.4 mm thick.

Selected specimens examined. WESTERN AUSTRALIA: Gillingarra Nature Reserve, 6 Oct. 2008, M. Hislop 3834 (PERTH); Carnamah, 8 Nov. 1906, A. Morrison *s.n.* (BM); Sweetman Nature Reserve, 18 Nov. 2004, S.J. Patrick 5006 (AD, PERTH); Moore River, Aug. 1901, E. Pritzel 591 (AD, NSW, PERTH); SE of Buntine, E of Mullewa–Wubin road on a track that started 5 km N of Boucher Rd, 14 Oct. 2003, B.L. Rye 231046 & M.E. Trudgen (NSW, PERTH); 10.0 km N of Three Springs on road to Mingenew, 27 Aug. 2011, K.R. Thiele 4199 (PERTH); above breakaway, Hydraulic Rd, 1.2 km E of Bunney Rd, 27 Nov. 2003, M.E. Trudgen 22121 (PERTH); 15 km N of Moora roadside quarry area, 2 Nov. 1974, D.J.E. Whibley 4897 (AD).

Distribution and habitat. Extends from Yuna south to the Darling Range near Perth (Figure 3B), often in lateritic habitats with varied vegetation including Wandoo woodland, but sometimes associated with granite or in more sandy habitats.

Phenology. Flowers mainly from late August to early November. Fruits mostly recorded from late September to December.

Conservation status. Known from numerous populations over a fairly wide range.

Chromosome number. $n = 22$, *fide* B.L. Rye, *Austral. J. Bot.* 27: 570 (1979) [as *Baeckea crispiflora*]. Vouchers: B.L. Powell 74068 and 74088 (both PERTH).

Etymology. From the Latin *tenuis* (narrow), referring to the slender habit.

Affinities. This species is part of the *E. serpyllifolia* complex, but tends to be more open in its habit than other members of the complex. *Ericomyrtus tenuior* has relatively short pedicels in comparison with its peduncles, whereas the pedicels and peduncles tend to be more similar in length in *E. parvifolia* and *E. serpyllifolia*.

Typification. Ewart (1907) based his brief description on flowering material collected by Max Koch and fruiting material collected by Robert Helms, noting that the new taxon differed from typical

crispiflora in being ‘more slender’ and in having ‘a shorter pedicel, so that the usually slightly smaller bracts are close under the ovary, which is less urceolate’. Both specimens match the protologue. The flowering collection is here chosen as the lectotype. It was apparently used as the basis of the key entry in Blackall and Grieve (1980: 86), although no illustration was provided.

Notes. This species is the tallest shrub in the genus, being up to 2 m high, and it has the largest flowers, fruits and seeds.

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References

- Bentham, G. (1867). *Flora Australiensis*. Vol. 3. (Lovell Reeve & Co.: London.)
- Blackall, W.E. & Grieve, B.J. (1980). *How to know Western Australian wildflowers*. Part 3A. Revised 2nd edn by B.J. Grieve. (University of Western Australia Press: Nedlands, Western Australia.)
- Ewart, A.J. (1907). Contributions to the flora of Australia, No. 6. *Proceedings of the Royal Society of Victoria* ser. 2, 20: 76.
- Lam, N., Wilson, Peter G., Heslewood, M.M. & Quinn, C.J. (2002). A phylogenetic analysis of the *Chamelaucium* alliance (Myrtaceae). *Australian Systematic Botany* 15: 535–543.
- Niedenau, F. (1893). Myrtaceae. In: Engler, A. & Prantl, K. (eds) *Die natürlichen Pflanzenfamilien*. Vol. 3 (7). pp. 57–105. (Engelmann: Leipzig.)
- Obbens, F.J. & Sage, L.W. (2004). Vegetation and flora of a diverse upland remnant of the Western Australian wheatbelt (Nature reserve A21064). *Journal of the Royal Society of Western Australia* 87: 19–28.
- Rye, B.L. (1979). Chromosome number variation in the Myrtaceae and its taxonomic implications. *Australian Journal of Botany* 27: 547–573.
- Rye, B.L. (2009a). A reduced circumscription of *Balaustion* and description of the new genus *Cheyniana* (Myrtaceae: Chamelaucieae). *Nuytsia* 19: 129–148.
- Rye, B.L. (2009b). Reinstatement of the Western Australian genus *Oxymyrrhine* (Myrtaceae: Chamelaucieae) with three new species. *Nuytsia* 19: 149–165.
- Rye, B.L. (2015). *Astartea pulchella* (Myrtaceae: Chamelaucieae), a new combination for *Baeckea pulchella* and reduction of *A. laricifolia* to synonymy. *Nuytsia* 25: 145–147.
- Turczaninow, N. (1847). Decas tertia. Generum adhuc nondescriptorum adjectis descriptionibus nonnullarum specierum Myrtacearum xerocarpicarum atque Umbelliferarum imperfectarum. *Bulletin de la Société Impériale des Naturalistes de Moscou* 20: 148–174.
- Turczaninow, N. (1852). Myrtaceae xerocarpicae, in Nova Hollandia. *Bulletin de la Classe Physico-Mathématique de l'Académie Impériale des Sciences de Saint-Petersbourg* 10: 322–346.
- Wilson, Peter G., Heslewood, M., Lam, N. & Quinn, C. (2004). Progress towards a phylogeny of the *Chamelaucium* alliance (Myrtaceae). *Australian Biologist* 17: 28–33.
- Wilson, Peter G., Heslewood M. & Quinn, C.J. (2007). Re-evaluation of the genus *Babingtonia* (Myrtaceae) in eastern Australia and New Caledonia. *Australian Systematic Botany* 20: 302–318.

