

A taxonomic revision of *Beaufortia* (Myrtaceae: Melaleuceae)

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Abstract

Burbidge, A.A. A taxonomic revision of *Beaufortia* (Myrtaceae: Melaleuceae). *Nuytsia* 27: 165–202 (2016). *Beaufortia* R.Br. (Myrtaceae) is endemic to the south-west of Western Australia and is almost confined to the South-West Botanical Province, with a few species extending a short distance into the Eremaean. Twenty-two species are recognised in this revision of the genus, including three new species: *B. burbridgeae* A.A.Burb., *B. kwongkanicola* A.A.Burb. and *B. raggedensis* A.A.Burb. *Beaufortia puberula* Turcz. is reinstated and *B. interstans* F.Muell. placed into synonymy under it. Lectotypes are selected for *B. anisandra* Schauer, *B. dampieri* A.Cunn., *B. elegans* Schauer, *B. empetrifolia* (Rchb.) Schauer, *B. micrantha* Schauer, *B. micrantha* var. *puberula* Benth., *B. orbifolia* F.Muell., *B. schaueri* Preiss ex Schauer, *B. schaueri* var. (?) *atrorubens* Benth., *B. sparsa* R.Br. and *B. squarrosa* Schauer.

Introduction

Beaufortia R.Br. has been considered a separate genus since 1812; however, its retention has been disputed. Ladiges *et al.* (1999; 2003), Brown *et al.* (2001), Wilson *et al.* (2001; 2005) and Edwards *et al.* (2010) have analysed molecular data from some species within the tribe Melaleuceae Burnett and reported evidence for the non-monophyly of *Melaleuca* L. and evidence that other currently recognised genera of the tribe (*Beaufortia*, *Calothamnus* Labill., *Conothamnus* Lindl., *Eremaea* Lindl., *Lamarchea* Gaudich., *Petraeomyrtus* Craven, *Phymatocarpus* F.Muell. and *Regelia* Schauer) are closely related to it. Edwards *et al.* (2010) foreshadowed the merging of all these genera into *Melaleuca*. However, they noted that *Beaufortia* was monophyletic and proposed it be retained as a subgenus within *Melaleuca*. Craven *et al.* (2014), following up this work, made new combinations and selected new names to transfer all species of *Beaufortia* (and all other genera in the Melaleuceae) to *Melaleuca*, but did not discuss or designate subgenera, nor did they discuss the alternative approach of describing new genera within *Melaleuca*. George (2010), in a revision of *Calothamnus*, presented arguments that that genus should be retained and the same reasoning applies to *Beaufortia*: the genus is readily recognisable and there is no convincing evidence that merging it into a very large genus would be beneficial. Furthermore, Craven *et al.* (2014) acknowledged that additional work was required before it would be possible to present a robust infrageneric classification of *Melaleuca* as they defined it.

Methods

This study is based on field work, mainly between 1985 and 1994, and the study of dried specimens. All specimens examined are housed at the Western Australian Herbarium (PERTH), except those types

mentioned in text. All measurements were taken from dried pressed material. Leaf measurements were taken from the larger leaves.

The type specimens of taxa named by Turczaninov at KW are treated herein as holotypes since he is not known to have viewed other material.

Distribution is described according to Interim Biogeographic Regionalisation for Australia (IBRA) version 7 bioregions and subregions (Department of the Environment 2013). Those relevant to this paper are as follows: Avon Wheatbelt (subregions: Merredin, Katanning); Coolgardie (subregions: Mardabilla, Southern Cross); Esperance Plains (subregions: Fitzgerald, Recherche); Geraldton Sandplains (subregions: Geraldton Hills, Lesueur Sandplain); Jarrah Forest (subregions: Northern Jarrah Forest, Southern Jarrah Forest); Mallee (subregions: Eastern Mallee, Western Mallee); Swan Coastal Plain (subregions: Dandaragan Plateau, Perth); Warren; Yalgoo (subregion: Edel).

Description of genus

Beaufortia R.Br., in W.T. Aiton, *Hort. Kew.* 2nd edn, 4: 418 (1812). *Lectotype*: *Beaufortia decussata* R.Br., *vide* J.C. Schauer, *Regelia, Beaufortia, Caloth.* 13 (1843) [= *Nov. Act. Acad. Leop.-Caes. Nat. Cur.* 21: 9 (1845)] (Chapman 1991).

Beaufortia sect. *Schizopleura* Lindl., *Edward's Bot. Reg.* Appendix to Vols 1–23, ix (1893). *Schizopleura* (Lindl.) Endl., in J. Lindley & S.L. Endlicher, *Gen. Plantarum* 2, 1228 (1840). *Type*: not designated.

Shrubs to 3 m high. *Leaves* usually sessile, occasionally shortly petiolate, opposite and decussate in most species, glandular. *Flowers* aggregated into spikes or heads, with all flowers bisexual, all flowers male, or with a mixture of bisexual and male flowers. *Bracts* usually present, triangular or trullate, 1–c. 21-veined or sometimes the veins obscure, often shed at anthesis. *Bracteoles* usually present, long, narrow (\pm terete), hairy, sometimes persistent on young fruits. *Flowers* 5-merous. *Hypanthium* campanulate, green, brown or red, glabrous or hairy. *Sepals* triangular or trullate, 0–5-veined, glabrous, ciliate or hairy. *Petals* small, scarious, usually ciliate, often falling at or after anthesis. *Stamens* 15–c. 40, in 5 bundles opposite the petals, with 3–9 per bundle, red to scarlet, mauve to purple, orange, pink or occasionally white, united into a staminal claw and separated distally into free filaments far shorter than to c. 3 \times longer than the claw. *Anthers* basifixed, erect, non-versatile, transversely dehiscent across the apex by 2 curved slits. *Style* filiform; stigma small, capitate. *Ovary* 3-locular; ovules 1 per locule. *Fruit* a woody capsule, persistent, either connate to adjacent fruits ('united') or clustered (close but maintaining a separate identity and peg-like), serotinous.

Distinguishing features. *Beaufortia* is readily distinguished from other genera in the tribe Melaleuceae by having basifixed anthers opening at the top by transverse slits and a solitary ovule in each loculus.

Phenology. Flowering occurs throughout the year; however, most flowering is in late spring, summer and autumn.

Distribution and habitat. *Beaufortia* is widespread in the south-west of Western Australia, from Bernier Island, Shark Bay, south and east to Eyre near the Great Australian Bight (Figure 1). The genus is almost limited to the South-West Botanical Province, with *B. bracteosa* Diels, *B. orbifolia* F.Muell. and *B. schaueri* Preiss ex Schauer extending marginally into the Southern Cross subregion of the Coolgardie bioregion of the Eremaean, and *B. micrantha* Schauer and *B. puberula* Turcz. extending

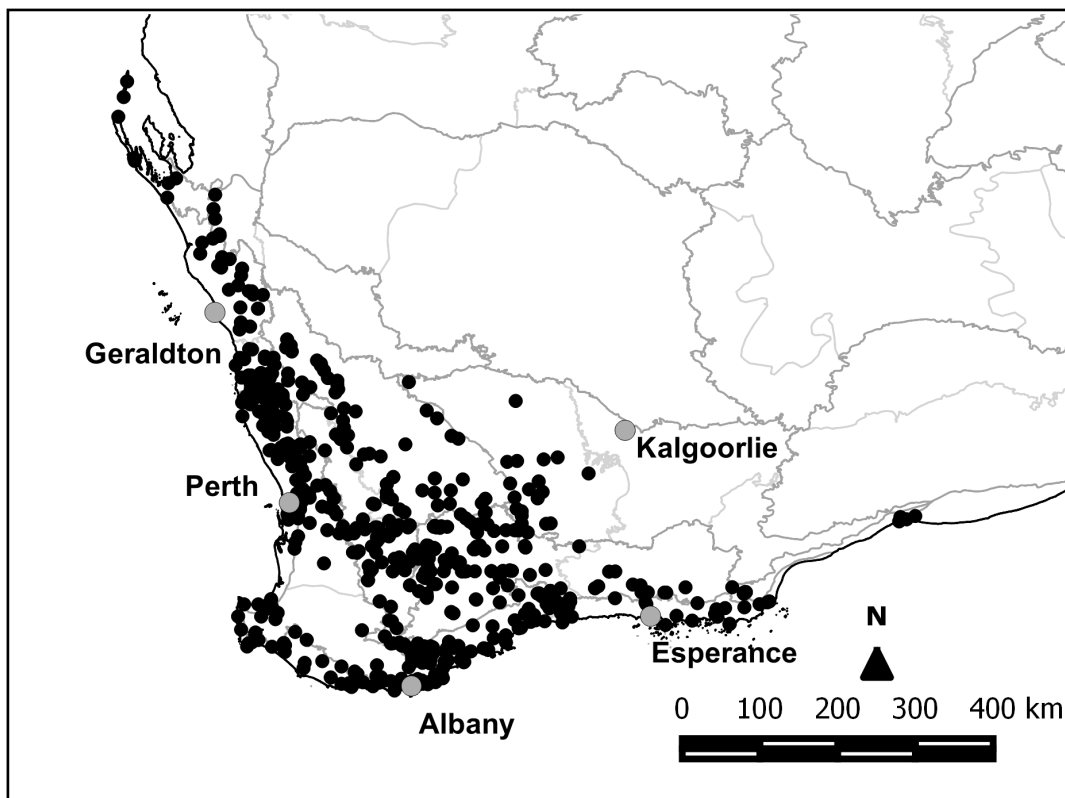


Figure 1. Distribution of the genus *Beaufortia* in south-west Western Australia.

up to 140 km into the Southern Cross subregion (the South-western Interzone of Burbidge 1960). *Beaufortia sprengelioides* (DC.) Craven occurs as far north as Bernier Island in the Edel subregion of the Yalgoo bioregion, while *B. empetrifolia* (Rchb.) Schauer extends eastward along the south coast to Eyre in the Mallee bioregion. *Beaufortia* species grow in sand, sandy loam and clay, particularly over laterite and sometimes over granite; also in a range of stony soils including laterite, and occasionally limestone. Many species grow in kwongan, other shrublands or woodland, but some occur in forests or swamps.

Etymology. Named after the Duchess of Beaufort, Mary Somerset (1630–1714).

Common name. The name ‘Bottlebrush’ has been applied to some species of *Beaufortia*. This name is widely applied to *Callistemon* R.Br. species and its use in *Beaufortia* can be confusing as only a few species have an inflorescence structure similar to species of *Callistemon*. I propose that ‘Bottlebrush’ be retained for those species with this type of flower (*B. decussata* R.Br., *B. orbifolia* and *B. sparsa* R.Br.) and that all others be known as ‘Beaufortia’ with appropriate added descriptors.

Response to fire. *Beaufortia* has serotinous fruits that release seeds after fire (Lamont *et al.* 1991). Most species regenerate only from seed; however, *B. macrostemon* Lindl. and *B. sparsa*, both with distributions in areas of high rainfall where fire is relatively frequent, can re-sprout from a lignotuberous root-stock.

Pollination. Limited information suggests pollination is mainly by honeyeaters (Meliphagidae) and the honey possum (*Tarsipes rostratus*), although the pygmy possum (*Cercartetus concinnus*), a megachilid bee and a halictid bee have been recorded visiting flowers, as has the introduced honey bee (*Apis mellifera*) (Brown *et al.* 1997). Museum of Victoria (2015) records several species of native bees from the families Apidae, Colletidae, Halictidae and Megachilidae visiting *Beaufortia* species and Brooks *et al.* (1998) reported that wasps and unidentified bees had been observed feeding on *B. aestiva* K.J.Brooks, so insects may be significant pollinators. Honey possums at Cheyne Beach were shown to carry loads of *Beaufortia* pollen, as well as the pollen of other plant genera (Hopper 1980).

Chromosome number. *Beaufortia* species have diverged from the base number of $n = 11$ that typifies *Melaleuca* and most other Myrtaceae, with *B. decussata* and *B. sparsa* having $n = 10$ and *B. bicolor* Strid, *B. elegans* Schauer, *B. purpurea* Lindl., *B. schaueri* and *B. squarrosa* Schauer having $n = 8$ (Rye 1979).

Notes. The oldest known *Beaufortia* specimen, of *B. sprengelioides* (syn. *B. dampieri* A.Cunn.), was collected on Dirk Hartog Island in 1699 by William Dampier and is lodged at the Fielding-Druce Herbarium, Oxford (OXF) (Dampier 1703; George 1999: 48).

The inflorescence may contain some male as well as bisexual flowers or be all male. Anther morphology is very distinctive in *Beaufortia*. Anther cells open across their adaxial surface by a curved slit, with a more or less semi-circular area on the small inner side of the slit, the larger outer surface usually curved, but acute and projecting in the type species *B. decussata*. Species with the more common, curved anthers have been placed in sect. *Schizopleura* Lindl., or even treated as the genus *Schizopleura* (Lindl.) Endl. (see synonyms listed above).

Key to *Beaufortia* species

1. Inflorescence a spike
 2. Leaves spiral (sometimes sub-opposite) **B. sparsa**
 - 2: Leaves opposite and decussate
 3. Staminal filaments 3–5 per bundle. Infructescence with constituent fruits closely packed and not retaining a separate identity **B. orbifolia**
 - 3: Staminal filaments 6–9 per bundle. Infructescence not closely packed, the constituent fruits ‘peg-like’ and retaining a significant separate identity **B. decussata**
- 1: Inflorescence a head or head-like
 4. Staminal bundles very unequal in length **B. anisandra**
 - 4: Staminal bundles \pm equal in length
 5. Staminal bundles with free filaments noticeably shorter than claw (usually c. 1/4–1/2 as long)
 6. Staminal bundles glabrous
 7. Flowers markedly two-coloured: yellow-orange and red (Badgingarra area) **B. bicolor**
 - 7: Flowers not or only slightly two-coloured (Alexander Morrison NP to near Busselton) **B. squarrosa**
 - 6: Staminal bundles with claw hairy, at least at base of inner surface

8. Leaves terete, 0.2–0.4 mm wide. Staminal bundles scarlet or deep red proximally and pale green or pink distally..... **B. burbidgeae**
- 8: Leaves not terete, 0.5–5 mm wide. Staminal bundles not coloured as above
9. Shrub commonly lignotuberous, with mature leaves >9 mm long..... **B. macrostemon**
- 9: Shrub non-lignotuberous, with mature leaves <9 mm long
10. Sepals hairy. Leaves hairy, greyish green, grey or bluish grey..... **B. incana**
- 10: Sepals ciliate. Leaves ciliate or glabrous, medium to dark green..... **B. cyrtodonta**
- 5: Staminal bundles with free filaments longer than or ± equal to the claw
11. Staminal bundles with free filaments noticeably longer than the claw (usually c. twice as long)
12. Leaves ± appressed, 1–2 mm long..... **B. micrantha**
- 12: Leaves not appressed, (1.5–)2–5.5 mm long
13. Staminal bundles pink, with base of claw and tip of filaments red; claw partly hairy..... **B. schaueri**
- 13: Staminal bundles pink to red or mauve; claw glabrous..... **B. elegans**
- 11: Staminal bundles with free filaments ± equal in length to claw
14. Staminal bundles with 7–10 filaments..... **B. sprengelioides**
- 14: Staminal bundles mostly with 3–6 filaments (occasional bundles may have 7)
15. Staminal bundles glabrous
16. Leaves 3–7 mm wide, 5–7-veined. Staminal bundles >14 mm long..... **B. aestivalis**
- 16: Leaves 1–3 mm wide, 1–3-veined. Staminal bundles <12 mm long..... **B. elegans**
- 15: Staminal bundles hairy on inside of claw (rarely glabrous in *B. puberula*)
17. Leaves typically spreading at 30°–70° from stem, 1.5–2.5(–3) mm long..... **B. empetrifolia**
- 17: Leaves spreading at less than 30° from stem, (2.5–)3–11 mm long in most species but down to 1.5 mm long in *B. puberula*
18. Leaves glabrous
19. Petals yellow to orange (occurs in northern kwongkan)..... **B. kwongkanicola**
- 19: Petals pink-brown to deep red
20. Leaves 2.5–4 mm long. Bracts and bracteoles 2.5–4 mm long (occurs in Wheatbelt)..... **B. bracteosa**
- 20: Leaves (3–)6–11 mm long. Bracts and bracteoles 4.5–9 mm long (occurs in Darling Range near Perth)..... **B. purpurea**
- 18: Leaves ciliate to hairy or glabrescent
21. Leaves 1.5–4 mm long..... **B. puberula**
- 21: Leaves 5–10 mm long
22. Bracts pinkish green to red, 5-veined (occurs mainly N of Perth)..... **B. eriocephala**
- 22: Bracts brown, 1-veined (occurs far E of Perth, on Russell Range)..... **B. raggedensis**

Species descriptions

Beaufortia aestiva K.J.Brooks, *Nuytsia* 12(2): 164 (1998). *Melaleuca aestiva* (K.J.Brooks) Craven & R.D.Edwards, *Taxon* 63(3): 664 (2014). *Type*: 4 km north of Binu on old section of highway to the west of North West Coastal Highway, Western Australia, 25 December 1996, *K.J. Brooks* 96004 (*holo*: PERTH 04951719!; *iso*: CANB 523196!, K 000793624!, NSW 542061!).

Shrub 0.7–2 m tall and to 2 m across, dense, rounded or spreading. *Leaves* opposite, adjacent pairs overlapping, shortly petiolate, obovate to ovate, 4–11 mm long, 3–7 mm wide, 5–7-veined, glabrous. *Inflorescence* terminal, a head. *Bracts* triangular, *c.* 3 mm long and wide, 3–5-veined, sparsely ciliate at base. *Bracteoles* 2–3 mm long, hairy. *Hypanthium* 2.5–4 mm long, glabrous to sparsely hairy. *Sepals* broadly triangular, 1.2–3.3 mm long, 1–3.5 mm wide, 1–3-veined, ciliate. *Petals* narrowly elliptic, cream, pale green or pale orange-red, 4.3–5.5 mm long, 1.4–2.6 mm wide, glabrous or ciliate. *Staminal bundles* claw yellow, orange or red, 7–10 mm long, glabrous; free filaments 5–7, yellow-orange, 7–12 mm long. *Style* red or red proximally and yellow distally. *Anthers* red. *Fruits* in clusters of 2–16, peg-like, 7–15 mm long, 6–15 mm wide. (Figure 2)

Diagnostic features. Differs from other members of the genus by having staminal bundles 14–20 mm long, with 5–7 free filaments that are about the same length as the claw.

Selected specimens examined. WESTERN AUSTRALIA: Kalbarri National Park 15 km along track to the Z-bend from the intersection with the Ajana-Kalbarri Rd, 7 Sep. 1990, *D.E. Albrecht & B.A. Fuhrer* DEA4266 (PERTH); Livesey W of Tammin, 8 Nov. 1994, *L. Atkins* 181 (PERTH); 5 km along road to Lake Indoon from Brand Hwy junction, 30 Dec. 1996, *K.J. Brooks* 96008 (PERTH); 16.2 km from Mullewa along Sutherland and Beaumont Rds, 27 Oct. 2003, *G. Byrne* 633 (PERTH); Indarra Reserve, 2 km from S end on Moore Rd, 1 July 2001, *J. Docherty* 65 (PERTH); North West Coastal Hwy 24 miles N of the Murchison River Bridge, 6 Sep. 1966, *R. Filson* 8595 (PERTH); 18 km N of Yuna on the Dairy Creek-Gascoyne Junction Rd, 10 Sep. 1984, *D.B. Foreman* 635 (PERTH); 5.1 km along road that is 1 km N of Binu on North West Coastal Hwy, 2 Oct. 1988, *J.M. Fox* 88/108 (PERTH); Tammin, 27 Nov. 1920, *C.A. Gardner* 1111 (PERTH); near reserve SE of Kondut, 10 Jan. 1960, *A.S. George* 508 (PERTH); 22 miles N of Galena, NE of Geraldton, Aug. 1967, *C.H. Gittins* 1582 (PERTH); 39.6 km N of Northampton, 2 Dec. 1978, *R.J. Hnatiuk* 780353 (PERTH); Kalbarri National Park 7 km SSE of Junga Dam, 12 Sep. 1979, *S.D. Hopper* 1260 (PERTH); Billeranga (Billeranga Hills), probably Oct. 1964, *R. Latham* 54 (PERTH); Wongan Hills, 7 Oct. 1903, *A.W. Milligan s.n.* (PERTH); East Yuna Reserve 12–16 Oct. 1976, *B.G. Muir* 429 (PERTH); 2.2 km S of turnoff from Naraling-Tenindewa road, 21 Sep. 1974, *B.L. Powell* 74097 (PERTH); Indarra Springs Reserve, 26 Sep. 1988, *G. Stapp* 171 (PERTH); Coolcalalaya, 15 km S from fourteen mile crossing (15 km E on the Coolcalalaya Rd), 18 Nov. 2003, *L.S.J. Sweedman* 6270 (PERTH); 15.5 km E of Wongan Hills on the road to Koorda, 1 Dec. 2008, *M. Trudgen* MET 23231 (PERTH); Eurardy Station, 3 Oct. 2003, *Wildflower Society of WA* EURA 63 (PERTH).

Phenology. Flowering recorded all months except March, mostly from October to February (Brooks *et al.* 1998).

Distribution and habitat. Occurs in the South-West Botanical Province mainly in the Geraldton Sandplains bioregion (Geraldton Hills and Lesueur Sandplain subregions) and adjacent northern Avon Wheatbelt bioregion (Merredin subregion and marginally in the north-eastern Katanning subregion), from near Eneabba north to Kalbarri National Park and Eurardy and south-east to near Tammin and



Figure 2. *Beaufortia aestiva*, two colour forms photographed within 2 m of each other in Kalbarri National Park. Photographs by A.A Burbidge.

near Wongan Hills (Figure 3). Grows in undulating sandplains comprising deep, yellow-brown sand, often over laterite at depth, usually on the upper slopes. Occurs in closed kwongan (heath and low shrubland).

Common name. Kalbarri Beaufortia.

Conservation status. Not threatened.

Notes. Most likely to be confused with *B. squarrosa*: the leaves tend to be more broadly obovate, are brighter green and margins are introrse (turned inwards), the hypanthium is glabrous rather than hairy, the ratio of the hypanthium to sepal length is *c.* 2:1 rather than 1:1, and the staminal claw to free filament ratio is *c.* 1:1 rather than *c.* 2:1 in *B. squarrosa*. There are five to seven stamens per bundle, whereas *B. squarrosa* has three. *Beaufortia elegans*, also sympatric, has smaller flowers (staminal claw and free filaments *c.* 8 mm long, vs 14–20 mm long in *B. aestiva*).

Beaufortia anisandra Schauer, *Regelia, Beaufortia, Caloth.* 17 (1843). *Melaleuca anisandra* (Schauer) Craven & R.D. Edwards, *Taxon* 63(3): 664 (2014). *Type citation*: ‘Crescit in Nova-Hollandia austro-occidentali: solo arenoso in fruticetis densis silvae ad planitiem prope oppidulum Albany, districti Plantagenet, raro! Ianuario m. a. 1841: L. Preiss! Ad Sinum Regis Georgii III, a. 1818: Allan-Cunningham!’ *Type specimens*: in solo arenoso in fruticetis densis silvae ad planitiem prope oppidulum Albany, districti Plantagenet [Western Australia], 1841, *L. Preiss* 362 (*lecto*, here designated: LD 1037662; *isolecto*: FR 0036193 digital image!; GOET 008210 digital image!; K 000275883!, M 0137452 digital image!, S 07-11671 digital image!); Oyster Harbour, King George’s Sound, S.W. Australia, 1818, *A. Cunningham* 96 (*syn*: K 000275909!).

Dense *shrub*, 0.2–1.5 m high and up to 1.2 m wide. *Leaves* mostly opposite, sessile, lanceolate, 4–7 mm long, 1.3–2.5 mm wide, 5-veined, glabrous. *Inflorescence* a terminal or near terminal head. *Bracts* triangular, 5–21-veined (often many small, marginal, faint veins), glabrous. *Bracteoles* narrowly triangular, *c.* 2 mm long, hairy. *Hypanthium* deep red, 1–2 mm long, hairy or only hairy near base. *Sepals* green, triangular, 1–2 mm long, 3-veined, glabrous. *Petals* yellow to pale brown, *c.* 1.5–2 mm long, glabrous or faintly ciliate. *Staminal bundles* maroon, scarlet or wine red, occasionally almost black, of markedly unequal length; claw *c.* 15 mm long on longest bundles, *c.* 5–7 mm long and narrower

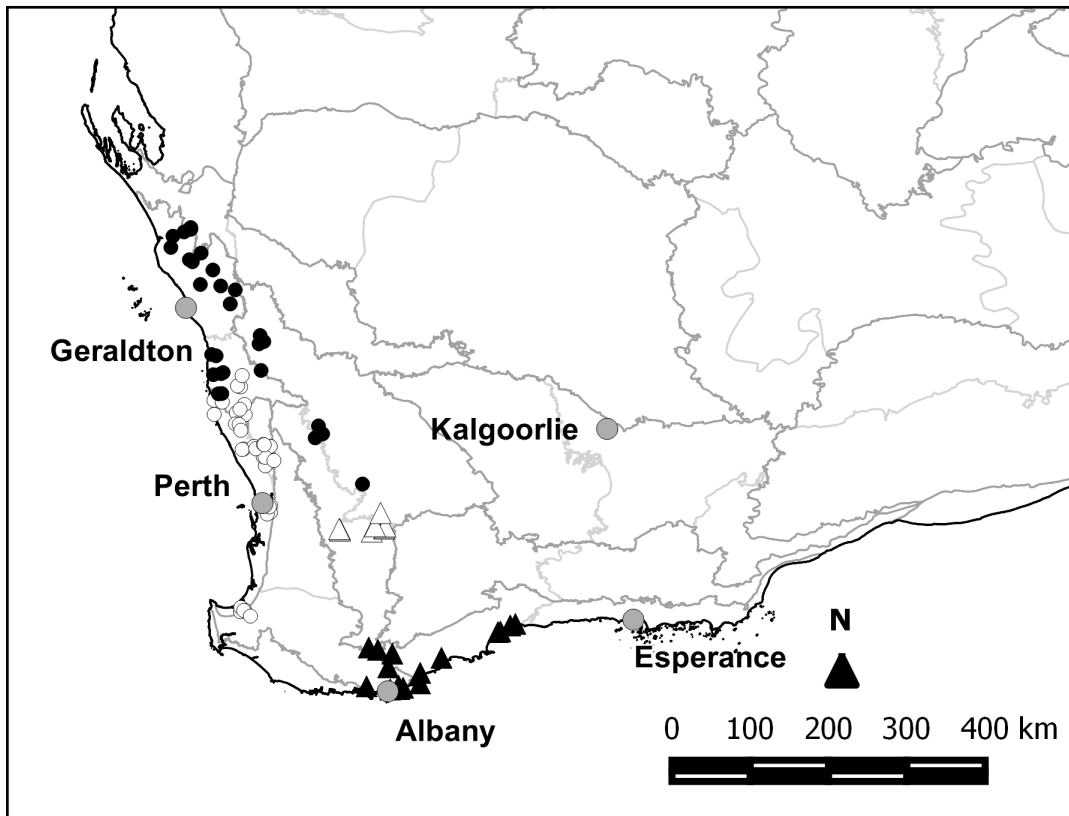


Figure 3. Distribution of *Beaufortia aestiva* (●), *B. anisandra* (▲), *B. burbridgeae* (△) and *B. squarrosa* (○).

on shortest bundles, hairy proximally on inner surface, glabrous on outer surface; free filaments 3–5, *c.* 7 mm long. *Anthers* sometimes with a few hairs when on the short bundles. *Style* red. *Fruits* united or semi-clustered, ovoid, 8–15 mm long, 7–12 mm wide.

Diagnostic features. Differs from other species of *Beaufortia* by having staminal bundles that vary in length and width, with the shorter ones being less than half the length of longer ones.

Specimens examined. WESTERN AUSTRALIA: East Mt Barren car park, Fitzgerald River National Park, 29 May 2000, *T.J. Alford* 44 (PERTH); north Hunwick Rd Walpole, 7 Mar. 1990, *A.N. Annels* 1099 (PERTH); junction of Hamersley Drive and West Beach turnoff, Fitzgerald River National Park, 8 km from park entrance, 16 Nov. 2003, *M. Bennett* 858 (PERTH); Location 6889 Knights Rd, Porongurup, 16 Mar. 2002, *A. Burchell* 600 (PERTH); Boat Harbour Rd, 10.7 km S of highway, 5 Feb. 1998, *R. Davis* 5059 (PERTH); Nanarup Rd near Lime Pit, 16 Mar. 1979, *E.J. Croxford* 249 (PERTH); near rest area on the Hassell Hwy, Green Range, 28 May 1979, *E.J. Croxford* 340 (PERTH); above coastline at Cheyne Beach, E off Hassell Hwy, 28 Jan. 1985, *E.J. Croxford* 4526 (PERTH); opposite Sippes' farm, Warriup Rd, off Hassell Hwy, 6 Mar. 1988, *E.J. Croxford* 6126 (PERTH); Whoogarup Range, 2 Dec. 1960, *A.S. George* 1888 (PERTH); Thumb Peak Range, 31 Oct. 1965, *A.S. George* 7154 (PERTH); 17 miles E of Albany on road to Mt Gardner, 8 Mar. 1967, *A.S. George* 8652 (PERTH); Middle Mt Barren, 16 July 1970, *A.S. George* 10087 (PERTH); N end of Middle Mt Barren Reserve 24048, 20 Dec. 1970, *A.S. George* 10585 (PERTH); Bayonet Head, 24 Jan. 1979, *E.R. Knight s.n.* (PERTH); Sukey Hill E of Cranbrook, 23 Dec. 1971, *B.R. Maslin* 2607 (PERTH); Stirling Range

National Park 2.2 km W from Talyuberlup Picnic Area along Stirling Range Drive, 8 Nov. 1990, *R.W. Purdie* 4054 (PERTH); on rise opposite Stirling Drive, Stirling Range National Park, 29 Sep. 1992, *E.J. Sherwood* 888 (PERTH); along western boundary of Two Peoples Bay Nature Reserve, 12 Feb. 1974, *G.T. Smith & L.A. Moore s.n.* (PERTH).

Phenology. Flowers year round, but mostly from November to April.

Distribution and habitat. Occurs in and near the Stirling Range and near the coast from near Denmark and Torbay in the Southern Jarrah Forest subregion east to near East Mount Barren in the Fitzgerald subregion (Figure 3). Grows in sand, stony sand, peaty sand, sandy clay, sand over laterite, quartzite or granite, and on lateritic hills; in heath or as an undershrub in forest or woodland.

Common name. Dark Beaufortia.

Conservation status. Not threatened.

Typification. LD 1037662 is here designated the lectotype. It is housed at Lund, where much of Preiss' collections named by Schauer are located. The label is in Preiss' handwriting with the number 362, with Preiss' designation of *Manglesia* being corrected in Schauer's hand with 'Beaufortia (*Schizopleura*) *anisandra*'. FR 0036193 has a small label, possibly in Schauer's hand with '362. Beaufortia *anisandra* Schauer' and is treated as an isolectotype. It is not as good a specimen as LD 1037662 and does not have a Preiss label.

Beaufortia bicolor Strid, *Pl. Syst. Evol.* 155: 339–341(1987). *Melaleuca variegata* Craven & R.D.Edwards, *Taxon* 63(3): 665 (2014). *Type:* by Brand Highway, south of Badgingarra, Western Australia [precise locality withheld for conservation reasons], 5 December 1982, *A. Strid* 21709 (*holo:* C 10015554 digital image!; *iso:* B_10_0294442 digital image!, G 00227447 digital image!, K 000793625 digital image!, MO *n.v.*, NSW 542063 digital image!, PERTH 01099698!).

Shrub 0.3–1 m high and up to 0.5 m wide. *Leaves* opposite, sessile, 3–9 mm long, 2–5 mm wide, 3–5-veined, ciliate (sometimes glabrous or nearly so). *Inflorescence* a head. *Bracts* green to pink, triangular, *c.* 3 mm long and wide, 3–5-veined, hairy. *Bracteoles* *c.* 2 mm long, hairy. *Sepals* green, triangular, *c.* 2 mm long, *c.* 1 mm wide, 1–3-veined, hairy. *Petals* red, obovate, *c.* 3 mm long, *c.* 1.5 mm wide, hairy. *Staminal bundles* claw red at base, yellow to orange distally, 5.5–9 mm long, glabrous; free filaments 5, arising irregularly from claw, usually two proximally and three together distally, typically yellow to orange (occasionally red) with red tips, 3–5 mm long, glabrous. *Anthers* red. *Style* red proximally, pink distally. *Fruits* woody, united, *c.* 10 mm long, 10 mm wide.

Diagnostic features. Distinguished from other *Beaufortia* spp. by having terminal, bi-coloured inflorescences with the staminal bundles having a yellow to orange proximal half and a red distal half.

Selected specimens examined. WESTERNAUSTRALIA: [localities withheld for conservation reasons] 11 Nov. 1982, *A.A. Burbidge & P.J. Fuller* AAB 510 (PERTH); 11 Nov. 1982, *A.A. Burbidge & P.J. Fuller* AAB 512 (PERTH); 8 Jan. 1984, *A.A. Burbidge & P.J. Fuller* AAB 623 (PERTH); 19 Dec. 1984, *A.A. Burbidge & P.J. Fuller* AAB 638 (PERTH); 19 Dec. 1984, *A.A. Burbidge & P.J. Fuller* AAB 641 (PERTH); 7 Nov. 1984, *A.A. Burbidge & P.J. Fuller* AAB 611 (PERTH); 9 Dec. 1995, *M. Hislop* 291 (PERTH); 11 Nov. 1999, *M. Puckridge* 139 (PERTH); 19 Dec. 2008, *L.S.J. Sweedman* 7643 (PERTH).

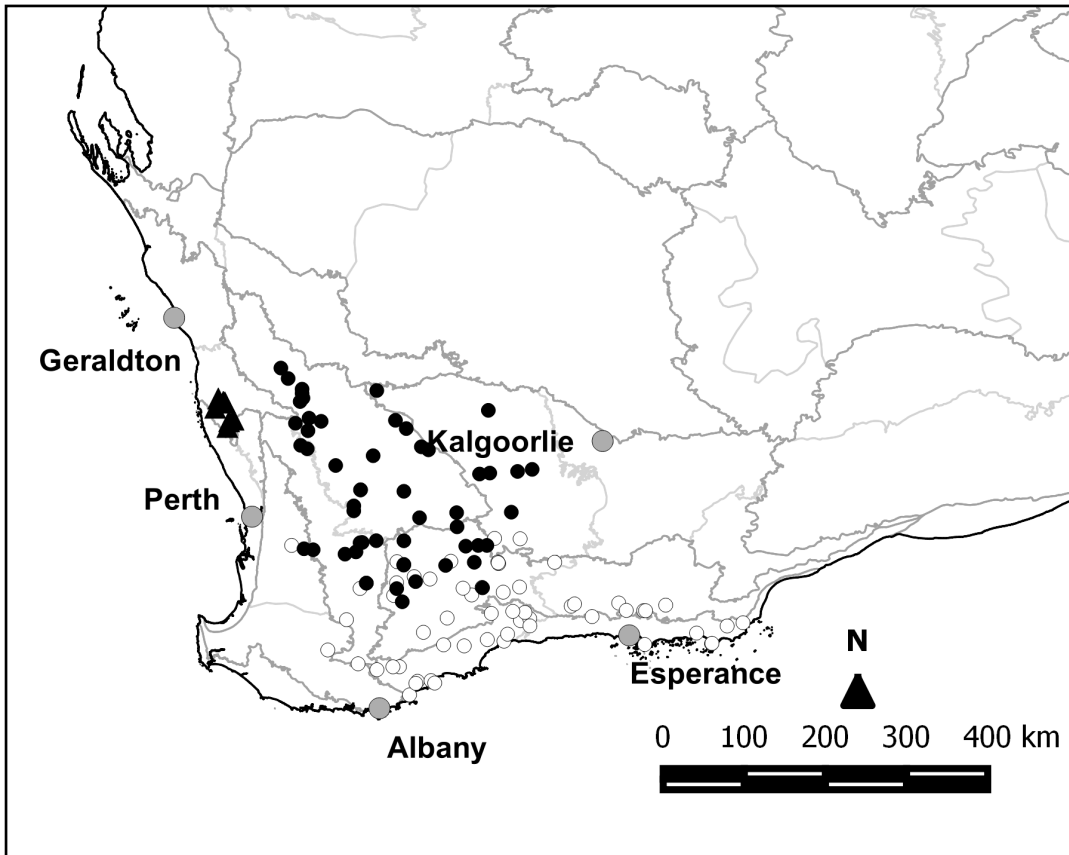


Figure 4. Distribution of *Beaufortia bicolor* (▲), *B. puberula* (●) and *B. schaueri* (○).

Phenology. Flowers from October to January.

Distribution and habitat. Occurs in the South-West Botanical Province near Badgingarra in the Lesueur Sandplain subregion (Figure 4). Grows in sand and sand over laterite, usually in kwongkan heath.

Common name. Badgingarra Beaufortia.

Conservation status. Priority Three under Department of Parks and Wildlife Conservation Codes for Western Australian Flora (Jones 2015). The species has a restricted distribution of only 55 km north-south, but occurs within conservation reserves.

Notes. Differs from *B. elegans*, with which it is sympatric, in the distinctive bi-coloured flowers: cream to orange proximal half and red distal half (flowers are red or pink to purple through mauve in *B. elegans*) and hairy sepals and petals (ciliate in *B. elegans*).

Beaufortia bracteosa Diels, *Bot. Jahrb. Syst.* 35: 431 (1904). *Melaleuca glumacea* Craven & R.D.Edwards, *Taxon* 63(3): 664 (2014). *Type citation:* ‘in distr. Avon pr. Tammin in arenosis fruticulosis flor. m. Oct. exeunt., m. Nov. (E. PRITZEL Pl. Austr. occ. 890; D. 5850).’ *Type specimens:* ‘in apertis arenosis’, Western Australia, November 1901, *E. Pritzel* 890 (*syn:* A 00068853 digital image!, BR 0000005232949 digital image!, GH 00068852 digital image!, K 000275884!, PERTH

01606131!, US 00118341 digital image!); Western Australia, ?November 1901, *L. Diels* 5850 (*syn. n.v.*, presumably destroyed in WWII).

Compact *shrub* (0.3–)0.5–1 m high, up to 0.75 m wide. *Leaves* opposite (sometimes \pm whorled), sessile, linear, sometimes revolute, 2.5–4 mm long, 0.4–1.5 mm wide, 1- or 3-veined, glabrous. *Inflorescence* a head. *Bracts* pale brown to brownish-red to green, broadly triangular, 2.5–4 mm long, 5–9 veined, glabrous or ciliate near the base. *Bracteoles* pale brown to red, narrow, *c.* 2.5 mm long, hairy. *Hypanthium* 1–3 mm long, 1.2–1.8 mm wide, hairy. *Sepals* green to brown, narrowly triangular, *c.* 1–1.5 mm long, *c.* 0.7 mm wide, acute, 1-veined, ciliate or hairy. *Petals* brown to deep red, obovate, 1.3–2 mm long, ciliate. *Staminal bundles* claw deep pink to red or maroon, 1.5–4 mm long, hairy on one side; free filaments 5(6), often arising from staminal claw at same place on flattened or semi-flattened end, deep red, 1–4 mm long, glabrous. *Style* red. *Fruit* united or clustered, 7–11.5 mm long, 4.5–6 mm wide.

Diagnostic features. Distinguished from other *Beaufortia* species by having deep red petals and five free filaments that emerge approximately at the same place on a flattened or semi-flattened end of the staminal claw.

Selected specimens examined. WESTERNAUSTRALIA: 1 km W of Totadji crossroads on Cramphorne Rd, 20 Sep. 1998, *J. Buegge* E21 (PERTH); Lake Barker Reserve [Jilbadji Nature Reserve], Nov. 1971, *W.H. Butler s.n.* (PERTH); Water Reserve No. 16418 adjacent to Wongan Hills townsite, 7 Nov. 1991, *A.M. Coates* 3437 (PERTH); Amery, 8 km from Cadoux, 31 Oct. 1981, *L.A. Craven* 7358 (PERTH); 3 km E of Aldersyde, 21 Nov. 1995, *R. Davis* 326 (PERTH); site 65 along Vermin Fence No 7, 80 km SE of Southern Cross, 32–37 km S of Great Eastern Hwy, 5 Nov. 1985, *J. Dodd* 275 (PERTH); Coolgardie District, 3.5 km W on Belka West Rd from intersection of Hines Hill Rd, 15 Nov. 1998, *S. Donaldson* 2103 & *G.T. Chandler* (PERTH); 9 km NW of Jitarning, 20 Nov. 1985, *D.B. Foreman* 1117 (PERTH); 20 km N of Hyden, 7 Oct. 1987, *J.W. Green* 5527 (PERTH); 17 km due NE of Brookton, between Jurakine Pool and Yenyening Lakes, 31 Oct. 1979, *R.J. Hnatiuk* 790134a (PERTH); Wongan Hills Experimental Farm, Reserve 18672, Craig Rd, *c.* 6.5 km by road N of Wongan Hills, 23 Oct. 1984, *K. Knight* 302 (PERTH); 74.5 km E of Hyden on Norseman Rd, 7 Nov. 1988, *T.D. Macfarlane* TDM 1879 (PERTH); 1/2 mile E of King Rocks, 13 Oct. 1963, *K. Newbey* 1108 (PERTH); Jingaring Rd verge, 28 km NE of Pingelly, 15 Nov. 1996, *J. Page* 12 (PERTH); Dryandra State Forest Narrogin map 1:100,000, Grid Reference 008732, 13 Nov. 1987, *D.M. Rose* 495 (PERTH); Tammin National Park [Charles Gardner Nature Reserve], 13 Nov. 1970, *R.D. Royce* 9338 (PERTH); Reserve A21064 located *c.* 15 km directly NE of Arthur River townsite, 28 Oct. 1998, *L.W. Sage & F. Obbens* LWS 1212 (PERTH); Jingaring Nature Reserve, Jingaring Rd, *c.* 30 km ENE of Pingelly, 7 Nov. 1999, *L.W. Sage, R. Davis & F. Obbens* LWS 1277 (PERTH); N of Yilliminning Rock, E of Birdwhistle Rd, 10 Dec. 1998, *C. Taylor, P. Rose & G. Warren* 171 (PERTH); CALM Reserve 21324 between Bulyee-Quairading road and Poultney Rd, NW corner, Corrigin, 20 Nov. 1994, *L. Turner* CGN 39 (PERTH); Mt Day track, 79.6 km N of Hyden – Norseman track, 17 Nov. 1995, *P.J. White* 949 (PERTH).

Phenology. Flowers year round, mostly in spring and early summer.

Distribution and habitat. Occurs in the South-West Botanical Province where it is widespread in the Avon Wheatbelt bioregion and adjacent parts of the Jarrah Forest, Mallee and Coolgardie bioregions (Figure 5). It occurs from near Latham south to near Dumbleyung, and from the Wandoo National Park east to Jilbadji Nature Reserve. Grows in sandy soils including clayey sand, gravelly sand and loamy sand, often over laterite or granite, occasionally in laterite.

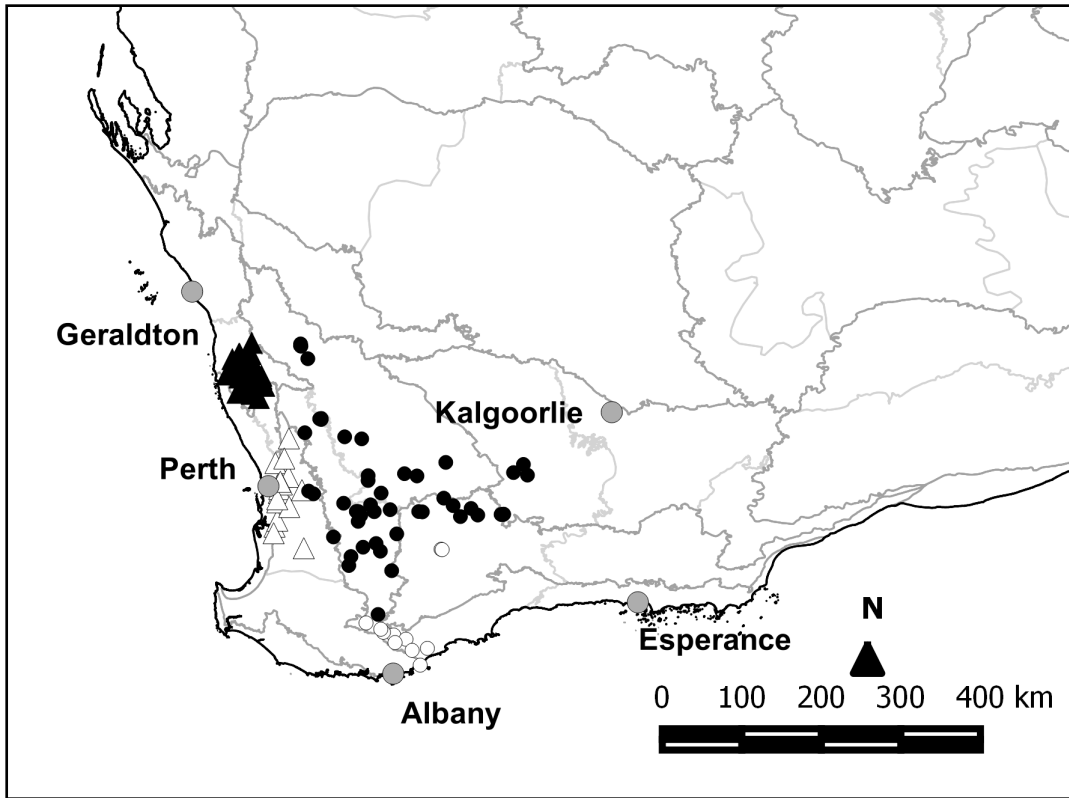


Figure 5. Distribution of *Beaufortia bracteosa* (●), *B. cyrtodonta* (○), *B. kwongkanicola* (▲), and *B. macrostemon* (△).

Conservation status. Not threatened.

Typification. While the type citation states ‘in arenosis fruticosis’, the labels on all Pritzel syntypes have been amended in handwriting from a printed ‘in silvis valde apertis prope’ to ‘in apertis arenosis’. A lectotype is not designated at this time since there are likely to be additional Pritzel duplicates that I have not seen. It is of note that US 00118341 has, in Diels’ handwriting, the annotation: ‘890. *Beaufortia bracteosa* Diels n. sp. 1903. det. Diels’.

Notes. In the northern part of its range, *B. bracteosa* is most likely to be confused with *B. kwongkanicola* A.A.Burb., which has larger flowers, pale pink to yellow brown petals (red in *B. bracteosa*), and five to seven free filaments that emerge from the staminal claw at different points. *Beaufortia elegans* and *B. aestivalis* have glabrous staminal claws (silky to villous on inner surface in *B. bracteosa*). *Beaufortia schaueri* has pink flowers, while *B. puberula* has pink to red flowers but has hairy leaves (sometimes only the juvenile leaves). *Beaufortia bracteosa* appears to be related to *B. purpurea*, but has smaller leaves and broader bracts.

Plants at the western edge of the range, e.g. Wandoo National Park, have persistent, pilose bracteoles that give buds and flowers a more woolly appearance.

Beaufortia burbidgeae A.A.Burb., *sp. nov.*

Type: Boolanelling Nature Reserve, Shire of Bruce Rock, Western Australia [precise locality withheld for conservation reasons], 3 October 1997, *G.S. Durell* 191 (*holo:* PERTH 05209277; *iso:* CANB).

Beaufortia sp. column (J.S. Beard 8119), G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Descr. Cat.* 350 (2000); Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au> [accessed 9 June 2015].

Shrub to 2 m, erect, semi-erect or sprawling, if sprawling may be much wider than high. *Leaves* crowded in opposite clusters on woody stems, ± palmate at stem tips, acicular or terete (slightly flattened when dried), 6–10 mm long, 0.2–0.4 mm wide, faintly hairy or glabrous. *Inflorescence* a head, terminal on short lateral stems along main stem. *Bracts* absent. *Bracteoles* absent. *Hypanthium* deep red to pink, 1.8–4 mm long, hairy at base. *Sepals* semi-united, green-brown or brown, triangular, *c.* 4 mm long, *c.* 2 mm wide, 1-veined, glabrous or ciliate. *Petals* pink to pale green, *c.* 2 mm long, glabrous or sparsely ciliate. *Staminal bundles* scarlet or deep red proximally and pale green or pink distally; claw red to pink or yellow-green proximally, red distally, hairy on inner surface, 5–18 mm long; free filaments 3(–5), red, much shorter than claw, 2.5–6 mm long. *Style* deep red. *Fruits* united or clustered, 3–10 mm long, 3–10 mm wide.

Diagnostic features. Distinguished from other *Beaufortia* spp. by having terete, (± palmate at tips of stems) leaves, densely crowded around the stem.

Selected specimens examined. WESTERNAUSTRALIA: [localities withheld for conservation reasons] 14 Oct. 1977, *J.S. Beard* 8119 (PERTH); 15 Oct. 1984, *J.N. Brown* 044 (PERTH); 10 Dec. 1992, *R.M. Buehrig* 92.12.10 (PERTH); 21 Nov. 1995, *R. Davis* 330 (PERTH); 3 Nov. 1993, *G.S. Durell* GD 54 (PERTH); 11 Aug. 2002, *M. Hislop* 2715 (PERTH); 17 May 1999, *K. Kershaw & G. Durell* s.n. (PERTH); 17 May 1999, *K. Kershaw & G. Durell* s.n. (PERTH); 29 Aug. 2003, *K. Kershaw et al.* KK 2415 (PERTH); 15 Oct. 1966, *K.R. Newbey* 2614 (PERTH).

Phenology. Flowers from August to May, mostly in spring and early summer.

Distribution and habitat. Occurs in the South-West Botanical Province in the Katanning subregion, from near Brookton and Corrigin and north-east to Boolanelling Nature Reserve (Figure 3). Grows in or among ironstone (massive laterite) on hilltops and upper slopes in heath or as a subshrub in woodland, occasionally on sand over laterite.

Common name. Column Beaufortia.

Conservation status. Listed by Jones (2015) as Priority Three under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the name *B. sp. column* (J.S. Beard 8119). Restricted geographically to an area with extensive land clearance and within its small range (85 km east-west) to a relatively uncommon substrate type; this species has been assigned to Priority Three as it occurs within conservation reserves.

Etymology. Named after my aunt Nancy Tyson Burbidge AM, D.Sc. (1912–1977), botanist, former Head of Herbarium Australiense (now the Australian National Herbarium (CANB)) and first Director of the *Flora of Australia* project, who helped nurture my interest in natural history.

Notes. Its closest relative appears to be *B. cyrtodonta* (Turcz.) Benth. Distinguished from other *Beaufortia* spp. by its columnar habit with dense leaves crowded on a woody stem; distinguished from *B. cyrtodonta* by having densely-arranged terete, rather than flat, leaves. The free staminal filaments in *B. burbridgeae* are 3–6 mm long; those in *B. cyrtodonta* are 1.5–3 mm long.

Beaufortia cyrtodonta (Turcz.) Benth., *Fl. Austral.* 3: 167–168 (1867). *Melaleuca cyrtodonta* Turcz., *Bull. Soc. Imp. Naturalistes Moscou* 22(2): 24 (1849). *Type:* Swan River [Western Australia], *J. Drummond* 4: 65 (*holo:* KW *n.v.*; *iso:* BM 000896242!, BM 000896243!, K 000793607 digital image!, K 000793609 digital image!, MEL 603248 digital image!).

Beaufortia heterophylla Turcz., *Bull. Cl. Phys-Math. Acad. Imp. Sci. Saint-Pétersbourg* 10: 345 (1852). *Type:* [Western Australia], *J. Drummond* 5: 174 (*holo:* KW *n.v.*; *iso:* G 00227448 digital image!, K 000793608 digital image!, K 000793605 digital image!, MEL 2109879 digital image!).

Spreading *shrub* to 2 m high and 1 m wide, usually shorter, sometimes semi-prostrate. *Leaves* opposite or in dense opposite clusters, sessile, linear-lanceolate to lanceolate, flat or triangular often with involute margins, 4–7 mm long, mostly 0.5–1 mm wide, a few wider, ciliate or glabrous. *Inflorescence* a head, terminal on short lateral stems along main stem. *Bracts* broadly triangular, *c.* 1.5 mm long, *c.* 2.2 mm wide, often caducous, 1-veined, ciliate. *Hypanthium* pink to red-brown, *c.* 1.5 mm long, hairy at base. *Sepals* red or green often dark brown proximally, triangular, *c.* 1.5 mm long and wide, 1–3-veined, ciliate. *Petals* pinkish brown to yellow-green, 1.8–3.1 mm long, *c.* 1 mm wide, ciliate. *Staminal bundles* claw red or scarlet ageing to maroon, lower parts sometimes green, 8.5–13.5 mm long, hairy over lower sixth usually on only one surface; free filaments 3, red, 1.5–3 mm long, glabrous. *Anthers* deep red. *Style* red. *Fruits* united, 7–13 mm long.

Diagnostic features. Distinguished from other *Beaufortia* spp. by having 3 free filaments 1.5–3.0 mm long that are much shorter than the staminal claw, which is 8.5–13.5 mm long, and having leaves that are flat or triangular often with involute margins. Distinguished from *B. burbridgeae* by having flat or triangular rather than terete leaves.

Selected specimens examined. WESTERN AUSTRALIA: 3 km N of Burngup siding (rail crossing) on Trevenen Rd, Burngup Water Reserve No. 31111, 20 Feb. 2001, *J.A. Cochrane* JAC 3877 (PERTH); Moorialup Rd opp. Fitzgibbons Farm off Takalarup Rd, 7 Oct. 1987, *E.J. Croxford* 3487 (PERTH); 23 km N of Manypeak[s], 2 Nov. 1995, *R. Davis* 294 (PERTH); side of North Woogenilup Rd (Flora Rd), 4 Feb. 1997, *R. Davis* 2483 (PERTH); *c.* 2 km S Toolbrunup turnoff, camping area on Borden-Albany Rd, Stirling Range, 13 Oct. 1982, *S.J. Forbes* 1125 (PERTH); near Aurora Rd, off Yonka Rd which intersects Albany Hwy *c.* 6.5 km N of Gordon River Bridge, 13 Aug. 1985, *G. Hewett s.n.* (PERTH); Red Gum Spring, Stirling Range, 14 Oct. 1902, *A. Morrison s.n.* (PERTH); Stirling Range National Park, 8 Nov. 1990, *R.W. Purdie* 4058 (PERTH); Hamilla Hill Stirling Range, 20 Oct. 1992, *C.J. Robinson* 976 (PERTH); Green Range – Pallinup Rd, *s. dat.*, *N.H. Speck s.n.* (PERTH).

Phenology. Flowers from June to November.

Distribution and habitat. Occurs in the South-West Botanical Province with most records being in or near the Stirling Range on the western edge of the Fitzgerald subregion. Other records in this subregion are from South Stirling and Green Range; also recorded in the Burngup water reserve and nearby localities east of Lake Grace in the Western Mallee subregion (Figure 5). Grows in stony soils, occasionally sand in heath or open woodland.

Common name. Stirling Range Beaufortia.

Conservation status. Not threatened.

Notes. Most likely to be confused with *B. burbridgeae*. *Beaufortia cyrtodonta* leaves are flat or triangular, often involute (terete in *B. burbridgeae*), and the free staminal filaments are 1.5–3 mm long (3.5–6 mm long in *B. burbridgeae*).

Beaufortia decussata R.Br., in W.T. Aiton, *Hort. Kew.* 2nd edn., 4: 418 (1812). *Melaleuca transversa* Craven & R.D. Edwards, *Taxon* 63(3): 665 (2014). *Type citation:* ‘Nat. of the South-west Coast of New Holland. Robert Brown, Esq.’ *Type specimen:* King George’s Sound [Western Australia], December 1801–January 1802, *R. Brown s.n.* [Bennett No. 4717] (*syn:* BM 000896249!, CANB 278750 digital image!, K 000793603 digital image!).

Beaufortia decussata Ker Gawl. (1815), *Bot. Reg.* 1: t. 18, *nom. illeg.*

Shrub 0.9–3 m high. *Leaves* sessile, opposite, lanceolate, glabrous (sometimes ciliate), 9–11-veined, involute, 13.5–17.5 mm long, 4.5–7.5 mm wide. *Inflorescence* a spike with flowers that hang angled downward from the stem, dark red to crimson. *Bracts* absent. *Hypanthium* narrow, 6.5–9.5 mm long, glabrous or pubescent at base. *Sepals* red-brown, narrowly triangular, *c.* 4.5–7 mm long, *c.* 1.2 mm wide at base, 3–5-veined, typically ciliate. *Petals* deep red fading to brown, glabrous or ciliate, 2.5–5 mm long. *Staminal bundles* claw red, paler at base, 17–19 mm long, glabrous (sometimes pubescent at base); free filaments 6–9, emerging at different points along claw, 5–9 mm long, glabrous. *Anthers* red, with cells acute and projecting. *Style* red. *Fruits* clustered or united but not densely packed, 30–50 mm long, 10–20 mm wide.

Diagnostic features. Distinguished from most other species of *Beaufortia* by having flowers arranged around the stem in a spike (‘bottlebrush’) and acute, projecting anther cells. Distinguished from *B. sparsa* by having leaves >10 mm long and *c.* 8 (6–9) free staminal filaments, and from *B. orbifolia* by the infructescences not being closely packed, the constituent fruits being ‘peg-like’ and retaining a significant separate identity.

Selected specimens examined. WESTERN AUSTRALIA: 15.5 km E of Walpole, Nut Rd, Walpole-Nornalup National Park, 17 Jan. 1989, *A.R. Annels* 646 (PERTH); plot 5456 Boulder Hill, Two Peoples Bay area, 28 May 1992, *A.R. Annels* 2200 (PERTH); 20 miles N of Walpole on South West Hwy, 15 Feb. 1973, *P. Christensen s.n.* (PERTH); plot WFM 17, Surprise forest block, 4.4 km W of Nornalup Rd on Mountain Rd, 9 Sep. 2010, *R.J. Cranfield & B.G. Ward* RJC 24963 (PERTH); Gull Rock Rd, Upper Kalgan, 15 Dec. 1975, *E.J. Croxford* 9 (PERTH); Mt Mason off Gull Rock Rd, Nanarup Rd, 15 May 1980, *E.J. Croxford* 986 (PERTH); Bakers Junction Reserve, 20 Jan. 1985, *E.J. Croxford* 4496 (PERTH); Attwell Park Reserve, Reddale Rd, NW of Albany, 22 Feb. 1997, *E.J. Croxford* 7740 (PERTH); between Manjimup and Nannup on Pemberton Rd (Forestry Rd), Jan. 1964, *C.F. Davies* 436 (PERTH); Nornalup Rd, 37.4 km S of Muirs Hwy, 21 Jan. 1998, *R. Davis* 4885 (PERTH); site 5B, Bibbulmun Track, Boxhall Rd – Twin Creek Rd, 3 Nov. 2001, *T. Evans* 377 (PERTH); Mt Shadforth Rd, *c.* 5 km W of Denmark, 4 Dec. 1985, *D.B. Foreman* 1489 (PERTH); Marbellup Reserve, W of Albany, 25 Aug. 1978, *J.W. Green* 4874 (PERTH); Mt Martin Botanical Park Albany, 1998, *Greencorp* 10 (PERTH); Denmark 55 km W of Albany, 14 Feb. 1987, *R. & M. Hamilton* 277 (PERTH); Mt Hassell, Stirling Range, 3 July 1954, *A.R. Main s.n.* (PERTH); Mt Toolbrunup, 4 Oct. 1902, *A. Morrison s.n.* (PERTH); 10 km W of Shannon Rock near Pemberton, 18 Sep. 1973, *E.C. Nelson* ANU 17392

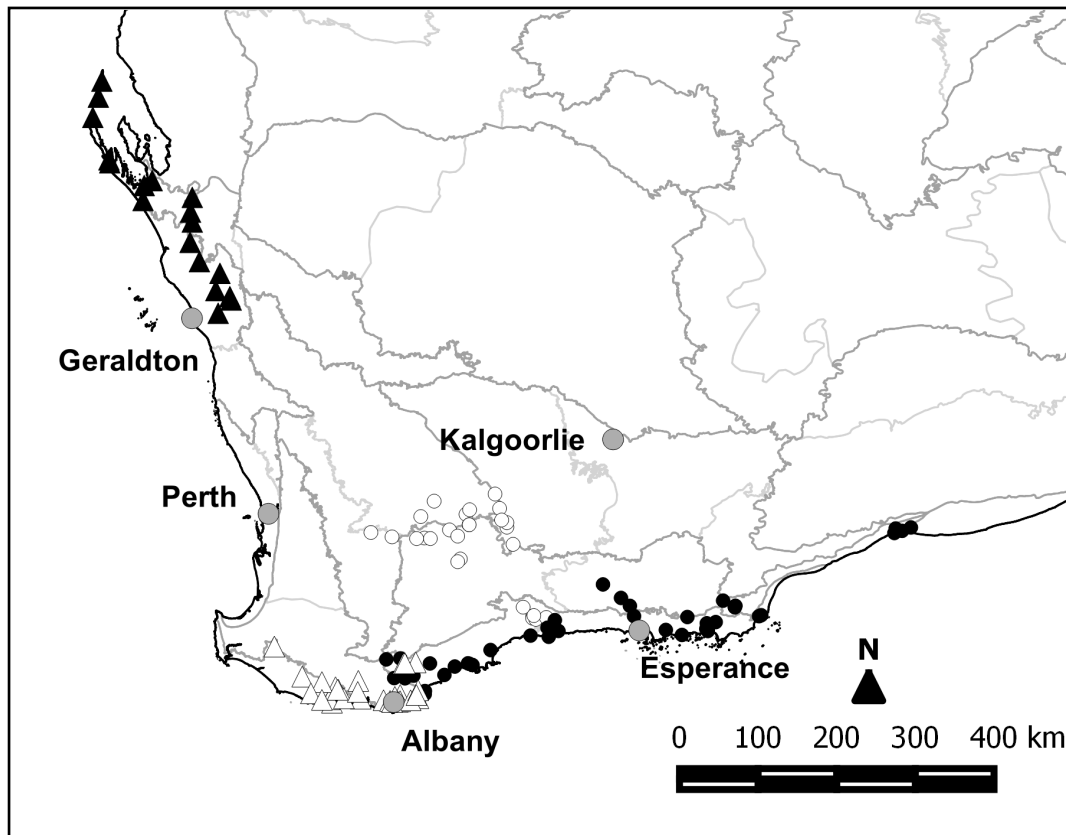


Figure 6. Distribution of *Beaufortia decussata* (Δ), *B. empetrifolia* (\bullet), *B. orbifolia* (\circ) and *B. sprengelioides* (\blacktriangle).

(PERTH); South Western Hwy 5 km E of Kent River, 13 Nov. 1985, *A.N. Rodd* 4951 (PERTH); Tick Flat, lower slopes of Mt Gardner, Two Peoples Bay Nature Reserve, 29 May 1972, *G.T. Smith & L.A. Moore s.n.* (PERTH); Stirling Range National Park, track to Bluff Knoll, 16 Sep. 1983, *J. Taylor & P. Ollerenshaw* JT 1860 (PERTH).

Phenology. Flowers the year round.

Distribution and habitat. Occurs towards the south coast in the South-West Botanical Province in the Warren bioregion, Southern Jarrah Forest subregion and the Stirling Range in the Fitzgerald subregion (Figure 6). Grows in sand or loamy sand, sand, loam or clay over laterite or granite, in lateritic gravel and shale, also occasionally in peaty and swampy ground. Usually grows as an undershrub in forest, woodland or scrub.

Common name. Gravel Bottlebrush. This common name is well-established; however, the species also occurs in other soil types.

Conservation status. Not threatened.

Beaufortia elegans Schauer, *Regelia, Beaufortia, Caloth.* 20 (1843). *Melaleuca scitula* Craven & R.D. Edwards, *Taxon* 63(3): 665 (2014). *Type citation*: 'Habitat in Nova-Hollandia austro-occidentali: in planitie arenosa, aboriginibus Quangen dicta, districti Victoriae, Martio m. 1840 defloratam legit cl. Preiss!' (*lecto*, here designated (or perhaps *holo*): LD 104997! stamped Botanical Museum 061134 Lund.).

Shrub erect, open or compact to 2 m high and 1.9 m wide. *Leaves* opposite, sessile, recurved, obovate, involute, *c.* 1.5–4.5 mm long, 1–3 mm wide, 1–3-veined, sparsely ciliate, glabrescent. *Inflorescence* a head. *Bracts* green-pale brown, triangular to ovate, *c.* 2–3 mm long and wide, 3–5-veined, ciliate, sometimes only near base. *Bracteoles* pale brown, narrow, *c.* 1 mm long, hairy, sometimes deciduous. *Hypanthium* red-brown, *c.* 2.5 mm long, hairy at base. *Sepals* red-pink or green-brown, narrowly triangular, 1–1.5 mm long, 1–3-veined, ciliate. *Petals* pink to red, obovate, *c.* 2 mm long, ciliate. *Staminal bundles* claw pink to red, (2–)3–4(–5) mm long, glabrous; free filaments 4(5–7), red-pink or mauve, darker at tips, 4–6 mm long, glabrous. *Anthers* red. *Style* pink to deep red. *Fruits* united or clustered, semi-globular, 8–12 mm long, 8–10 mm wide.

Diagnostic features. Distinguished from other *Beaufortia* species by having a combination of <8 (4–7) stamens per bundle, the free filaments approximately the same length as the claw, and the bundles 6–9 mm long and pink to red or mauve in colour.

Selected specimens examined. WESTERN AUSTRALIA: Kobby Head, 2 Nov. 1974, *J.S. Beard* 7290 (PERTH); Hope Rd Jandakot, 1.3 km W of Berrigan Drive, 5 Dec. 1996, *A. Bowden* 4 (PERTH); 15 km SE of Eneabba, 20 Oct. 1979, *R.J. Cranfield s.n.* (PERTH); NE corner of Barracea Reserve, Muchea, 16 Jan. 1996 *R.J. Cranfield* 10693 (PERTH); 17 km W of Three Springs along Nebru Rd cnr. Reed Rd, 9 Dec. 1992, *R. Cranfield & P. Spencer* 8686 (PERTH); 5 km SSW of Ironstone Knoll, 21 June 1996, *R. Davis* 1395 (PERTH); N of Wongan Hills, down track off Wongan–Ballidu Rd, 14 Jan. 1997, *R. Davis* 2009 (PERTH); Saunders St (W end), Aboriginal Community Henley Brook, 10 Dec. 1996, *M. Edgecombe* 95 (PERTH); Hi Vallee property (D. & J. Williams) Warradarge, S end of main valley, 6 Dec. 1999, *M. Hislop* 1919 (PERTH); 7.5 km E of Brand Hwy and Badgingarra Rd, 14 Nov. 1978, *R.J. Hnatiuk* 780322 (PERTH); 9.8 km S of Casuarina, 4 Dec. 1978, *R.J. Hnatiuk* 780392 (PERTH); 35.3 km S of Carnamah, 5 Dec. 1978, *R.J. Hnatiuk* 780397 (PERTH); E of Brand Hwy *c.* 14 km N of Jurien Rd, 21 Nov. 1980, *R.J. Hnatiuk* 800214 (PERTH); Passinto Rd, 35 km NE of Eneabba, 26 Oct. 2000, *T.F. Houston* 1058-2 (PERTH); Hammond Rd, Thompson Lake, 28 Nov. 1963, *A.M. James* 144 (PERTH); Gunyidi, 13 Dec. 1962, *F. Lullfitz* L1895(a) (PERTH); 38 km N of Gingin, 23 Nov. 1974, *C.I. Stacey* 359 (PERTH); 11.5 km S of Regans Ford, 23 Nov. 1974, *C.I. Stacey* 364 (PERTH); Beekeepers Reserve, 15 Nov. 1984, *R.T. Wills* 299 (PERTH); Quarry, Gabbyquoiquoi Rd, E of Byberding Rd, Goomalling, 24 Nov. 1998, *J. Young* 08 (PERTH).

Phenology. Flowers from June to January, mostly from October to December.

Distribution and habitat. Occurs in the South-West Botanical Province in the Swan Coastal Plain bioregion from near Perth northwards into the Geraldton Sandplains bioregion (Lesueur Sandplains and Geraldton Hills subregions) north almost to Geraldton and inland to adjacent parts of the Merredin subregion, e.g., Elphin, Wongan Hills, and near Goomalling (Figure 7). Grows in white, grey or yellow deep sand or sand over laterite, also on limestone.

Common name. Elegant *Beaufortia*.

Conservation status. Not threatened.

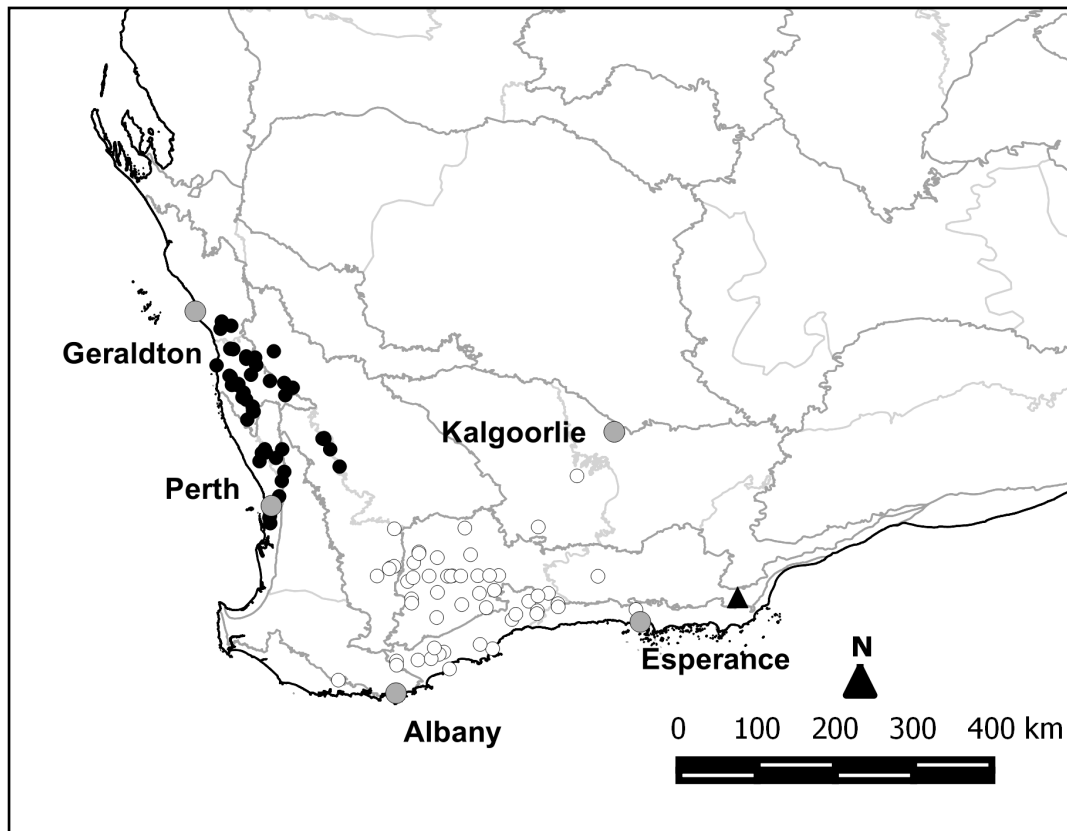


Figure 7. Distribution of *Beaufortia elegans* (●), *B. micrantha* (○) and *B. raggedensis* (▲).

Typification. I have been unable to locate any other Preiss material of *B. elegans*. While LD 104997 may indeed be the holotype, I have designated this sheet, which is annotated by Schauer, as the *lectotype*. The same approach has been adopted below for both *B. micrantha* and *B. squarrosa*.

Notes. Red-flowered plants predominate in the northern part of the range and pink-mauve ones in the south; however, both can grow in the same place. Sepals are longer and narrower in the southern parts of the species' distribution. *Beaufortia elegans* differs from *B. bicolor*, with which it is sympatric near Badgingarra, in having uniform-coloured flowers, and ciliate rather than hairy sepals and petals.

Beaufortia empetrifolia (Rchb.) Schauer, *Regelia, Beaufortia, Caloth.* 21 (1843). *Melaleuca empetrifolia* Rchb., *Iconogr. Bot. Exot.* 2: 1, t. 102 (1829). *Beaufortia micrantha* var. *empetrifolia* (Rchb.) Benth., *Fl. Austral.* 3: 170 (1867). *Type citation:* 'Habitat in Nova Hollandia austro-occidentali: ad Sinum Regis Georgii III. CUNNINGHAM.' (*lecto*, here designated: t. 102 in H.G.L. Reichenbach, *op. cit.*).

Beaufortia microphylla Turcz., *Bull. Soc. Imp. Naturalistes Moscou* 22(2): 24 (1849). *Beaufortia elegans* var. *minor* Benth., *Fl. Austral.* 3: 169 (1867). *Type citation:* [Western Australia] 'Drummond IV No. 64' (*holo*: KW 001001372 digital image!; *iso*: K 000793626 digital image!, P 00507442!, BM 00896236!).

Compact *shrub* typically to 1 m high, occasionally taller. *Leaves* opposite, typically spreading at 30°–70° from stem but occasionally appressed, sessile, obovate, involute, 1.5–3 mm long, 0.8–1.7 mm wide, 3–5-veined, glabrous or sparsely pubescent (particularly young leaves). *Inflorescence* a head. *Bracts* pale brown, triangular, *c.* 1.5 mm long and wide, 3–5-veined. *Bracteoles* *c.* 1 mm long, hairy. *Hypanthium* deep red, 1.4–2.5 mm long, glabrous. *Sepals* brown or deep red, *c.* 0.6 mm long, 1–3-veined, glabrous or ciliate. *Petals* pink to red, 0.9–1.5 mm long, ciliate. *Staminal bundles* claw pink to red, 1.3–5 mm long, hairy in lower 1/2 mostly on inner surface; free filaments (3)5, pink to red to mauve, 2.5–5 mm long. *Anthers* red, sometimes sparsely hairy. *Style* pink. *Fruits* woody, united, 6.5–11.5 mm long, *c.* 5–6 mm wide.

Diagnostic features. Distinguished from other *Beaufortia* species by having >1 mm wide, involute, spreading leaves (30° to 70° from stem but occasionally appressed).

Selected specimens examined. WESTERNAUSTRALIA: 23 km W of junction of Esperance–Norseman and Ravensthorpe Rds, *c.* 30 km NW of Esperance P.O., 28 Aug. 1974, *A.C. Beauglehole* 49322 (PERTH); near intersection Parmango and Howick Rds, Reserve 32128, Oct. 1984, *M.A. Burgman* 4208 (PERTH); Cheyne Beach, 5 Feb. 1970, *W.H. Butler s.n.* (PERTH); Southern Ocean West Rd, 500 m W of Hopetoun to Ravensthorpe Rd, 5 Oct. 1988, *K.J. Cowley & F.C. Quinn* 133 (PERTH); 3 km W of Israelite Bay ruins, 7 Jan. 1979, *M.D. Crisp* 4882 (PERTH); Israelite Bay, eastern end, 12 Sep. 2005, *M.D. Crisp* 9928 & *L.G. Cook* (PERTH); South Stirling Rd, NE of Albany, 14 Jan. 1979, *E.J. Croxford* 143 (PERTH); near dune, Devil’s Creek Rd and Gairdner Rd, Bremer Bay, 21 June 1986, *E.J. Croxford* 4973 (PERTH); Millars Point Rd, 2.2 km N of camp site, 3 Feb. 1998, *R. Davis* 4938 (PERTH); 20.6 km S of Cocklebiddy, 3 June 2000, *R. Davis* 9202 (PERTH); Israelite Bay Rd 75 miles from Esperance, 6 Dec. 1960, *A.S. George* 2015 (PERTH); Twilight Cove, Great Australian Bight, 16 Oct. 1966, *A.S. George* 8563 (PERTH); 2 km SSE Pillenorup Swamp, Stirling Range, 12 May 1982, *G.J. Keighery* 4850 (PERTH); 8 km N of Eyre, 4 Oct. 1984, *G.J. Keighery* 7915 (PERTH); quadrat YB2(A), 1.5 km W of Thomas River mouth, Cape Arid National Park, 23 Nov. 1988, *G. Keighery & J. Alford s.n.* (PERTH); 15 miles W of Bremer Bay, 28 Mar. 1964, *K. Newbey* 1255 (PERTH); 17.3 miles from Cape Le Grand on Esperance Rd, 9 April 1966, *E.M. Scrymgeour* 424 (PERTH); Esperance Pine Plantation, 10 July 1940, *L.J. Teakle s.n.* (PERTH); SRNP C4, Murray site, 50 m E of Hume Track on Madyerip Track, S from road, 6 Dec. 1988, *R.T. Wills* 931 (PERTH); 14 km inland of Point Ann by road, Fitzgerald River National Park, 24 Mar. 1987, *A.J.G. Wilson* 33 (PERTH).

Phenology. Flowers throughout the year.

Distribution and habitat. Occurs towards the south coast in the South-West Botanical Province from near the Porongurup and Stirling Ranges in the Fitzgerald subregion eastwards near the south coast in the Fitzgerald and Recherche subregions, inland in to the Eastern Mallee subregion and eastward in the same subregion to near Cocklebiddy and Eyre (Figure 6). Grows in sand or lateritic gravel.

Common name. South Coast *Beaufortia*.

Conservation status. Not threatened.

Typification. No collection of a *Beaufortia* by Allan Cunningham from King George Sound has been found, leaving no option other than designating the plate in Reichenbach as the lectotype.

Notes. *Beaufortia empetrifolia* has uniform-coloured flowers. *Beaufortia schaueri* also has pink

flowers, but the base of the staminal claw and the tip of the free filaments are typically deep pink to red. *Beaufortia schaueri* has longer leaves (3.5–5.5 mm long vs *c.* 1.5 mm long in *B. empetrifolia*) and longer free filaments (6–7.5 mm long in *B. schaueri* vs 2.5–5 mm long in *B. empetrifolia*). *Beaufortia micrantha* has small (<2 mm long) leaves, appressed to the stem.

Beaufortia eriocephala W.Fitzg, *J. Western Australia Nat. Hist. Soc.* 2(2): 23 (1904). *Melaleuca lachnocephala* Craven & R.D.Edwards, *Taxon* 63(3): 664 (2014). *Type citation*: ‘Moorra [Western Australia], in ironstone gravel. – E.W. Hursthouse, Oct., 1903.’ (*holo*: NSW 543576!).

Erect, dense *shrub* to 0.5 m high and 0.4 m wide. Juvenile *stems* hairy. *Leaves* opposite, sessile, linear to narrowly-lanceolate, flat or involute, 5–10 mm long, 0.4–0.7 mm wide, ciliate or hairy, glabrescent. *Inflorescence* a head, globular. *Bracts* red, triangular, *c.* 3.5 mm long, 3 mm wide, acuminate, 5-veined, hairy. *Bracteoles* pale brown to red, *c.* 1.5–2 mm long, hairy. *Hypanthium* 3–4 mm long, 1.6–1.7 mm wide, hairy. *Sepals* pink-brown to red, linear, *c.* 2–2.5 mm long, 0.2 mm wide, no veins, hairy. *Petals* red-brown, obovate, *c.* 2 mm long, ciliate. *Staminal bundles* claw deep red, 2.5–3.5 mm long, hairy; free filaments 3–5, red to purple, 3–4.5 mm long, glabrous. *Style* red. *Fruits* clustered, peg-like, *c.* 8.5–10 mm long, 6–10.5 mm wide, glabrescent.

Diagnostic features. Differs from other *Beaufortia* species by possessing woolly inflorescences, hairy bracts, ciliate to hairy younger leaves, and narrow (<1 mm wide) mature leaves.

Selected specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 10 Oct. 1995, *A.R. Bean* 9020 (PERTH); 18 Sep. 1976, *J.S. Beard* 7876 (PERTH); 17 Oct. 1996, *N. Casson & N. Harris* MP 10.73 (PERTH); 17 Sep. 1983, *R.J. Cranfield* 4115 (PERTH); 9 Dec. 2002, *A.D. Crawford* 345 (PERTH); 13 Sep. 1988, *E.A. Griffin* 5113 (PERTH); 8 Nov. 1990, *E.A. Griffin* 6059 (PERTH); 17 Dec. 1992, *E.A. Griffin* 8524 (PERTH); 7 Nov. 2006, *S. Kern & A. Rea* 12092 (PERTH); 12 Nov. 1985, *G.J. Keighery & J.J. Alford* 72 (PERTH); 29 Oct. 1995, *B.J. Lepschi & T.R. Lally* 2246 (PERTH); 24 Oct. 2002, *A.J. Lin* 9 (PERTH 06418678); 24 Nov. 1993, *S. Patrick* SP1657 (PERTH); Sep. 1948, *D.H. Perry s.n.* (PERTH); 25 Oct. 2007, *D. Rayner & P. Schmucker* M 1007-34 (PERTH); 1 Dec. 1993, *J.L. Robson* JLR 611 (PERTH); 3 Nov. 1962, *R.D. Royce* 7692 (PERTH); 13 Nov. 2005, *A. Sole & H. Green* KB 77 (PERTH); 20 June 1999, *J.E. Wajon* 56 (PERTH).

Phenology. Flowers from October to December.

Distribution and habitat. Has a small geographic distribution of 215 km north-south, primarily in the Dandaragan Plateau subregion and immediately adjacent Lesueur Sandplain subregion, from near Badgingarra south to a disjunct population in St Ronans Nature Reserve in the Northern Jarrah Forest subregion (Figure 8). Grows in shallow sand over laterite, lateritic soils and gravelly loam.

Common name. Woolly *Beaufortia*.

Conservation status. Priority Three under Department of Parks and Wildlife Conservation Codes for Western Australian Flora (Jones 2015). This species has a linear range of 215 km and occurs at few localities. Its main range was probably the Dandaragan Plateau, an area with a high proportion cleared for farming. It does occur in a few nature reserves.

Notes. *Beaufortia eriocephala* appears to be related to *B. purpurea*, but has woolly inflorescences,

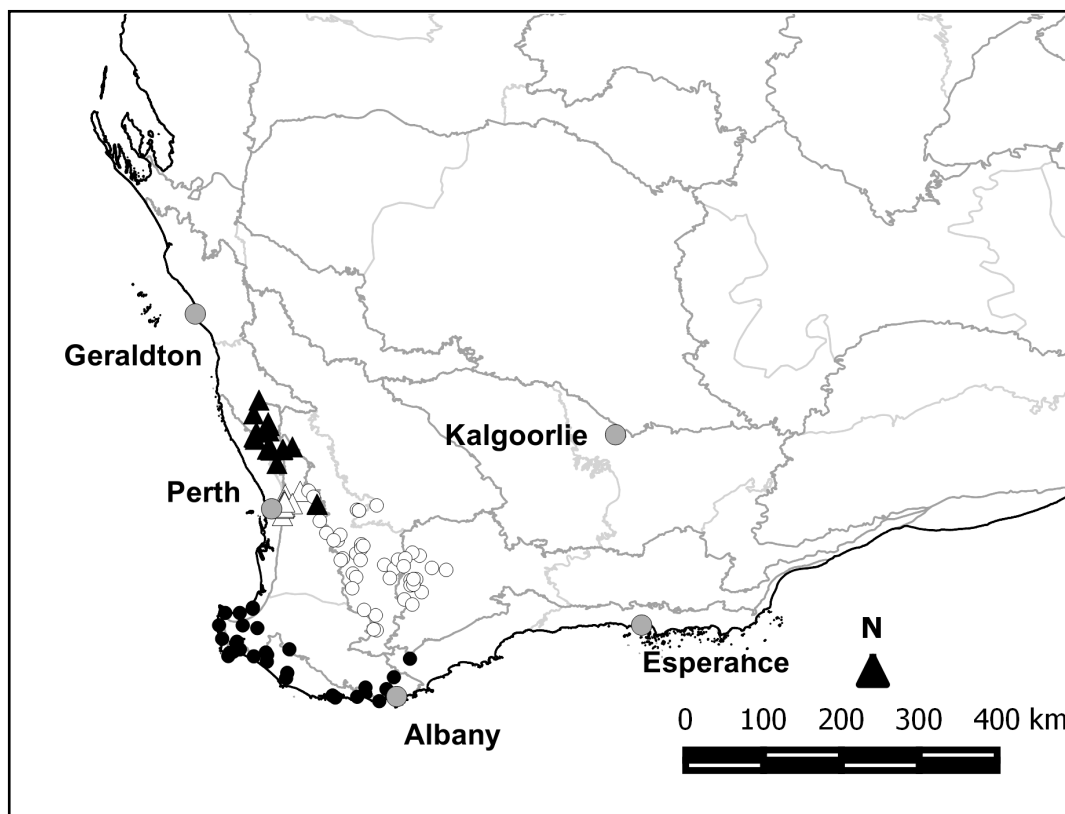


Figure 8. Distribution of *Beaufortia eriocephala* (▲), *B. incana* (○), *B. purpurea* (△), and *B. sparsa* (●).

villous bracts, and ciliate to hirsute younger leaves (glabrous in *B. purpurea*), which are narrower than in *B. purpurea* (<1 mm wide vs 1.5–4.5 mm wide in *B. purpurea*).

Beaufortia incana (Benth.) A.S.George, *Nuytsia* 1: 290 (1972). *Beaufortia macrostemon* var. *incana* Benth., *Fl. Austral.* 3:167 (1867). *Melaleuca cinerea* Craven & R.D.Edwards, *Taxon* 63(3): 664 (2014). *Type citation*: ‘Swan River, Drummond’ [Western Australia] (*holo*: K 000793629 digital image!).

Shrub erect to spreading, up to 2.5 m high and 1.5 m wide. *Leaves* opposite or in opposite clusters, sessile, greyish-green or bluish-grey, hairy, often markedly dimorphic with some leaves (not always present, mostly on old stems) ovate, *c.* 6–8 mm long, 1.5–5 mm wide and faintly 3-veined, but most leaves (usually on side shoots or new stems) linear, 4–10 mm long and <2 mm wide. *Inflorescence* a head. *Bracts* often absent, triangular *c.* 2 mm long and wide, yellow-brown, 3-veined, hairy. *Bracteoles* green to red, *c.* 2 mm long, tomentose. *Hypanthium* deep red, villous. *Sepals* narrowly triangular, 1.5–5 mm long, 0.8–1 mm wide, no veins, hairy. *Petals* pale green to yellow-brown to red-brown, ciliate, hairy near base, 2.5–4 mm long. *Staminal bundles* claw proximally green or yellow-brown to red, distally deep red with hairy lower half usually on inner surface only, 8–12 mm long; free filaments 3, 2.5–3.5 mm long, glabrous. *Style* deep red. *Fruits* united, *c.* 10 mm long, 8–10 mm wide.

Diagnostic features. Distinguished from other *Beaufortia* spp. by having greyish green, grey or bluish grey, hairy leaves and staminal bundles with 3 free filaments that are much shorter than claw.

Selected specimens examined. WESTERN AUSTRALIA: 8.1 km W of Tarin Rock, on top of ironstone hill, 28 July 1980, *J.D. Briggs* 674 (PERTH); 11.5 km ESE of Popanyinning, 21 Oct. 1983, *R.J. Cranfield* 4536 (PERTH); 3.7 km W of Great Southern Hwy on the Contine Rd, 18 April 2000, *L.A. Craven, M.M. Byrne, L.M. Broadhurst, W.E. O'Sullivan* 10324 (PERTH); Dryandra Forest, Lol Gray picnic area, 21 Sep. 2005, *M.D. Crisp* 10021 & *L.G. Cook* (PERTH); Dongolocking road reserve, near Dwelyerdine Rd, Shire of Dumbleyung, 28 Sep. 1985, *E.J. Croxford* 4182 (PERTH); 17 miles W of Lake Grace, 15 Dec. 1960, *A.S. George* 2287 (PERTH); S of crossroads W of Peringillup, 30 Sep. 1971, *A.S. George* 11069 (PERTH); rail line firebreak, Shire of Wickepin, Harrismith, 25 Nov. 1993, *D. Greeve s.n.* (PERTH); Numbat Rd between H and J lines, H-line, Tutanning Reserve, 15 Dec. 1967, *G. Heinsohn s.n.* (PERTH); natural bush area of Pingelly-Wickepin Rd, 24 Oct. 1994, *E. Kabay* 889 (PERTH); 17 km SW of Northam, 1 Aug. 1985, *G.J. Keighery & J.J. Alford* 468 (PERTH); Dryandra State Forest, N of Tomingley Rd, 15 Oct. 1997, *T.R. Lally & B.R. Fuhrer* TRL 1476 (PERTH); 53.05 km. 8 km NNE of Kukerin, 5 Nov. 1992, *S.A. McNee* DY 402 (PERTH); 11 miles NW of Nyabing, 14 Nov. 1969, *V. Mann (with A.S. George)* 162 (PERTH); Boyagin Nature Reserve, 4 km along Boyagin Rd from James Rd, 12 Nov. 1990, *R.W. Purdie* 4104 (PERTH); Property of Bill Dawes, S of Kirk Rd, Shire of Wickepin Williams Location 11562, 4 Oct. 2005, *R.G. Rees* 178 (PERTH); Roe Location 2521, corner of S and W side, private bush, 5 Nov. 1995, *M. & J. Stewart* 1 (PERTH); Newman Block State Forest 52 Highbury, 20 Oct. 1998, *G. Warren* 131 (PERTH); Wandoo National Park, powderbark site (site 1), 2 Oct. 2007, *M. Wheeler, P. Armstrong et al.* MW 250 (PERTH).

Phenology. Flowers year round, but less so in winter.

Distribution and habitat. Widespread in the southern two-thirds of the Katanning subregion and just west of its boundary in the Northern Jarrah Forest subregion; also eastward to near Lake Grace in the Western Mallee subregion (Figure 8). Grows in lateritic soils, including gravely loam or clay, lateritic rock (ironstone) above breakaways and on hill tops, and sand over laterite. Grows in closed heath and scrub, and as undershrubs in woodland. There is a naturalised population on the Brookton Highway about half-way between Karagullen and the Beverley turnoff, along the southern verge for a hundred metres or more.

Common name. Grey-leaved *Beaufortia*.

Conservation status. Not threatened.

Notes. Leaves are very variable, tending to be larger, wider and more blue-grey in the north-west part of range and to have reduced indumentum in north-eastern and southern parts of range.

An atypical specimen from Nyabing townsite (*A. Coates* 5118 & *J. Ward*), has greyish green pubescent leaves, 5–6 mm long, 0.6–0.7 mm wide; trullate, pinkish brown to green hairy bracts that are 2.5 mm long and 3.5 mm wide; *c.* 1 mm long green bracteoles; acutely triangular pubescent sepals; pale brown or pink, obovate, pubescent, *c.* 2 mm long petals; 5–6 mm long staminal claws that are pale pinkish brown distally and pink to red proximally with the proximal half lanate on inner surface; five red, *c.* 5 mm long, glabrous, free filaments that emerge from the staminal claw at different places; fruits that are loosely united. It differs from *B. incana* by having five free filaments that are about the same length as the staminal claw and may be a hybrid between *B. incana* and *B. puberula*.

Another atypical specimen, from east of Lake Grace (*J.S. Beard* 2163), has 4–5 mm long and 0.5 mm wide glabrescent leaves; green, ciliate, 3–5-veined triangular sepals; pale pink, ovate, ciliate petals;

4–6 mm long staminal claws that are hairy on inner surface, and three or rarely five staminal filaments that are pale pink proximally and darker near tip. Fruits are absent. This specimen may be a hybrid between *B. incana* and *B. schaueri*.

Beaufortia kwongkanicola A.A.Burb., *sp. nov.*

Type: east of Chatfield Clarke Road on Green Head Road, Western Australia, 8 October 1997, *B.P. Richardson* 0035 (*holo:* PERTH 04948831; *iso:* CANB).

Shrub to 1 m high and 1 m wide. *Leaves* opposite but usually crowded, sessile, narrowly ovate to linear, involute, 3–9 mm long, 1–2.5 mm wide, 5-veined, glabrous (in some specimens the juvenile leaves are sparsely hairy). *Inflorescence* a head. *Bracts* red to green-brown, triangular, *c.* 4–4.5 mm long and wide, 5–9-veined, ciliate to hairy. *Bracteoles* *c.* 2 mm long, hairy. *Sepals* green to brown, triangular, *c.* 1 mm long and wide, 1-veined, ciliate. *Petals* yellow to orange, obovate, *c.* 3 mm long, ciliate. *Staminal bundles* claw deep red to purple, 3–8 mm long, villous on inner surface; free filaments (5–)7, emerging from claw at different points (typically 2 first then another 2, then 3), 3–6 mm long. *Style* red. *Fruits* united, 10–13.5 mm long, *c.* 8 mm wide.

Diagnostic features. Distinguished from other *Beaufortia* species by having large, deep purple inflorescences, a long staminal claw (>4 mm) that is hairy on the inner surface, and typically 7 free filaments that emerge from the claw at different points.

Selected specimens examined. WESTERNAUSTRALIA: Badgingarra, 18 Dec. 1962, *J.S. Beard* 2479 (PERTH); Jurien Bay north, 11 miles from Dandaragan, 29 Aug. 1938, *W.E. Blackall* 3680 (PERTH); Mt Michaud, on NW facing slope, on track running E-W (*c.* 2 km), 3 July 1986, *A.P. Brown* 296 (PERTH); Coorow-Green Head Rd, 50 km W of Coorow, 30 Sep. 1997, *B.A. Fuhrer* 97/84 (PERTH); Western Titanium leases, 8 km S of Eneabba, 25 Oct. 1978, *E.A. Griffin* 1176 (PERTH); Hi Vallee property (D. & J. Williams) Warradarge, short loop walk trail, southern end of main valley, 23 Oct. 1999, *M. Hislop* 1710 (PERTH); site 153. P. Toster and P. Phillips property, W side of Coalara Rd, *c.* 1 km [N] of Boothendarra Rd, NW of Watheroo, 22 Sep. 2005, *M. Hislop & M. Griffiths* WW 153 - 29 (PERTH); Coomallo Creek, 15 Dec. 1976, *R.J. Hnatiuk* 761405 (PERTH); 11 km E of Coorow Rd-Brand Hwy junction, 19 Oct. 1978, *R.J. Hnatiuk* 780280 (PERTH); 10.3 km E of junction of Brand Hwy and Badgingarra Rd, on North West Rd, 14 Nov. 1978, *R.J. Hnatiuk* 780331 (PERTH); Watheroo Rd just W of junction with Winjardie Creek Rd, 14 Nov. 1978, *R.J. Hnatiuk* 780342 (PERTH); Watheroo National Park, 11 Nov. 1986, *I.R. McGill* 39 (PERTH); 30 km from Three Springs along road to Eneabba, 26 Oct. 1990, *R.W. Purdie* 3799 (PERTH).

Phenology. Flowering recorded between July and November.

Distribution and habitat. Occurs in the South-West Botanical Province in the Lesueur Sandplain subregion (Figure 5), often known as the northern kwongkan. Grows in grey, white and yellow sandy soils, often over laterite, sometimes in lateritic soils; one record from sandstone.

Common name. Lesueur Beaufortia.

Conservation status. Not threatened.

Etymology. Refers to the species' occurrence in kwongkan vegetation; see Hopper (2014) for orthography and spelling of kwongkan.

Notes. Distinguished from *B. bracteosa* by its larger flowers, which are typically deep red-purple rather than red-maroon, a longer staminal claw (>4 mm) that is villous on only the inner surface, and typically seven free filaments per staminal bundle (five in *B. bracteosa*).

Beaufortia macrostemon Lindl., *Sketch Veg. Swan R.* 10 (1839). *Melaleuca macrostemon* (Lindl.) Craven & R.D. Edwards, *Taxon* 63(3): 664 (2014). *Type:* not cited [Swan River, 1839 [1835–1838], *J. Drummond s.n.*] (*syn:* CGE 05225 (right hand specimen) digital image!, BM 000896244!, BM 000896245!).

Low, often multi-stemmed *shrub*, 0.2–0.5 m high, occasionally taller. *Leaves* opposite, linear to lanceolate, 10–12 mm long, 1.2–2 mm wide, ciliate or hairy, sometimes glabrescent. *Inflorescence* a head. *Bracts* often absent, green or brown-green, narrowly triangular, *c.* 5–7 mm long, *c.* 2 mm wide at base, 1-veined, hairy. *Bracteoles* reddish green, *c.* 2.5–3 mm long, hairy. *Hypanthium* green-yellow or green-brown, hairy, 2–5 mm long, 1.5–3 mm wide. *Sepals* triangular, red-brown at base with long, red-brown or green, acute tip, *c.* 3.5 mm long, 1-veined, ciliate or hairy. *Petals* pale red-brown to green, obovate, 2.2–2.7 mm long, hairy. *Staminal bundles* claw pale yellow-brown to bright red, 7–12 mm long, hairy near base, more so on inner surface; free filaments 3, emerging from the claw at same point, red, 3–7 mm long. *Style* red. *Fruits* united, *c.* 10 mm long, *c.* 10 mm wide.

Diagnostic features. Distinguished from other *Beaufortia* species by typically having multiple stems growing from a lignotuber, the younger leaves being hairy, and having 3 free filaments per staminal bundle.

Selected specimens examined. WESTERN AUSTRALIA: site 5 down Surveyors Rd, off Yarra Rd, 4 km E of Beraking, 27 Nov. 1996, *M.G. Allen* 1661 (PERTH); Toodyay-Midland Junction Rd, near Gidgegannup, 30 Nov. 1961, *T.E.H. Aplin* 1342 (PERTH); Ellis Brook Valley Reserve, 16 Nov. 1996, *H. Bowler* 55 B (PERTH); Darling Range E of Chittering Valley, 28 Dec. 1971, *N.T. Burbidge* 7979 (PERTH); Hartfield Rd, Forrestfield, 17 Oct. 1978, *R.J. Cranfield* 861 (PERTH); Reserve 6268, Burnside Rd, 13 km SW of Pinjarra, 18 Nov. 1993, *N. Gibson & M.N. Lyons* 1393 (PERTH); 2 km E of Lower Hotham Rd along Forty Hollow Rd, Saddleback State Forest (Grid Ref. DL85), 10 Sep. 1980, *D. Halford* 801050 (PERTH); Fairbridge Farm off a track from Fairbridge Rd, Swan Bioplan remnant 429/5-2, 13 Dec. 2005, *B.J. Keighery* 2857 (PERTH); Kinsella, 42 km S of Perth on Albany Hwy, 12 Jan. 1988, *G.J. Keighery* 9850 (PERTH); Lambert Lane, Byford, 29 Dec. 1992, *G.J. Keighery* 12453 (PERTH); Muchea, Dec. 1959, *H. Kretchmar* CAG 12276 (PERTH); opposite 65 mile peg Great Northern Hwy [24.5 km N of Bindoon on Great Northern Hwy], 12 Dec. 1962, *F. Lullfitz* L1873 (PERTH); North Dandalup Dam on W boundary of State Forest, *c.* 200 m S of Hines Rd, 24 Nov. 1996, *A. Markey* 272 (PERTH); Beenup, 12 Nov. 1907, *A. Morrison s.n.* (PERTH); Swan View, 6 Oct. 1959, *R.D. Royce* 6029 (PERTH); Helena Valley - Gorge Hill and road, 19 Nov. 1978, *J. Seabrook* 623 (PERTH); Joshua Mews Bushland Reserve, Brigadoon, 7 Dec. 2007, *K.R. Thiele* 3445 (PERTH).

Phenology. Flowers in spring and summer from September to January.

Distribution and habitat. Occurs in a relatively small part of the South-West Botanical Province in the Jarrah Forest bioregion from near Mt Saddleback northward to 25 km north of Bindoon; also near the

base of the Darling Scarp on the Pinjarra Plain (marginally in the Perth subregion). Most abundant on and near the Darling Scarp (Figure 5). Grows in lateritic, alluvial and colluvial soils.

Common name. Darling Range *Beaufortia*.

Conservation status. Not threatened.

Notes. The syntypes are labelled 1839 but were collected by James Drummond as part of his first unnumbered collection (1835–38) from between Perth, Toodyay and Mogumber (George 2009). One of only two species of *Beaufortia* known to be capable of regenerating from lignotuberous root stock. Usually seen as a multi-stemmed, low shrub that has regenerated after fire.

Beaufortia micrantha Schauer, *Regelia, Beaufortia, Caloth.* 22 (1843). *Melaleuca micrantha* (Schauer) Craven & R.D. Edwards, *Taxon* 63(3): 664 (2014). *Type citation:* ‘Habitat in Nova-Hollandia austro-occidentali. In glareosis sterilibus ad radices collium Konkoberup [Mt Melville], promontorii Cape-Riche, Novembri m. a. 1840, leg. cl. Preiss!’ [*L. Preiss* 246] (*lecto*, here designated (or perhaps *holo*): LD 1004814 digital image!).

Regelia adpressa Turcz., *Bull. Soc. Imp. Naturalistes Moscou* 10: 25 (1852). *Type citation:* ‘Drum. IV. n. 63’ [Western Australia] (*holo*: KW 001001369 digital image!).

Low, multi-stemmed *shrub* typically up to 0.5 m high occasionally taller. *Stems* glabrescent. *Leaves* opposite, sessile, typically appressed, sometimes overlapping, triangular, 1-veined or no obvious venation, 1–2 mm long, 0.7–2 mm wide, sparsely tomentose adaxially, abaxially glabrous or sparsely ciliate. *Inflorescence* a head. *Bracts* usually absent, if present triangular, 5-veined, glabrous. *Bracteoles* c. 1 mm long, narrow, hairy. *Hypanthium* deep red, tomentose to velvety, 1–1.5 mm long, 0.6–1 mm wide. *Sepals* red-brown, small, triangular, c. 0.5–1 mm long, 1-veined, ciliate. *Petals* pink to mauve, pale green or pale yellow, ovoid, 0.5–0.8 mm long, ciliate. *Staminal bundles* claw deep pink, 0.6–1 mm long, sometimes hidden by petals, glabrous or shortly hairy at base; free filaments 3, red to purple, emerging from claw close together, 1.5–3 mm long, glabrous. *Anthers* red ageing to white at dehiscence. *Style* red. *Fruits* united, ovoid, 8–11 mm long.

Diagnostic features. Separated from other *Beaufortia* species by having appressed leaves 1–2 mm long, and 3 free filaments that are much longer than staminal claw.

Selected specimens examined. WESTERN AUSTRALIA: Dragon Rocks Nature Reserve, 18 June 1998, *E. Bennett* DS 2.6 (PERTH); VCL No. 9, Site 2, S of Harrismith townsite, within the Toolibin Catchment, 23 Nov. 1999, *E. Bennett & T. Sleep* 9.028 A (PERTH); N slope of Ravensthorpe Range, along firebreak W of N-S track 0.6 km from junction with track running along crest from Archer Driver, 16 Mar. 2001, *M. Bennett* 651 (PERTH); Water Reserve 20274, Site 1, Dam 438, adjacent to Magenta–Giles Rd, S of Newdegate, 3 Nov. 2006, *A. Coates* AC 5443 (PERTH); 13 km N of Springdale along Bedford Harbour Rd, N of Lake Shaster, 7 Nov. 1992, *L.A. Craven, F.A. Zich & A.M. Lyne* 9065 (PERTH); Mycock’s farm, Tarin Rock Rd, 18 Oct. 1982, *E.J. Croxford* 2340 (PERTH); Gordon Inlet Rd, Bremer Bay Rd, Albany E, 28 Oct. 1985, *E.J. Croxford* 4331 (PERTH); hill above S bank, Pallinup River, Marra Bridge, Hassell Hwy, Albany E, 1 Nov. 1988, *E.J. Croxford* 6252 (PERTH); Tarin Rock Rd, Kulin - Tarin Rock, 25 Oct. 1996, *B.A. Fuhrer* 96/107 (PERTH); Kojonup Location 6180, E side of Merilup Rd, 29 Oct. 1998, *M.S. Graham* 1016 (PERTH); NE of Hyden, 13 km W of King Rocks and 8 km E of ‘The Humps’, 12 Oct. 1991, *W. Greuter* 22726 (PERTH); Devil’s Creek

Rd, Gairdner River, 19 May 1981, *B.E. Hall* 15 (PERTH); 9.5 km E along North Woogenilup Rd from junction with Woogenilup Rd, N side of road, 20 Feb. 2001, *E.J. Hickman* EJH 503 (PERTH); railway line between Toolibin and Harrismith, just E of Baker Rd crossing, 3 Nov. 1994, *E.D. Kabay* 1044, (PERTH); Tectonic Resources Kundip lease, 16 km SE of Ravensthorpe in the Oldfield District, 1 May 2006, *D. Little* 12239 (PERTH); Kent, 23 May 2000, *R. Meissner* KSV 82 (PERTH); 5 km along Chillinup Rd from Cape Rd, Wellstead, 12 Nov. 2000, *P.D. Moir* 127 (PERTH); Cape Riche - dunes above beach, 16 Nov. 1985, *J.M. Powell* 3243 (PERTH); Roe District: 8.5 km S from Pingaring along road to Lake Grace, 31 Oct. 1990, *R.W. Purdie* 3917 (PERTH); Hamersley Rd, Fitzgerald River National Park, 6 Dec. 1997, *R. Schuh, G. Cassis, Brailovsky, Asquith* 97-17 (PERTH); adjacent to South-west Ravensthorpe Greenstone Belt survey site SWRV31, 28 Oct. 2009, *W.A. Thompson & J. Allen* 2096 (PERTH).

Phenology. Flowers throughout the year, but mostly in September, October and November.

Distribution and habitat. Occurs in the South-West Botanical Province mainly in the Western Mallee and Esperance Plains subregions, but extending into the Katanning subregion. A few records eastward to near Esperance in the Recherche subregion and north-eastwards in to the Southern Cross subregion, with one record from between Rocky Gully and Walpole in the Southern Jarrah Forest subregion (Figure 7). Grows in sand or sand mixed with laterite and other stony soils.

Common name. Small-leaved *Beaufortia*.

Conservation status. Not threatened.

Beaufortia orbifolia F.Muell., *Fragm.* 3: 110 (1862). *Melaleuca orbifolia* (F.Muell.) Craven & R.D.Edwards, *Taxon* 63(3): 664 (2014). *Type citation:* ‘In declivibus montis East Mount Barren. Maxw.’ [Western Australia] (*lecto*, here designated (or perhaps *holo*): BM 000896248!).

Shrub 0.6–3.5 m high, up to 2 m wide. *Leaves* opposite, sessile, ovate, involute, 5–6.5 mm long, 4.5–6 mm wide, 7–9 veined, glabrous. *Inflorescence* a spike. *Bracts* green, triangular, c. 2 mm long and wide, 3-veined, glabrous. *Hypanthium* red-brown, 2.5–3.5 mm long, 2.3–2.5 mm wide, hairy. *Sepals* green to brown, c. 1.5 mm long and wide, 1-veined, glabrous. *Petals* pale yellow to green, ovoid, 1.5–3 mm long, glabrous. *Staminal bundles* claw yellow-green proximally (occasionally red, especially in plants from the southern end of the species’ range), red distally, 6.5–10 mm long, proximally hairy at least on inner surface, distally glabrous; free filaments 3–5, red (sometimes yellow-green at base), 5–10 mm long. *Anthers* deep red to black. *Style* red. *Fruits* united, closely packed, 25–35 mm long, 6–10 mm wide.

Diagnostic features. Distinguished from most other *Beaufortia* species by having typically bi-coloured flowers (with a yellow-green staminal claw and red free filaments) arranged around the stem in a ‘bottlebrush’. Distinguished from *B. decussata* and *B. sparsa* by having only 3–5 stamens per bundle and occurring in the wheatbelt south to Ravensthorpe, and further distinguished from *B. sparsa* by having opposite leaves.

Specimens examined. WESTERNAUSTRALIA: Muntadgin, Sep. 1945, *E.T. Bailey* 636 (PERTH); Tank North Rd (Wadderin), Dec. 1997, *J. Buegge* D19 (PERTH); Fulwood Rd, c. 1 km from Brookton Hwy, Corrigin Shire, 18 Dec. 1996, *R. Campbell* 326 (PERTH); Bandalup Hill, 31 km NE of Ravensthorpe, 16 Feb. 1998, *G.F. Craig* 3476 (PERTH); 7 km ESE of Ravensthorpe, 8 May 1996, *R. Davis* 703

(PERTH); Back Rd hilltop, above Big Creek, c. 2.5 km NW of Emu Proof Fence and 2 km NE of Williamson Rd, Woolocutty area, 20 Nov. 1999, *J.M. Flint* 139 (PERTH); 12 km NE of Narembeen on Tank North Rd, 21 Nov. 1985, *D.B. Foreman* 1149 (PERTH); 32.5 km N of Hyden on Hyden North Rd, 22 Nov. 1985, *D.B. Foreman* 1172 (PERTH); Mt Holland, 10 Dec. 1964, *C.A. Gardner* 15916 (PERTH); about 2.1 km SW of Mt Caudan, Parker Range, 16 Oct. 1994, *N. Gibson & M. Lyons* 2305 (PERTH); Ravensthorpe Range, highest point on road N of Elverdton Copper Mine, 28 Sep. 1975, *J.W. Green* 4516 (PERTH); Mt Desmond overlooking Kundip, 10 km S of Ravensthorpe, 25 May 1983, *G.J. Keighery* 6112 (PERTH); on N side of Jilakin–Flat Rocks Rd, 1.8 km W of Buettners Rd, Dragon Rocks Nature Reserve, c. 28 km SSE of Hyden, [Plot HY04], 25 Sep. 1997, *G.J. Keighery & N. Gibson* 6733 (PERTH); Tectonic Resources Kundip Lease, 16 km SE of Ravensthorpe, 1 May 2006, *D. Little* 12240 (PERTH); 5 miles N of Mt Holland, Dec. 1964, *A.R. Main s.n.* (PERTH); Bending Reserve A20338, 23 km NNE Kondinin, 2 June 1975, *B.G. Muir* 424 (2.110) (PERTH); 23 km S of Mt Hampton, c. 87 km SSW of Southern Cross, 18 Sep. 1979, *K. Newbey* 5975 (PERTH); on Merinda Rd, 2.9 km SE of wheat bin at Holleaton, 7 May 2000, *W. O'Sullivan* 941 (PERTH); 2.3 km along road to Esperance from the Ravensthorpe to Hopetoun road, 4 Sep. 1986, *P.S. Short* 2703 with *M. Amerena & B.A. Fuhrer* (PERTH); Reserve 21424, NW corner, 2 km E of Bulyee–Quairading Rd, Corrigin, Aug. 1994, *L. Turner* CGN 38 (PERTH).

Phenology. Flowering recorded all year round.

Distribution and habitat. Occurs in the South-West Botanical Province where it is common in and near the Ravensthorpe Range (Fitzgerald subregion) with a gap in distribution to an area from north-west of Corrigin (Narrogin subregion) eastwards in the Katanning and Western Mallee subregions to near Mt Holland and the Parker Range near the western edge of Southern Cross subregion (Figure 6). Usually grows in stony soils (lateritic and granitic), sand over laterite, and clay or loam over greenstone; sometimes in sand.

Common name. Ravensthorpe Bottlebrush.

Conservation status. Not threatened.

Typification. Only a single specimen of *B. orbifolia* that was collected by Maxwell has been located: BM 000896248. It is labelled 'SOUTH-WEST AUSTRALIA. GEORGE MAXWELL'. It is here designated as the lectotype. There is no specimen of *B. orbifolia* collected by Maxwell in MEL (Neville Walsh pers. comm.).

Notes. The flowers may change from bi-coloured to all red as they age. There are no specimens from East Mount Barren (the type locality) at PERTH; indeed there are no specimens near the south coast to the west of the Ravensthorpe Range. Although this species is known as the Ravensthorpe Bottlebrush, most of its distribution lies to the north of the Ravensthorpe Range.

Beaufortia puberula Turcz., *Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Pétersbourg* 10: 346 (1852). *Type citation:* 'Drummond V, n. 173' [Western Australia] (*holo:* KW 001001373 digital image!; *iso:* BM 000896237!, G 00227450 digital image!, G 00227449 digital image!, K 000275886!, K 000793630 digital image!).

Beaufortia micrantha var. *puberula* Benth., *Fl. Austral.* 3: 170 (1867). *Melaleuca micrantha* var. *puberula* (Benth.) Craven & R.D. Edwards, *Taxon* 63(3): 664 (2014). *Type citation:* 'Drummond, 4th

Coll. n. 151; 5th Coll. n. 173'. *Type specimens*: Swan River [Western Australia], *J. Drummond* 5: 173 (syn: K 000793631 digital image!, K 000793630 digital image!, MEL 2112563 digital image!); 'Int. S.W. Australia', *J. Drummond* 4: 151 (syn: K 000793632 digital image!).

Beaufortia interstans F.Muell., *Fragm.* 10: 30 (1876). *Type citation*: 'Prope Mt Churchman' [Western Australia] (syn: K 000793633 digital image!, MEL 726452 digital image!).

Shrub to 2 m high, sometimes sprawling and up to 2 m wide, compact to intricate. *Stems* glabrescent. *Leaves* opposite, sessile, 1.5–4 mm long, 1–1.6 mm wide, hairy (sometimes only on young leaves in eastern parts of range). *Inflorescence* a head. *Bracts* green to red-brown, broadly to narrowly triangular, c. 2.5 mm long, 3-, 5- or 7-veined, hairy. *Bracteoles* <1 mm long, red to red-brown, hairy. *Hypanthium* red-brown or green, hairy. *Sepals* green to pink or brown, triangular, c. 1–1.5 mm long, 1-veined, hairy. *Petals* red, appearing obovate, but may be revealed as trullate on removal, 1–2 mm long, ciliate or hairy. *Staminal bundles* claw pink to deep pink to red, 1–3 mm long, villous outer surface, inner surface glabrous, sometimes (more commonly in eastern plants) both surfaces glabrous; free filaments 5(–7), pink to deep pink to red, often darker near tip, 1.0–2.5 mm long, glabrous. *Style* pink to red, broader than staminal filaments. *Fruits* united, 10–16 mm long, c. 5 mm wide.

Diagnostic features. Distinguished from other *Beaufortia* species by having a combination of hairy 1.5–4 mm long juvenile leaves, glabrescent stems and a style that is broader than the free staminal filaments.

Selected specimens examined. WESTERN AUSTRALIA: site Gp 1, 10 km W of Pithara, 31 Aug. 1993, *P. Armstrong s.n.* (PERTH 06590047); near Duri and W of Boorabbin, 27 May 1970, *A.M. Ashby* 3174 (PERTH); Nature Reserve 28047, W side of vermin proof fence, 1 km S of Hyden–Norseman Rd, 50 km E of Hyden, 18 Oct. 1985, *J.M. Brown* 224 (PERTH); Water Reserve 16418 adjacent to the Wongan Hills townsite, site W62, 7 Nov. 1991, *A.M. Coates* 3427 (PERTH); c. 62 km SE of Morawa on Morawa–Dalwallinu Rd, 19 Oct. 1988, *K.J. Cowley & F.C. Quinn* 237 (PERTH); track to Boorabbin Rock from Great Eastern Hwy, E of rock, 21 Oct. 1988, *K.J. Cowley & F.C. Quinn* 256 (PERTH); 4.3 km N of Yellowdine, 1 Dec. 1997, *R.J. Cranfield* 11635 (PERTH); 31 miles E of Dumbleyung, 8 Jan. 1969, *H. Demarz* D 1036 (PERTH); c. 1/2 mile S of Wubin, 5 Dec. 1972, *H. Demarz* D 4145 (PERTH); Petrudor Rock Reserve, SE of Dalwallinu off main N-S track, c. 1 km S of picnic area, 7 Nov. 1999, *M. Hislop* 1865 (PERTH); Great Northern Hwy, 20 km N of Miling, 25 Aug. 1999, *C. Hollister* 103 (PERTH); 173 mile peg on Great Northern Hwy between Wubin and Paynes Find, 14 Nov. 1966, *F.W. Humphreys* 21 (PERTH); 3 km N of northern end of Helena and Aurora Range, 15 km N of Bungalbin, NE of Koolyanobbing, 2 Dec. 1981, *G.J. Keighery* 4391 (PERTH); 6.5 miles N of Bungulla–Yorkrakine, 7 May 1970, *B. Maslin* 202 (PERTH); Collgar West Rd, c. 8 km S of Merredin, 30 April 2000, *Men of The Trees* 152 (PERTH); State Barrier Fence, 100 km SE of Southern Cross, 7 Dec. 1988, *J. Peirce* 470 (PERTH); 65.2 km E of Brookton along road to Corrigin, 30 Oct. 1990, *R.W. Purdie* 3897 (PERTH); 15 miles S of Tammin in Tammin National Park [Charles Gardner Nature Reserve], 13 Nov. 1970, *R.D. Royce* 9326 (PERTH); 13 km E of Southern Cross, 4 Dec. 1997, *R. Schuh, G. Cassis & Brailovsky* 97-02 (PERTH); 15 km N of Trayning, 22 Dec. 1973, *P.S. Valentine* 4 (PERTH); just W of Ballidu, 31 Oct. 1974, *D.J.E. Whibley* 4766 (PERTH).

Phenology. Flowers all year round.

Distribution and habitat. Occurs in the South-West Botanical Province mainly in the Merredin and Katanning subregions and in the Western Mallee subregion, with some records in the Southern Cross

subregion (Figure 4). Grows in yellow, orange or brown sand and sandy loam, often over laterite or in sandy lateritic gravel.

Common name. Hairy-leaved *Beaufortia*.

Conservation status. Not threatened.

Typification. Bentham based the name *B. micrantha* var. *puberula* on two Drummond gatherings, 4: 151 and 5: 173. All syntypes cited above conform to the protologue and Bentham's annotations are evident on all of the K sheets.

Notes. This species has variable indumentum on both leaves and inflorescences with denser and longer hairs on plants from the western parts of the species' range and fewer and shorter hairs on plants from the eastern parts of its range, but this variation appears to be clinal. The staminal claw in western plants is usually hairy on the inner surface, while eastern plants may have entirely glabrous stamens. Eastern plants of *B. puberula* have pubescent young stems, often glabrous older leaves, and may have red staminal bundles. *Beaufortia bracteosa* has red staminal bundles and glabrous leaves; *B. incana* has larger greyish leaves (6–8 mm long vs 1.5–4 mm long in *B. puberula*) and deep red staminal bundles.

Beaufortia purpurea Lindl., *Sketch Veg. Swan R.* 10, t. 3A [the plate labelled as *Manglesia purpurea*] (1839). *Melaleuca purpurea* (Lindl.) Craven & R.D. Edwards, *Taxon* 63(3): 665 (2014). *Type citation:* not cited [Swan River, 1839 [1835–1838], *J. Drummond s.n.*] (*syn:* CGE 05226 digital image!, K 000793614 digital image!).

Shrub to 1.5 m high, compact. *Leaves* opposite, sessile, linear-lanceolate, ± involute, 3–11 mm long, 0.5–4.5 mm wide, faintly 3–5-veined, glabrous. *Inflorescence* a head. *Bracts* yellow-brown to green-brown to red, trullate to acutely triangular, 4.5–9 mm long, 5–11-veined, glabrous. *Bracteoles* brown to red, 5–7 mm long 0.1–0.2 mm wide, hairy. *Hypanthium* red to purple, 3.5–4.5 mm long, 1.5–1.7 mm wide. *Sepals* pale brown-green to red, darker towards tip, acuminate, c. 2 mm long (broad for c. 0.5 mm at base, then narrow), c. 0.10–0.15 mm wide, 1-veined, hairy. *Petals* pink to red, ovate to obovate, 1.6–2.1 mm long, ciliate. *Staminal bundles* claw red to purple, 2–4.5 mm long, proximally or near completely hairy; free filaments 5–7, emerging from semi-flattened end of claw, 3.5–7 mm long, red to purple, glabrous. *Style* red. *Fruits* united, 7–12.5 mm long.

Diagnostic features. Distinguished from other *Beaufortia* species by having 5–10 mm long mature leaves and hairy sepals that are much longer than broad.

Selected specimens examined. WESTERNAUSTRALIA: [localities withheld for conservation reasons] 27 Nov. 1996, *H. Bowler* 56 (PERTH); 17 Dec. 1971, *N.T. Burbidge* 7887 (PERTH); 15 Dec. 1994, *E.D. Kabay* 1281 (PERTH); 10 Feb. 1988, *D. Lamont* 3 (PERTH); 19 Sep. 1996, *A. Markey* 740 (PERTH); 23 Dec. 1903, *A. Morrison s.n.* (PERTH); 8 Dec. 1990, *A. Taylor* 90/68 (PERTH); 7 Dec. 2007, *K.R. Thiele* 3449 (PERTH); 9 Nov. 2002, *J.E. Wajon* 566 (PERTH).

Phenology. Flowers in spring and summer, mostly from September to December.

Distribution and habitat. Occurs on and near (including at the base of) the Darling Scarp near Perth in the South-West Botanical Province in a small part of the Northern Jarrah Forest subregion (Figure 8).

Common name. Purple Beaufortia.

Conservation status. Priority Three under Department of Parks and Wildlife Conservation Codes for Western Australian Flora (Jones 2015). *Beaufortia purpurea* has a restricted distribution on and near the Darling Scarp near Perth where it occurs in some small conservation reserves. It has a maximum range of only 55 km.

Notes. *Beaufortia purpurea* can be distinguished from *B. eriocephala* by having glabrous leaves and bracts, and a less-woolly inflorescence. It appears to be closely related to *B. bracteosa* but separated by having larger, more flattened leaves and larger, trullate to more-narrowly triangular bracts.

Beaufortia raggedensis A.A.Burb., *sp. nov.*

Type: Mt Ragged, Western Australia [precise locality withheld for conservation reasons], 15 December 1999, *M. Hislop* 1956 A (*holo:* PERTH 05797241; *iso:* CANB).

Shrub to 1.5 m high, compact or straggling. *Leaves* opposite, often in dense, opposite clusters, sessile, linear, 5–10 mm long, 0.5–0.7 mm wide, glabrous, faintly ciliate or hairy. *Inflorescence* a head. *Bracts* brown, acuminate triangular, c. 5 mm long, 4.5 mm wide at base, 1-veined, ciliate. *Hypanthium* red, hairy. *Sepals* green to red, triangular, 1.2–1.5 mm long, 1–1.2 mm wide, 1-veined, ciliate or hairy. *Petals* red-brown, obovate, 1.5–2.5 mm long, 1–1.2 mm wide, ciliate. *Staminal bundles* claw pink to deep red, 5–10 mm long, hairy (mainly adaxially); free filaments 5–7, emerging at different points along claw, red, 5–10 mm long, glabrous. *Style* red. *Fruits* united, ovoid, 15–20 long, 10 mm wide.

Diagnostic features. *Beaufortia raggedensis* can be separated from other species of *Beaufortia* by having a combination of large, deep red inflorescences (10–20 mm long stamens), 5–7 free filaments that are about the same length as the staminal claw, and 5–10 mm long leaves. It has been recorded only on the slopes and peaks of the Russell Range.

Specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 7 Dec. 1960, *A.S. George* 2084 (PERTH); 30 Mar. 1987, *G.J. Keighery & J.J. Alford* 1473 (PERTH); 31 Dec. 1984, *R.A. Kilgour* 491 (PERTH); 30 Sep. 1995, *C.D. Turley* 15/995 (PERTH).

Phenology. Flowering recorded from September to December.

Distribution and habitat. Known only from the slopes and base of peaks in the Russell Range in the Eastern Mallee subregion (Figure 7), where it grows in quartzite.

Common name. Mount Ragged Beaufortia.

Etymology. Named to reflect the species' occurrence on Mt Ragged.

Conservation status. To be listed as Priority Two under Department of Parks and Wildlife Conservation Codes for Western Australian Flora (A. Jones pers. comm.). The species has a highly restricted distribution within a national park, but with no current plausible threats.

Notes. Previously recognised by Michael Hislop as *B. aff. schaueri*.

Mt Ragged is part of the Russell Range, composed primarily of Precambrian quartzite. There are rocky outcrops to the west (Mt Symmons), north (a separate part of the Russell Range) and north-east (Mt Dean and Mt Esmond), but no specimens are available from these localities. *Beaufortia schaueri*, which has pink staminal bundles and smaller leaves (3.5–5.5 mm long), occurs on the surrounding sandplains. *Beaufortia empetrifolia* also occurs in nearby sandplains; it has pink to mauve staminal bundles and much smaller leaves (<2 mm long).

Beaufortia schaueri Preiss ex Schauer, *Regelia, Beaufortia, Caloth.* 17 (1843). *Melaleuca jonesii* Craven & R.D. Edwards, *Taxon* 63(3): 664 (2014). *Type citation*: ‘Crescit in Australiae plagis austro-occidentalibus. In colliculosis confragosis prope montem Manypeak (1. T’jilberup et in glareosis ad radices clivium Konkoberup promontorii Cape-Riche, Octobri m. a. 1840. L. Preiss legit!’ [19–22 Oct. 1840, *L. Preiss* 305] (*lecto*, here designated: LD 1037534 digital image!; *isoleccto*: GOET 008202 digital image!, FR 0036153 digital image!, M 0137451 digital image!, MO 2176037 digital image!, S 07-11669 digital image!).

Beaufortia schaueri var. (?) *atrorubens* Benth., *Fl. Austral.* 3: 168 (1867). *Type citation*: ‘In Maxwell’s collection in Herb. F. Mueller’ (*lecto*, here designated (or perhaps *holo*): MEL 2113578!).

Shrub erect to spreading, up to 1.5 m high, 1–2 m wide. *Leaves* opposite or in dense opposite clusters, sessile, linear, sometimes revolute or involute, 3.5–5.5 mm long, 0.5–1 mm wide, glabrous. *Inflorescence* a head. *Bracts* triangular, green to pink, 1–3.5 mm long, glabrous or ciliate, 3–5-veined. *Bracteoles* c. 1–2 mm long, pale yellow-pink, hairy. *Hypanthium* brown, 1.5–2 mm long and wide, hairy. *Sepals* triangular to acuminate, 1.5–2 mm long, 1(3)-veined, green to red-brown, faintly ciliate. *Petals* red, obovate, c. 2 mm long, ciliate. *Staminal bundles* claw deep pink typically with red base, hairy on inner surface, 2.5–4 mm long; free filaments 5(6), pink with red tip, 5–7.5 mm long, glabrous. *Anthers* red opening to white. *Style* pink. *Fruits* united, 8–11 mm long.

Diagnostic features. Distinguished from other *Beaufortia* species by having red petals, pink to mauve stamens with the anther and tip of filament red, and free filaments about twice as long as the claw.

Specimens examined. WESTERN AUSTRALIA: 90 mile tank on Lake King–Norseman Rd, 113 km NE of Lake King, 14 June 2006, *G. Byrne* 2067 (PERTH); western side of Mt Arid 100 m from peak, 10 Dec. 2005, *P. Courtney* 124 (PERTH); 43 km S of Salmon Gums on Esperance road, 21 Oct. 1981, *L.A. Craven* 7229 (PERTH); 8 km S of Jerramungup on the Albany road, 7 Nov. 1981, *L.A. Craven* 7420 (PERTH); 24 km N of Mt Manypeaks, 2 Nov. 1995, *R. Davis* 299 (PERTH); 3 km NW of Mt Melville, 23 Jan. 1997, *R. Davis* RD 2273 (PERTH); near roadside N of Location 1153, c. 52 km NNW of the coast at Stokes Inlet, 15 Oct. 1968, *Hj. Eichler* 20243 (PERTH); Mt Desmond, near Ravensthorpe, 19 Oct. 1960, *C.A. Gardner* 12881 (PERTH); 24 km E of Ravensthorpe on Nindilbillup Rd, 10 km N of Hwy 1, 22 Nov. 1986, *J.W. Green* 5189 (PERTH); road out of Twertup research station, Fitzgerald River National Park, 27 Oct. 1994, *E.D. Kabay* 971 (PERTH); on SW boundary of the reserve, 2.9 km SE of Fitzgerald Rd, Aerodrome Rd Nature Reserve, c. 43 km S of Lake King townsite, 17 Oct. 1999, *G.J. Keighery & N. Gibson* 4749 (PERTH); Ravensthorpe Range 26 km SE of Ravensthorpe, 30 Sep. 2007, *S. Kern & R. Jasper* LCH 17866 (PERTH); 3 miles N of Mt Success, 28 Oct. 1962, *K.R. Newbey* 589 (PERTH); near road on boundary between Locations 37 and 38, c. 32 km NNE of the coast at Stokes Inlet, 18 Oct. 1968, *A.E. Orchard* 1632 (PERTH); coast at SE base of Mt Arid, 22 Nov. 1985, *A.N. Rodd* 5129 (PERTH); Roe Location 2621, 50 m N of corner S and W side, 5 Oct. 1995, *M. & J. Stewart* 5 (PERTH); gravel pit site, Rabbit Proof Fence Rd, 200 m E of Cowcher Rd, north Ongerup, 28 Nov. 2005, *L. Strahan* 391 (PERTH); site DVMG2, Murray site 37, Ravensthorpe

Range, 21 Aug. 1992, *R.T. Wills s.n.* (PERTH); Stirling Range, 25 km W of Chester Pass on E-W road to Red Gum Pass, 28 Sep. 1966, *P.G. Wilson 4225* (PERTH); 33 km WSW of Lake King township, 10 Aug. 1968, *P.G. Wilson 6991* (PERTH); Baanga Hill, c. 16 km SE of Lake King townsite, 11 Aug. 1968, *P.G. Wilson 7015* (PERTH).

Phenology. Flowers year round, mostly in spring and summer.

Distribution and habitat. Widespread near the south coast from east of Albany to near Israelite Bay (Fitzgerald and Recherche subregions). Inland distribution from south of Jingalup (Katanning subregion) through the Western Mallee and Eastern Mallee subregions to Cape Arid National Park (Figure 4). A specimen from near Mt Holland is the north-eastern-most seen. Grows in sand, stony or clayey sand and loams, sand over laterite, granite and spongolite, and in laterite.

Common name. Pink Beaufortia.

Conservation status. Not threatened.

Typification. The designated lectotype of *B. schaueri*, LD 1037534, is annotated with Preiss' hand writing as '305 Melaleuca preissii' with Schauer having crossed out 'Melaleuca' and inserted 'Beaufortia (Schizopleura)'.

No specimen has been located that is labelled *B. schaueri* var. (?) *atrorubens*. MEL 2113578 is labelled 'Westn Austr. Maxw' and was viewed by Bentham, with his initial evident on the label. The flowers are much darker (deep red) than typical *B. schaueri* and therefore this specimen has been selected here as the lectotype. MEL 2113579 has a von Mueller label on it: 'Beaufortia Schaueri (Preiss) Near Cape Arid 1875. (Maxwell)'; it has typically-coloured flowers and was collected well-after 1867.

Notes. There is no lake with the official name of Tjilberup. The type of *Grevillea coccinea* was also collected by Preiss at Tjilberup, and noted to be 7 miles from Mt Manypeaks, so it is likely to be Lake Pleasant View, which is c. 12 km north-west of Mt Manypeaks. Cape Riche is c. 55 km north-east of Mt Manypeaks. PERTH 04083199 (*N.H. Brittan s.n.*), with a locality of Mt Ragged, is *B. schaueri*; however, this species has not been recorded from the quartzite slopes of the Russell Range where *B. raggedensis* occurs. It seems likely that the location given (Mt Ragged) is of a general nature.

Beaufortia schaueri is somewhat similar to *B. bracteosa*, but has small, inconspicuous <2 mm long bracteoles (2.5 mm long in *B. bracteosa*), pink to mauve staminal filaments with a red tip, and red petals and anthers (red staminal filaments in *B. bracteosa*); the free filaments are longer (>5 mm) than in *B. bracteosa* (<4.5 mm), and longer than the staminal claw. *Beaufortia puberula*, which has typically pink staminal bundles (but may be red in plants from the eastern end of its range), has hairy leaves (only the juvenile leaves in the eastern parts of the species' range).

Beaufortia sparsa R.Br., in W.T. Aiton, *Hort. Kew.* 2nd edn, 4: 419 (1812). *Melaleuca sparsa* (R.Br.) Craven & R.D. Edwards, *Taxon* 63(3): 665 (2014). *Type citation:* 'Nat. of the South-west Coast of New Holland. Robert Brown, Esq.' *Type specimens:* King George's Sound [Western Australia, September–October 1791], *A. Menzies s.n.* (*lecto*, here designated: BM 001015198 digital image!; *isolecto*: BM 001015200 digital image!).

Beaufortia splendens Baxter ex A.Dietr., in C.F. Otto & A.H.G. Dietrich, *Allgemeine Gartenzeitung* 2: 274 (1834). *Type citation*: 'Habitat in Nova Hollandia' (*n.v.*).

Shrub to 2.5 m high and 1.8 m wide, often multi-stemmed at ground level. Stems glabrescent, red when young. *Leaves* mostly spiralled but sometimes sub-opposite, sessile, ovate to lanceolate, 8–10 mm long, 3–4 mm wide, 5-veined (may not be obvious in fresh specimens), glabrous. *Inflorescence* a spike. *Bracts* pale brown, triangular, 6 mm long, 3.5 mm wide at base, 5–7-veined, hairy proximally, glabrous distally, often shed at anthesis. *Bracteoles* typically absent. *Hypanthium* red, *c.* 1.5 mm long, 1.5 mm wide, hairy. *Sepals* dark red, triangular, *c.* 1–2 mm long and wide, faintly 1-veined. *Petals* yellow to orange, *c.* 2 mm long, sometimes sparsely ciliate. *Staminal bundles* claw red or yellow-orange to pale pink, 12–20 mm long, glabrous; free filaments 5–7, emerging from the claw at different points, red, occasionally paler near base, 6–10 mm long, glabrous. *Style* pink to red. *Fruits* united or clumped, 15–35 mm long, 10–12 mm wide.

Diagnostic features. Flowers arranged around stem similar to a bottlebrush; differs from *B. decussata* and *B. orbifolia* by having smaller (<12 mm long) spirally-arranged leaves.

Specimens examined. WESTERNAUSTRALIA: Northcliffe, 20 Feb. 2001, *T.J. Alford* 119 (PERTH); Walpole Ficifolia Block near Pt 89, 14 Feb. 1990, *A.N. Annels* 1094 (PERTH); Reserve No. 18644, N of Scott River Rd – Pericles St junction, 15 July 2009, *D. Bradshaw* TB 5 (PERTH); Black Point Rd, 24 Feb. 1998, *R.J. Cranfield* 11859 (PERTH); powerline access road from Stewart Rd, 3 km N of Donnelly River, 23 Feb. 2001, *R.J. Cranfield* 16220 (PERTH); 12 km W of Bow Bridge, 5 Nov. 1981, *L.A. Craven* 7393 (PERTH); 17 km E of Karridale, 15 Jan. 1996, *R. Davis* RD 445 (PERTH); site 168, cell 7, 400 m E of Blackwood and Great North Rd on Blackwood Rd (site recorded opposite side of road to site 167), bearing NE, 21 Oct. 1998, *R. Davis* 7683 (PERTH); 4 miles S of Pemberton–Nannup Rd *c.* 15 miles W of Pemberton, 14 Feb. 1958, *A.S. George* 149 (PERTH); Marbellup townsite reserve, 15 km W of Albany, 19 Apr. 1980, *J.W. Green* 4936 (PERTH); Boardinghouse Rd, St Johns Block, 30 Jan. 1997, *A. Horan* AH 07 (PERTH); track into Malimup 9 km S of Northcliffe to the west, 18 Jan. 1995, *E.D. Kabay* 1369 (PERTH); Reserve 24529, N of Capel Nature Reserve, 2 km SW of Capel, near tip (adj. to Capel-3), 15 April 1992, *B.J. Keighery & G.J. Keighery* 24 (PERTH); William Bay National Park, April 1984, *C.V. Malcolm s.n.* (PERTH); Busselton–Jalbarragup road, 29 June 1972, *G. McCutcheon s.n.* (PERTH); 10 km from Cane Break Rd, E along Stewart Rd, WNW of Pemberton, 10 Nov. 1985, *A.N. Rodd* 4905 & *G. Fensom* (PERTH); Forest Grove Rd, 5 km W of Bussell Hwy, 15 Mar. 2000, *J. Scott* 203 (PERTH); Davidson Rd, Manjimup, 23 Feb. 1966, *F.G. Smith* 1900 (PERTH); Corner of Bauxhall Rd and South Coast Hwy, Nornalup, 26 Mar. 2008, *K.R. Thiele* 3514 (PERTH); between Middleton Beach and King River, 9 Nov. 1974, *D.J.E. Whibley* 5153 (PERTH).

Phenology. Flowers throughout the year, mostly from January to May.

Distribution and habitat. Occurs in the South-West Botanical Province where it is almost confined to the Warren bioregion, but extends northward to near Busselton and Capel at the southern end of the Perth subregion, into the southern edge of the Southern Jarrah Forest subregion, and eastwards to Chester Pass, Stirling Range, near the western edge of the Fitzgerald subregion (Figure 8). Grows in seasonally swampy soils with peaty and loamy sands, often semi-dominant in peaty flats.

Common name. Swamp Bottlebrush.

Conservation status. Not threatened.

Typification. Although the protologue of *Beaufortia sparsa* cites ‘Nat. of the South-west Coast of New Holland. Robert Brown, Esq.’, Brown does not appear to have collected this species. There are, however, two relevant sheets at BM bearing specimens collected by Archibald Menzies, who visited King George Sound in 1791: BM 001015198 comprises two specimens and two slips annotated by Brown as ‘*Metrosideros?* *Melaleuca?* W. Coast Menzies’ and ‘*Melaleuca comosa*, King George’s Sd, Mr Menzies’; and BM 101015200, which comprises two specimens and is annotated ‘New Holland, King George’s Sound. Mr Archib. Menzies’ by Banks’ librarian Jonas Dryander. In his diary (Vallance *et al.* 2001: 67), Brown noted that he prepared descriptions of three species of *Melaleuca* and three of either *Melaleuca* or *Metrosideros* from Kings George’s Sound on 19 September 1801, on which date he was on the *Investigator* in the Southern Atlantic Ocean, heading for the Cape. Brown must, therefore, have had material collected by Menzies in the reference set that he took from London for the voyage (A.S. George pers. comm.). BM 001015198, which is annotated by Brown, is therefore treated here as original material and is selected as an appropriate lectotype.

I have not located type material of *B. splendens*, which was described from horticultural material that was possibly grown from seed collected by William Baxter. It is of note that BM 001015199 is a collection of *B. sparsa* by Baxter from 1828–29.

Notes. One of only two *Beaufortia* that can regenerate from lignotuberous root stock after fire.

Beaufortia sprengeioides (DC.) Craven, *Taxon* 48: 54 (1999). *Melaleuca sprengeioides* DC. *Prodr.* 3: 215 (1828). *Type citation:* ‘in Novae-Hollandiae, orâ orientale’ (*syn:* G-DC G 00134512 digital image, G 00227451 digital image!).

Beaufortia dampieri A.Cunn. in W.J. Hooker, *Bot. Mag.* 60: t. 3272 (1833). *Type citation:* ‘... found upon the barren, loose, sandy downs of Dirk Hartog’s Island, off Shark’s Bay, on the West coast of Australia, where its seeds were gathered in 1822, during the surveying voyage of Capt. P.P. King, in H.M. Sloop Bathurst, and from which the living plants which have repeatedly flowered in the Royal Gardens at Kew were raised.’ *Type specimens:* ‘Hort. Kew. Cult. from Shark’s Bay. W. Coast of N Holl. 1822’ (*lecto*, here designated: K 000793617 digital image!); Dirk Hartog’s Island, *A. Cunningham s.n.* (*syn:* K 000793618 digital image!, K 000793619 digital image!).

Shrub up to 3.5 m high and spreading to 5 m across. *Leaves* opposite, sessile, elliptic to ovate to obovate, involute, 2.5–3.5 mm long, 2–3 mm wide, 3–5-veined, glabrous. *Inflorescence* a head. *Bracts* green, obovate to ovate, *c.* 3–4 mm long, 3 mm wide, 5–7-veined, hairy at base. *Bracteoles* pale pink to brown, 2 mm long, hairy. *Hypanthium* green-brown, 4–5 mm long, 1.5 mm wide, glabrous or hairy. *Sepals* pale green, acutely triangular, 1–1.5 mm long, 1–3-veined. *Petals* pink, obovate, 1.7–2.1 mm long, ciliate. *Staminal bundles* claw pale pink to pale purple, occasionally white, 3.5–4 mm long, glabrous or faintly ciliate; free filaments 7–10, white to pink or pale purple, fading to yellow-brown, 3–5 mm long. *Style* pink to red. *Fruits* mostly separate and peg-like, sometimes loosely clumped or united, *c.* 6 mm long and wide.

Diagnostic features. Separated from other *Beaufortia* species by having 7–10 small, usually pink (sometimes white or pale purple) staminal bundles and mostly separate peg-like fruits (but these may be loosely united).

Selected specimens examined. WESTERN AUSTRALIA: NE corner of East Yuna Nature Reserve, 14 Nov. 1997, *P.G. Armstrong s.n.* (PERTH); East Yuna, NE of Geraldton, 2 Dec. 1968, *A.C. Burns* 123

(PERTH); S of White Beach, Dorre Island, Shark Bay, 2 Sep. 1998, *S.J. Claymore & A.S. Weston* 266 (PERTH); Red Cliff Point, Bernier Island, Shark Bay, 27 Aug. 1998, *S.J. Claymore & A.S. Weston* 267 (PERTH); 42.5 km due E of Binu, 18 Oct. 1988, *K.J. Cowley & F.C. Quinn* 218 (PERTH); Williamson Rd off Tenindewa North Rd, 29 Nov. 1998, *J. Docherty* 1 (PERTH); 16 miles SSE of Tamala Station homestead, 27 Aug. 1969, *A.S. George* 9582 (PERTH); 13 km S of Wannoo, 24 Nov. 1996, *T.F. Houston* 900-6 (PERTH); 13.6 km W along Useless Loop Rd (N side) from Denham–Hamelin Rd (Site: na4), 23 Aug. 1994, *G.J. Keighery & N. Gibson* 1272 (PERTH); 425 mile peg on North West Coastal Hwy [18 km S of the Overlander Roadhouse on North West Coastal Hwy], 12 Nov. 1963, *F. Lullfitz* L2903 (PERTH); Edel Land, Shark Bay. c. 8.5 km SSE of Mt Direction, accessed by 4WD track to Thunder Bay, Blowholes & Crayfish (Epineux) Bay. [Plot-tbat01.], 18 Sep. 1997, *A. Markey* 1636 (PERTH); near Dampier landing, Dirk Hartog Island, 16 Aug. 1999, *S.K. Marner & A.S. George* 61 (PERTH); Shark Bay: Dirk Hartog (Turtle Bay – Cape Inscription), 26 July 1988, *Ph. Morat* 8401 (PERTH); riverside Ajana, Beacon Hill, 20 Nov. 2001, *D.M. Porter* 239 (PERTH); E of Eradu towards Indarra, 1 Nov. 1963, *R.D. Royce* 8027 (PERTH); Eurardy Station, Binu, 15 Sep. 1994, *L. Sweedman* 3405 (PERTH); Steep Point, 7.2 km S of Blackies camp, 31 Aug. 2005, *L.S.J. Sweedman* 6590 (PERTH).

Phenology. Flowers from July to December.

Distribution and habitat. Occurs in the Geraldton Hills subregion from Coalseam Conservation Park and East Yuna Nature Reserve north to Dirk Hartog, Dorre and Bernier Islands in the Edel subregion (Figure 6). Grows in sand (white, yellow, yellow-brown, orange and red), sandy loam, clayey sand, sand over laterite, sand over limestone, and limestone.

Common name. Shark Bay Beaufortia.

Conservation status. Not threatened.

Typification. The sheet containing type material of *B. dampieri* at K has three labels and associated specimens: K 000793618 and K 000793619 are fruiting collections gathered by Cunningham from Dirk Hartog Island, while K 000793617 is flowering material grown at Kew from seeds collected at the same time. The flowering material is selected as an appropriate lectotype. There is a possible syntype at P collected by Gaudichaud who was at Shark Bay in September 1818 (Alex George pers. comm.).

Notes. As Craven (1999: 54) notes, the type locality of *B. sprengelioides* is given as the east coast of Australia ('in Novae-Hollandiae orâ orientali') but this must be in error as *Beaufortia* is known to occur indigenously in Western Australia only.

Beaufortia squarrosa Schauer, *Regelia, Beaufortia, Caloth.* 21: 15–16 (1844). *Melaleuca pulcherrima* Craven & R.D. Edwards, *Taxon* 63(3): 664 (2014). *Type citation* 'Habitat in Nova-Hollandia austro-occidentali: in solo subarenoso planitie inter frutices ad fluvium Canning-River, Junio m. a. 1841, collegit cl. Preiss!' (*lecto*, here designated (or perhaps *holo*): LD 1076222, stamped Botanical Museum 061135 Lund).

Shrub 0.5–2(–3) m high, 0.5–4 m wide. *Young stems* tomentose. *Leaves* opposite, sessile, ovate, involute, 4–7.5 mm long, 1.2–3.5 mm wide, 5-veined, glabrous. *Inflorescence* a head. *Bracts* absent. *Bracteoles* typically absent, if present c. 1 mm long. *Hypanthium* dark brown, hairy, 2.5–4 mm long, 1.3–2 mm wide. *Sepals* brown, narrowly triangular, c. 2 mm long, 3-veined, ciliate and/or sparsely hairy. *Petals* obovate, pale yellow-brown, 2–4 mm long, glabrous or shortly ciliate. *Staminal bundles*

claw orange-red, red or scarlet, sometimes paler proximally, 10–16 mm long, glabrous; free filaments 3(4), orange, orange-red, red or scarlet, sometimes darker at tip, 5.5–8.5 mm long. *Style* red. *Fruits* clustered or separate, 4–5 mm long, 3.5–4.5 mm wide.

Diagnostic features. Distinguished from other *Beaufortia* species by a combination of the inflorescence being a spike, glabrous staminal bundles with the free filaments shorter than the claw, and uniform-coloured inflorescences.

Selected specimens examined. WESTERN AUSTRALIA: Wannamal West Rd, Gingin (3 km E of Brand Hwy), 20 Mar. 1986, *J.J. Alford s.n.* (PERTH); N boundary of Boonanarring Vacant Crown Land, off Wannamal West Rd, Gingin, 13 Aug. 1986, *J.J. Alford* 748 (PERTH); swamps E of Cervantes, 22 Feb. 1970, *T.E.H. Aplin* 2995 (PERTH); intersection of Jurien Bay Rd and Cockleshell Gully [Rd], 10 Mar. 1979, *R.J. Cranfield* 1249 (PERTH); Ajana, Sep. 1928, *C.A. Gardner s.n.* (PERTH); 3 miles W of Mogumber, 27 Jan. 1964, *A.S. George* 6099 (PERTH); 8 miles W of Mogumber, 26 Feb. 1980, *T.J. Hawkeswood* 158 (PERTH); N side of Bibby Rd, 500 m W of Drummond Reserve and 8.5 km E from junction with Yerramullah Rd, Jurien Bay, 20 Feb. 2005, *M. Hayes* 432 (PERTH); remnant bushland c. 100 m S of intersection of Hale Rd and Tonkin Hwy, Wattle Grove, 1 Mar. 1999, *M. Hislop* 1275 (PERTH); 15 km E of junction of Brand Hwy and Coorow Rd, 23 Jan. 1979, *R. Hnatiuk* 790001 (PERTH); 3 km N of Regans Ford on Brand Hwy, 2 May 1979, *R. Hnatiuk* 790010 (PERTH); Alexander Morrison National Park, 27 Jan. 1981, *R. Hnatiuk* 810503 (PERTH); Cullalla Rd, Chittering – Gingin, on road verges N of Barn Rd, 25 Mar. 2002, *F. Hort* 1736 (PERTH); Williamson Rd, Wilcox Block, Whicher Range, 16 Mar. 1991, *G.J. Keighery* 12059 (PERTH); Brixton St wetlands, central block, N of Brixton St, 16 Mar. 2000, *G.J. Keighery* 15928 (PERTH); Oates Rd-Williams Rd intersection, 15 km SE of Capel, 3 Feb. 2005, *G.J. & B.J. Keighery* 345 (PERTH); Mullering Brook area, c. 110 miles N of Perth towards Jurien Bay, 25 Feb. 1971, *B.R. Maslin s.n.* (PERTH); Cannington, 6 April 1899, *A. Morrison s.n.* (PERTH); between Busselton and Jarrahood, 14 Mar. 1917, *F.M.C. Schock* 151 (PERTH).

Phenology. Flowers throughout the year, mostly in spring and summer.

Distribution and habitat. Occurs in the South-West Botanical Province from near Busselton and the Whicher Range in the Perth subregion and near Perth, and in the Dandaragan Plateau subregion north to Alexander Morrison National Park in the Lesueur Sandplain subregion (Figure 3). Grows in sand, sand over clay or limestone, lateritic sand or sand over laterite. Site may be dry or a winter-wet depression.

Common name. Sand *Beaufortia*

Conservation status. Not threatened.

Notes. *C.A. Gardner s.n.* (PERTH 02346745) is labelled as having been collected at Ajana in September 1928. If this locality is correct, this specimen was collected 250 km north of other populations of *B. squarrosa*. It is not shown on the distribution map for this species. Although widely known as ‘Sand Bottlebrush’, many species of *Beaufortia* grow in sand.

Beaufortia squarrosa is most likely to be confused with *B. aestiva*. The staminal claw in *B. squarrosa* is c. twice as long as the free filaments (in *B. aestiva* c. 1:1), and there are three stamens per bundle (5–7 in *B. aestiva*).

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