

New lectotypes and synonyms in the Western Australian genus *Scholtzia* (Myrtaceae: Chamelaucieae)

Barbara L. Rye

Western Australian Herbarium, Department of Parks and Wildlife,
Locked Bag 104, Bentley Delivery Centre, Western Australia 6983

Abstract

Rye, B.L. New lectotypes and synonyms in the Western Australian genus *Scholtzia* (Myrtaceae: Chamelaucieae). *Nuytsia* 28: 159–167 (2017). Lectotypes are selected for the genus *Scholtzia* Schauer and for *S. capitata* F.Muell. ex Benth., *S. leptantha* Benth., *S. oligandra* F.Muell. ex Benth., *S. parviflora* F.Muell. and *Baeckea obovata* DC. *Scholtzia obovata* (DC.) Schauer is reinstated and *S. leptantha* reduced to a synonym of it. Two informal names are made redundant by the lectotypifications. Brief descriptions are provided for these taxa as now defined.

Introduction

The myrtaceous genus *Scholtzia* Schauer belongs to the tribe Chamelaucieae DC. and comprises more than 40 species from south-western Australia. It is long overdue for revision, with a majority of its species undescribed. Application of some of its published names has been uncertain because they are based on mixed material, and the first species to have been placed in the genus, *S. obovata* DC., has been wrongly treated as a synonym of two more recent names, its true identity unclear.

These problems were investigated by borrowing type material and examining images of other type specimens. Lectotypes are selected for the genus and five of the published names that apply to *Scholtzia* species. Brief descriptions are provided for the species treated below since their previous descriptions are no longer applicable.

Problems concerning *Scholtzia obovata*

When Schauer (1843, 1844) named *Scholtzia*, he based his description on material of the species then known as *Baeckea involucrata* Endl. However, he treated this species as a synonym of the older name *B. obovata* DC. and made the new combination *S. obovata* (DC.) Schauer. The very brief protologue for *B. obovata* (de Candolle 1828) gives some leaf and inflorescence characters that match a number of *Scholtzia* species including *B. involucrata*, but lacks other important characters such as stamen number.

Bentham (1867: 68, 70) maintained the treatment of *B. involucrata* as a synonym of *S. obovata*, although he twice noted that the latter was probably synonymous with his newly named species *S. leptantha* Benth. Druce (1917) concluded that *S. leptantha* should be placed in synonymy under *S. obovata* and published the new combination *S. involucrata* (Endl.) Druce.

Blackall and Grieve (1954, 1980) recognised Bentham's *S. leptantha*, but treated *S. obovata* as a synonym of *S. involucrata* despite the fact that Bentham (1867) referred to that species by the older epithet, i.e. calling it *S. obovata* rather than *S. involucrata*. *Scholtzia obovata* was not included in the lists of Western Australian species published by Green (1985) and Paczkowska and Chapman (2000), and was only reinstated on *FloraBase* (Western Australian Herbarium 1998–) in 2014 as a result of the current study.

Identity of species collected by Augustus Oldfield

A second set of problems with the application of names for *Scholtzia* involves three species with type material collected by Augustus Oldfield reportedly at the Murchison River. Two of these names, *S. capitata* F.Muell. ex Benth. and *S. oligandra* F.Muell. ex Benth., are based on mixed material, each having a Drummond syntype belonging to a different species from the Oldfield syntype. A lectotype is therefore needed to establish the correct application of the names.

The third taxon, *S. parviflora* F.Muell., is based only on Oldfield's specimens yet has been applied at PERTH exclusively to material of a species or species complex that does not occur as far north as the Murchison River. The name *S. oligandra* has also been applied to specimens of this complex rather than to any of the species occurring at the Murchison River.

Taxonomy

Scholtzia Schauer, *Linnaea* 17: 241 (1843). *Baeckea* sect. *Scholtzia* (Schauer) Baill., *Hist. Pl.* 6: 358 (1876). Type: *Baeckea involucrata* Endl. [= *Scholtzia involucrata* (Endl.) Druce], lectotype here designated.

Pritzelia Schauer, *Flora* 26: 407, 409 (1843), *nom. inval.*, *nom. nud.*

Piptandra Turcz., *Bull. Soc. Imp. Naturalistes Moscou* 35: 323 (1862). Type: *Piptandra spatulata* Turcz. [= *Scholtzia spatulata* (Turcz.) Benth.].

Shrubs prostrate to 3(–4) m high. *Leaves* opposite. *Peduncles* 1–many-flowered. *Petals* 1–4.5 mm long, white to bright pink. *Stamens* usually 4–25, in antisepalous groups or in a continuous circle. *Anthers* dehiscent by 2 terminal pores; connective gland fused to the anther cells. *Ovary* 1–3-locular; ovules either 2 per loculus and superposed, or 1 per loculus. *Style* with base inset; stigma small. *Fruits* indehiscent, inferior to c. 1/2 inferior, usually 1-seeded; seed usually extending the length of the cavity, 0.8–1.9 mm long, with a membranous testa.

Typification. Three names, *Scholtzia obovata*, its basionym *Baeckea obovata* and its presumed synonym *B. involucrata*, are listed in the protologue. The description of *Scholtzia* (Schauer 1843, 1844) as having 20 stamens and sepals about half as long as the petals, matches *S. involucrata*. *Scholtzia obovata* has about half that number of stamens and its sepals are much less than half as long as the petals (see description below). Both of the specimens Schauer (1844) indicated that he had seen, the Preiss No. 343 collection from near Perth and Huegel *s.n.*, belong to *S. involucrata*. As he did not examine material of *S. obovata* and the protologue gave insufficient information to distinguish the species from *S. involucrata*, his error in assuming the two taxa were synonymous is understandable. Since Schauer was clearly basing his description of the new genus purely on *S. involucrata*, *B. involucrata* is selected here as the lectotype for the genus.

Scholtzia capitata F.Muell. ex Benth., *Fl. Austral.* 3: 69 (1867). *Baেকে capitata* (F.Muell. ex Benth.) F.Muell., *Syst. Census Austral. Pl.* 54 (1883). *Type citation*: ‘Murchison River, Oldfield, Drummond, n. 134’. *Type collection*: Murchison River, Western Australia, 1859–1863, *A.F. Oldfield s.n.* (lecto: MEL 2278625, here designated; *isolecto*: K 000357124, MEL 2278624). *Excluded syntype*: unknown locality in Western Australia, 1835–1851, *J. Drummond* 134 (*syn*: G 0022679, K 000357122, 000357123 & 000357125, MEL 2278623) [= *S. sp.* Coomberdale (M.E. Trudgen 1724 & M.E. Trudgen) and *S. sp.* Yenyening Lakes (A.G. Gunness 2824) species group].

Scholtzia sp. Yerina Springs (N. Hoyle 517), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 22 April 2016].

Shrub 0.5–3 m high. *Petioles* 0.5–0.8 mm long. *Leaf blades* obovate to depressed-obovate, 2.5–4 mm long, 1.3–3.5 mm wide, not pointed, margins entire. *Peduncles* 8–16 mm long, 9–20-flowered; secondary axes up to 1.5 mm long. *Basal bracts* 1.8–2.3 mm long. *Pedicels* 0.5–1 mm long. *Flowers* 4.3–4.5 mm diam. *Hypanthium* 1.2–1.4 mm long, pitted-rugose. *Sepals* 0.6–1.2 mm long. *Petals* 1.5–2 mm long, white to medium pink, persistent in early fruit. *Stamens* 7–10, with 1–3 opposite each sepal. *Longest filaments* 0.3–0.4 mm long. *Ovary* inferior, 2-locular; ovules 1 per loculus. *Style* 0.7–1.3 mm long. *Fruits* c. 2/3 inferior, 2–2.5 mm long, 1- or 2-seeded; sepals erect or spreading; seed(s) 1.2–1.4 mm long.

Distribution and habitat. Occurs in and near Kalbarri National Park, mostly recorded on sandy soils.

Phenology. Flowers mainly from August to October, with mature fruits recorded from November to January.

Selected specimens examined. WESTERN AUSTRALIA: on Ogilvie Rd, 10 km W of Yerina Springs Rd, 9 Sep. 1984, *D.B. Foreman* 618 (PERTH); Kulla Kulla Hill, Yerina Springs Rd, 27 Sep. 1985, *N. Hoyle* 517 (PERTH); along Rabbit Proof Fence, Kalbarri National Park, 9 Jan. 1963, *R.D. Royce* 7801 (PERTH); S boundary of Kalbarri National Park, 12 May 1987, *R.H. Smith* 126 (PERTH); 0.85 km east from the CALM rangers offices on the road from Kalbarri to the North West Coastal Highway, Kalbarri National Park, 21 Sep. 2002, *M.E. Trudgen* 21635 (AD, BRI, CANB, NSW, PERTH).

Typification. The two syntypes belong to different species, *Oldfield s.n.* matching *S. sp.* Yerina Springs (N. Hoyle 517) and *J. Drummond* 134 matching the species group comprising *S. sp.* Coomberdale (M.E. Trudgen 1724 & M.E. Trudgen) and *S. sp.* Yenyening Lakes (A.G. Gunness 2824). However, all three phrase-named taxa conflict with the protologue in having only one ovule per loculus and they often have more than three flowers on most peduncles. *Scholtzia sp.* Coomberdale also conflicts in having a three-locular ovary. Note that Bentham (1867) gave accurate ovule numbers for ten other species of *Scholtzia*, a factor taken into consideration when selecting the lectotype for *S. oligandra* below.

In the protologue, Bentham (1867: 70) referred to Mueller’s comment that this taxon ‘may be a variety of *S. uberiflora* [F.Muell.], but it has not the peculiar foliage of that species’. Mueller’s (1864: 75) description of *S. capitata* as having rhomboid-obovate or oblong-obovate leaves certainly fits the Oldfield syntype rather than the Drummond syntype, and since Bentham was attempting to describe the taxon that had been assigned Mueller’s manuscript name of *S. capitata*, it seems more appropriate to base the name on this syntype than the Drummond specimen. The Oldfield specimen also fits the protologue more closely and has the advantage of having a locality.

The lectotype, MEL 2278625, was selected from among the Oldfield specimens because it is of good quality, was viewed by Bentham, and is the only one to have a label attached giving Oldfield's collection details 'Twiggy shrub 8–10 ft fl white Thicket ?Mitta ?Ra [handwriting unclear]'.

Notes. Choosing the Oldfield specimen as the lectotype renders *S. sp.* Yerina Springs a synonym of *S. capitata*. *Scholtzia capitata* keys out accurately among the named species included in Blackall and Grieve (1980: 72), although the illustration is inaccurate in showing the ovary as having two ovules per loculus and is possibly based on mixed material.

Scholtzia obovata (DC.) Schauer, *Linnaea* 17: 241 (1843). *Baeckea obovata* DC., *Prodr.* 3, 230 (1828). *Type citation:* 'In Nôva-Hollandia ad Portem regis Georgii (v. v.)'. *Type collection:* 'King George Sound' [probably Shark Bay area (see typification)], Western Australia, ex *Benjamin Delessert herbarium* (*lecto:* G 00486349, here designated; possible *isolecto:* G 00418258).

Scholtzia leptantha Benth., *Fl. Austral.* 3: 69 (1867). *Baeckea leptantha* (Benth.) F. Muell., *Syst. Census Austral. Pl.* 54 (1883). *Type citation:* 'Seashore, Sharks Bay, Milne; also in Herb. R. Brown from Herb. Mus. Par.' *Type collection:* Shark Bay, Western Australia, *Milne s.n.* (*lecto:* K 000357120, here designated; *isolecto:* K 000557199 & 000357121). *Syntype:* coast of New Holland, R. Br. Herbarium ex Herb. Mus. Par. (BM *n.v.*) [identity unknown].

Illustration. W.E. Blackall & B.J. Grieve, *How Know W. Austral. Wildfl.* 3A: 71 (1980) [as *Scholtzia leptantha*].

Shrub 0.4–1.5 m high. *Petioles* 0.4–0.6 mm long. *Leaf blades* obovate to almost circular, 2.5–4.5 mm long, 1.5–3 mm wide, not pointed, lower margins denticulate or often ciliolate. *Peduncles* 5–13 mm long, 3–15-flowered; secondary axes up to 1.3 mm long. *Bracts* 1–2.5 mm long. *Pedicels* up to 1 mm long. *Flowers* 3–4.2 mm diam. *Hypanthium* 1.8–2.5 mm long, somewhat 5-ribbed, at least in distal half and on herbaceous base of each sepal. *Sepals* 0.3–0.6 mm long. *Petals* 1–1.6 mm long, white or pale pink, persistent in early fruit. *Stamens* 8–11, with 1–3 opposite each sepal. *Longest filaments* 0.4–0.6 mm long. *Ovary* inferior, 2-locular; ovules 2 per loculus. *Style* 0.5–1.4 mm long. *Fruits* c. 3/4 inferior, 1.7–2.3 mm long; sepals scarious, erect, with margin incurved; seed unknown.

Selected specimens examined. WESTERN AUSTRALIA: Tamala Station, 15 Aug. 1970, *T.E.H. Aplin* 3517 (PERTH); 9.6 mi. [15.5 km] towards Loop from Kalbarri Stn, 9 Jan. 1970, *M.I.H. Brooker* 2386 (PERTH); fire plots on 10 mile track, Peron Peninsula, 14 Oct. 2008, *R.J. Cranfield* 23297 (PERTH); Babbage Island, 17 Aug. 1977, *H. Demarz* 6587 (PERTH); lagoon c. 3 km N of Denham, 17 Oct. 1983, *S.J. Forbes* 1650 (PERTH); Shark Bay, Oct. 1877, *F. Mueller s.n.* (MEL 76013); Monkey Mia, 23 Sep. 1996, *G. Perry* 578 (AD, MEL, NSW, PERTH); Miaboolia Beach, c. 9 km N of Carnarvon, 26 Sep. 1987, *P.G. Wilson* 12636 (CANB, PERTH).

Distribution and habitat. Occurs from north of Carnarvon south to Kalbarri National Park, mainly on sand dunes, sand over limestone and other coastal habitats.

Phenology. Flowers mainly from August to November.

Typification of Baeckea obovata. The locality of King George Sound given in the protologue is clearly inaccurate since the genus *Scholtzia* does not occur there or anywhere close by, being absent from the entire south coast of Western Australia. French expeditions are not known to have collected at

any locations within the range of *Scholtzia* apart from Shark Bay and Swan River (see George 2009), towards either end of the range. While numerous species occur in the central part of the range, only *S. involucrata* occurs at Swan River and only *S. obovata* at Shark Bay.

Within the de Candolle (G-DC) collection, a single sheet has been located with the name *B. obovata* in A.P. de Candolle's writing attached to the right-hand bottom corner. Three specimens are attached to this sheet as follows:

1. G 00486348, labelled as 'Melaleuca' from the east coast of New Holland, 'Mus: de Paris 1821'.
2. G 00486349, labelled as coming from 'King George Sound' with the name Monsieur B. Delessert and date 1816 but no individual identification to genus or species. It appears that this specimen was donated from the Benjamin Delessert herbarium, which was then located in Paris (L. Gautier pers. comm.).
3. G 00464461, labelled as 'Leptospermum microphyllum' from New Holland, again with B. Delessert and 1816.

Another sheet, this time not from the G-DC collection, is labelled as a *Melaleuca* [L.] from 'port du roi George' on the south-west coast and the date given as 1803 (G 00418258) and could possibly be a duplicate of G 00486349. All four specimens are very similar in overall appearance.

Of the three specimens mounted on the single sheet that is housed in de Candolle's collection, G 00486349 is the best material in having a number of protruding peduncles attached to it and in being the largest piece, and also it is the only one to match the protologue in giving the locality as being from King George Sound; it is therefore selected here as the lectotype. The material may have been collected by Leschenault de la Tour, who collected at Shark Bay on *Naturaliste* under Baudin in 1801, and at both Shark Bay and King George Sound on *Géographe* under Hamelin in 1803 (George 2009). The other two pieces mounted on the same sheet are assumed to be from separate collections because of the differences on their labels.

Typification of Scholtzia leptantha. Two specimens were cited in the protologue for *S. leptantha* in *Flora Australiensis* (Bentham 1867), with the Milne collection from Shark Bay listed first and apparently given prominence (see type citation above). As there is copious, good material of the Milne collection, one of its duplicates (K 000357120) is selected here as the lectotype. The K 000357120 sheet contains probably the best inflorescences, while the K 000557199 sheet is considered the poorest of the three sheets. *Global Plants* does not have any images of the other syntype.

Notes. Following Bentham (1867: 67–70), Blackall and Grieve (1980) distinguish this species [as *S. leptantha*] from *S. umbellifera* F.Muell. in having distinct anther cells opening in slits rather than united anther cells opening by terminal pores. However, the differences between the anthers of the two taxa are more subtle than this, with both species having united cells opening in terminal pores, but with a more obvious connective gland in *S. obovata*. The anthers of *S. obovata* certainly do not resemble the illustration provided by Blackall and Grieve (1980: 71), which shows long slits; instead the pores are more oblong. *Scholtzia obovata* tends to have broader leaves than *S. umbellifera* and usually a shorter style.

Scholtzia oligandra F.Muell. ex Benth., *Fl. Austral.* 3: 70 (1867). *Baeckea oligandra* (F.Muell. ex Benth.) F.Muell., *Syst. Census Austral. Pl.* 54 (1883). *Type citation*: ‘Drummond (5th Coll?), n. 147; Murchison River, Oldfield.’ *Type collection*: near the mouth of Murchison River, Western Australia, 1859–1863, *A.F. Oldfield s.n.* (lecto: MEL2190010, here designated; isolecto: K 000357109). *Excluded syntype*: unknown locality in Western Australia, ?1847–1849, *J. Drummond coll.* ?5, n. 147 (syn: K 000357114 & 000357115, MEL 2190008 & 2190009) [= *S. aff. parviflora*]

Scholtzia sp. Kalbarri (N. Hoyle 623) in G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Descr. Cat.* p. 402 (2000); Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 22 April 2016].

Shrub often cushion-like and 0.1–0.9 m high, rarely recorded up to 1.5 m high. *Petioles* 0.3–0.8 mm long. *Leaf blades* narrowly obovate to almost circular, 2–5 mm long, 0.5–4 mm wide, thin or up to 0.6 mm thick, not pointed, margins denticulate to ciliolate or entire. *Peduncles* 2.5–10 mm long, mostly 2–9-flowered; secondary axes absent or up to 0.6 mm long. *Bracts* 1–2 mm long, usually deciduous. *Pedicels* up to 0.5 mm long. *Flowers* 4.5–6 mm diam. *Hypanthium* 0.9–1.2 mm long, smooth or somewhat wrinkled, not pitted. *Sepals* 0.5–1 mm long, somewhat to strongly ridged. *Petals* 1.5–2.5 mm long, pale pink or white, deciduous. *Stamens* 5–8, with 1–3 opposite each sepal. *Longest filaments* 0.4–0.7 mm long. *Ovary* inferior, 2- or 3-locular; ovules 2 per loculus. *Style* 0.6–0.9 mm long. *Fruits* c. 2/3 inferior, 1.6–1.9 mm long, 1-seeded as far as known; sepals scarious, erect to spreading, the margin recurved; seed 1.2–1.3 mm long.

Selected specimens examined. WESTERN AUSTRALIA: Red Bluff, near Kalbarri, 12 Oct. 1981, *L.A. Craven* 7056 (PERTH); Grandstand Rock Lookout, Kalbarri National Park, 13.2 km c. S of Kalbarri, 28 Sep. 1985, *N. Hoyle* 537 (CANB, PERTH); Eagle Gorge, S of Kalbarri in Kalbarri National Park, 19 Sep. 1994, *A.G. Gunness* 2363 (AD, BRI, PERTH); c. 30 km S of Red Bluff, 3 Dec. 1978, *R.J. Hnatiuk* 780377 (PERTH); just below carpark on pathway to Natural Bridge, Kalbarri National Park, 6 Sep. 2016, *B.L. Rye* 290158 (PERTH); coastal road between Kalbarri and Northampton, 1.45 km S from the Kalbarri post office, 23 Sep. 2002, *M.E. Trudgen* 21659 (MEL, NSW, PERTH).

Distribution and habitat. Occurs near the coast in the Kalbarri area south to near Lucky Bay (west of Binu), on coastal cliffs and dunes, in sand over limestone or sandstone.

Phenology. Flowers mainly from July to November, with mature fruits recorded from August to December.

Typification. Mueller’s manuscript names *Baeckea oligandra* F.Muell. ms and *Scholtzia oligandra* F.Muell. ms for this species were applied to the Oldfield collection. Bentham adopted this epithet but based his description also on a second specimen, *J. Drummond* 147. In the protologue, Bentham (1867: 70) noted that ‘Drummond’s specimens have numerous flowers, but far advanced, and have lost their stamens. In Oldfield’s, the flowers are very few, but more perfect’. Perhaps because of these deficiencies in both specimens, he stated ‘both appear, however, to belong to one species’. Presumably he based floral characters including the stamen number of about five on the Oldfield collection and the fruit description on Drummond’s collection. Unlike all the other descriptions of *Scholtzia* species in *Flora Australiensis*, the description of *S. oligandra* does not indicate the number of ovary loculi, although recording the fruit as ‘separating into 2 hard, usually 1-seeded cocci’ implies that the ovary is bilocular.

The fruiting Drummond material (e.g. K 000357114) matches specimens (e.g. *G.J. Keighery* 16378) that are currently housed at PERTH as *S. aff. parviflora*, although many had previously been identified as *S. oligandra*. However, they conflict with the protologue in having only one ovule per loculus. Like all other species of *Scholtzia* they have indehiscent fruits, so fail even to match Bentham's description of the fruit. The Drummond specimens also have up to six flowers per peduncle rather than the maximum of three indicated in the protologue, although most peduncles do have about three flowers.

Both the protologue and the Oldfield specimens from Murchison River (K 000357109 & MEL 2190010) match material at PERTH that has been housed under the phrase name *S. sp. Kalbarri* (N. Hoyle 623), except in the description of the peduncles as being 1–3-flowered and in the faulty description (see above) of the fruit as separating into two cocci. The ovary in this species is either 2-locular or 3-locular, in about equal frequency. Unfortunately it is not possible to tell from the few fragments of dissected flowers in a packet attached to K 000357109 whether the ovary is 2- or 3-locular, and the stamens are missing. The MEL specimen is also deficient in flowers, with just one intact flower in a packet, but it gives the more detailed locality of 'Sand Hills nr mouth of Murchison', which agrees well with the distribution of *S. sp. Kalbarri*. The limited floral material is sufficient to show that the hypanthium and sepals of the K and MEL specimens match *S. sp. Kalbarri*, and vegetative characters, such as the thick leaves, are a very good match. If the Oldfield material had been in full flower, it would have been clear that the peduncles are not usually as short and few-flowered as indicated by Bentham based on the fruiting Drummond material.

MEL 2190010 is selected here as the lectotype since it has the original collector's details of the locality and a brief description of the plant, one intact flower, and clear indications that it was examined by Bentham. The isolectotype, K 000357109, lacks the original collector's notes and has no intact flowers.

Notes. Selection of the Oldfield collection as the lectotype means that *S. sp. Kalbarri* is reduced here to a synonym of *S. oligandra*. Blackall and Grieve's (1980: 74) key agrees with this delimitation of *S. oligandra* in keying it out as having a smooth hypanthium on page 72 and in indicating that it has two ovules per loculus on page 74, but matches the *S. parviflora* complex in keying it out as having very short peduncles. Peduncles on *S. oligandra* are up to 10 mm long, compared with a maximum of 4 mm long in *S. parviflora s. lat.*, and on average have more numerous flowers.

This species has been described as a cushion plant where it occurs in exposed locations. It often produces somewhat thickened, fleshy leaves, but flatter leaves are also common. Some specimens may have all flowers with one stamen opposite each sepal (1,1,1,1,1 = 5) as all flowers examined so far on *N. Hoyle* 537 appear to be 5-staminate.

Scholtzia parviflora F.Muell., *Fragm.* 4: 76 (1864). *Baeckea parviflora* (F.Muell.) F.Muell., *Syst. Census Austral. Pl.* 54 (1883). *Type citation:* 'In planitiebus ad flumen Murchison. *Oldfield*'. *Type collection:* Dandaragan valley, Western Australia, 1859–1863, *A.F. Oldfield* 133 (*lecto:* MEL 2194369, here designated; *isolecto:* K 000357110). *Syntype:* middle of sandplain, Western Australia, 1859–1863, *A.F. Oldfield* 130 (MEL 2194371).

Illustration. W.E. Blackall & B.J. Grieve, *How Know W. Austral. Wildfl.* 3A: 72 (1980).

Shrub 0.6–3 m high. *Petioles* 0.1–0.5 mm long, often poorly defined. *Leaf blades* broadly obovate or obtriangular, 1.5–4 mm long, 1.5–3 mm wide, upper margins commonly denticulate; adaxial surface with a narrowly ridged midrib, which occasionally protrudes from the leaf apex by up to 0.1 mm;

adaxial surface usually with several veins visible on each side of the midvein. *Peduncles* 0.7–2 mm long, 1–3-flowered. *Bracts* deciduous, 0.7–1.5 mm long. *Pedicels* 0.3–0.9 mm long. *Flowers* 3–4.5 mm diam. *Hypanthium* 0.8–1.3 mm long, deeply pitted-rugose. *Sepals* 0.3–0.6 mm long. *Petals* 1–1.8 mm long, pale to medium pink, deciduous. *Stamens* 4 or 5, with 0–2 opposite each sepal. *Longest filaments* 0.25–0.3 mm long. *Ovary* inferior, (1)2-locular; ovules 1 per loculus. *Style* 0.4–0.75 mm long. *Fruits* (most mature ones examined) *c.* 2/3 inferior, *c.* 1.5 mm long, *c.* 1.6 mm wide; sepals scarious, ± erect or incurved; seed not seen at maturity.

Selected specimens examined. WESTERN AUSTRALIA: Jurien Bay Rd, 29 Aug. 1938, *W.E. Blackall* 3656 (MEL, PERTH); *s. loc., s. dat., J. Drummond s.n.* (MEL 76449); Moore River Bridge at Regans Ford, 31 Aug. 1966, *R. Filson* 8423 (PERTH); on Badgingarra Rd 1 km N from Dandaragan–Moora Rd, 30 Aug. 1984, *D. Foreman* 395 (PERTH); Hill River Spring, 21 July 1934, *C.A. Gardner s.n.* (AD, CANB, NSW, PERTH); Watheroo National Park W boundary of Warro Farm, 15 Aug. 1987, *E.A. Griffin* 4508 (PERTH); Minyulo Nature Reserve, 500 m S of northern boundary, 10 Sep. 2008, *K. Himbeck* KJH 28 (PERTH); crossing of Minyulo Brook by Brand Hwy, *c.* 4.5 km NNW of Cataby, 7 Sep. 1977, *E.N.S. Jackson* 3212 (AD); Moore River, Gillingarra Nature Reserve, 18 Sep. 2008, *G.J. Keighery* 17324 (PERTH); Brand Hwy, 49 km S of Eneabba, near turnoff to Jurien, 6 Oct. 1982, *A. Strid* 20686 (PERTH).

Distribution and habitat. Extends from the Hill River area south to Moore River and east to Watheroo National Park, usually along watercourses or associated with other wetlands, recorded as dominant at one swamp. On watercourses it is often associated with Marri or Flooded Gum and elsewhere sometimes with Prickly Bark (*Eucalyptus todtiana*) or *Banksia prionotes*.

Phenology. Flowers mainly from late June to October, with young fruits recorded from September to November.

Chromosome number. A chromosome count of $n = 11$ (Rye 1979: 571) has been recorded for the *S. parviflora* complex [as *S. parviflora*]. The voucher specimen does not match the typical variant, *S. parviflora s. str.*; instead it is currently identified as *S. aff. parviflora*.

Typification. The type material of *S. parviflora* was apparently collected well south of the Murchison River. Two Oldfield specimens (MEL 2194369 & 2194371) were available to Mueller and later examined by Bentham. One has a known locality as the collector's label records 'Stragglng shrub 6–8 ft Dandaragan valley – 133'. This certainly is well within the geographic range of the *S. parviflora* species complex, which extends only as far north as Northampton, *c.* 60 km south of the Murchison River. The other specimen lacks a locality, being recorded as 'Very much branched shrub 2–4 ft. Middle of sandplain 130', and also lacks flowers. Both are similar to more recent specimens from the Dandaragan area but do not match material collected from the far north of the range near Northampton. Mueller apparently used *A.F. Oldfield* 130 as the basis for giving the locality as 'in planitiebus' but must have relied on *A.F. Oldfield* 133 for the description of the flowers. Consequently the latter specimen is selected as the lectotype.

Notes. Bentham (1867: 70) based his description of Mueller's species on two Drummond specimens as well as the type material, noting that the leaves in Drummond's specimens 'are smaller, more spreading, more orbicular, and less narrowed at the base' than in Oldfield's. The Drummond specimens have leaves of similar size and shape to those of specimens of *S. aff. parviflora* from the Northampton

area. *Scholtzia parviflora* s. str. tends to have larger, more spatulate leaves with visible veins, each terminating in a tooth.

Scholtzia aff. *parviflora* differs from *S. parviflora* in having more petal-like sepals, with the outer ones distinctly larger (0.6–1.1 mm long) than the inner ones, with all sepals widely spreading in fruit. Other differences, such as leaf shape, show too much overlap to be reliably applied and it is possible that a few specimens are somewhat intermediate in their sepals. The *S. parviflora* complex shows a large degree of variation, needing further study to determine whether more than one species should be recognised or whether it would be more appropriate to recognise subspecies.

The most common stamen arrangement in *S. parviflora* s. str., and in the complex as a whole, has a total of five stamens, with paired stamens opposite two sepals, a solitary stamen opposite one sepal and the remaining two sepals lacking a stamen (i.e. 2,0,1,2,0 = 5). Note that this is a different arrangement of the stamens from that found in 5-staminate flowers of *S. oligandra* (see above).

Acknowledgements

I am grateful to the staff at K and MEL for the loan of type material, and Laurent Gautier for advice and images of type material at G. Other images were checked on the *Global Plants* site. I also thank the referee, Terry Macfarlane, and Juliet Wege for their valuable input into this paper.

References

- Bentham, G. (1867). *Flora Australiensis*. Vol. 3. (Reeve & Co.: London.)
- Blackall, W.E. & Grieve, B.J. (1954). *How to know Western Australian Wildflowers*. Part 1. (University of Western Australia Press: Nedlands, Western Australia.)
- Blackall, W.E. & Grieve, B.J. (1980). *How to know Western Australian Wildflowers*. Part IIIA. Restructured and revised 2nd edn by B.J. Grieve. (University of Western Australia Press: Nedlands, Western Australia.)
- de Candolle, A.P. (1828). Myrtaceae. *Prodromus systematus naturalis regni vegetabilis*. Vol. 3. pp. 455–458. (Treuttel & Wurtz: Paris.)
- Druce, G.C. (1917). Nomenclatural notes: chiefly African and Australian. *Report of the Botanical Society and Exchange Club of the British Isles* 4: 601–653.
- George, A.S. (2009). *Australian botanist's companion*. (Four Gables Press: Kardinya, Western Australia.)
- Green, J.W. (1985). *Census of the vascular flora of Western Australia*. (Western Australian Herbarium: Perth.)
- Mueller, F. (1864). Myrtaceae. In: *Fragmenta phytographiae Australiae*. Vol 4. pp. 51–77. (Government Printer: Melbourne.)
- Paczkowska, G. & Chapman, A.R. (2000). *The Western Australian flora: a descriptive catalogue*. (Western Australian Herbarium: Kensington, Western Australia.)
- Rye, B.L. (1979). Chromosome number variation in the Myrtaceae and its taxonomic implications. *Australian Journal of Botany* 27: 547–573.
- Schauer, J.C. (1843). Genera Myrtacearum nova vel denuo recognita. *Linnaea* 17: 235–244.
- Schauer, J.C. (1844). Myrtaceae R.Br. In: Lehmann, C. *Plantae Preissianae*. Vol. 1. pp. 98–158 (Meissneri: Hamburg.)
- Western Australian Herbarium (1998–). *FloraBase—the Western Australian Flora*. Department of Parks and Wildlife. <https://www.florabase.dpaw.wa.gov.au/> [accessed 7 October 2016].

