



New and reinstated species of the *Brachyscome microcarpa* complex (Asteraceae: Astereae)

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Abstract

The *Brachyscome microcarpa* complex, including *B. whitei*, is taxonomically revised. *B. discolor* C.Stuart ex Benth. is reinstated, *B. whitei* G.L.Davis (formerly *B. whitei* subsp. *whitei*) is retained, and *B. microcarpa* F.Muell. is retained with a narrower circumscription. *B. pedleyi* A.R.Bean sp. nov. (formerly *B. whitei* subsp. *lophoptera*), *B. stenoloba* A.R.Bean sp. nov. (formerly *B. microcarpa* subsp. *darlingensis*) and *B. vegrandis* A.R.Bean sp. nov. are newly described. All species are illustrated by images and distribution maps are provided, as is a key to the species of the complex.

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Introduction

Brachyscome Cass. is the second largest Australian genus of Asteraceae, with 87 species (Short 2014). In the 19th century, comprehensive treatments of the genus were provided by Candolle (1836) and Bentham (1867). Davis (1948, 1949a, 1949b) made extensive studies on the taxonomy of *Brachyscome* and named several new species. Further new species were named by Short (1988, 2009, 2014) and Short & Watanabe (1993).

Short (2014) established numerous informal groups within *Brachyscome*, one of which is the "*Brachyscome multifida* group", comprising *B. abercrombiensis* P.S.Short, *B. dissectifolia* G.L.Davis, *B. melanocarpa* Sond., *B. microcarpa* F.Muell., *B. multifida* DC., *B. novae-anglica* G.L.Davis, *B. stuartii* Benth., *B. tamworthensis* P.S.Short and *B. trisecta* P.S.Short. He described the *mul-*

tifida group as "A poorly circumscribed and artificial grouping primarily distinguished from the *B. triloba* group by the achenes of most species lacking wing-like extensions on their ab/adaxial margins and usually by lacking longitudinal ridges on the lateral surfaces."

This paper is concerned with the *B. microcarpa* 'complex' as it was termed by Short (2014) and also *B. whitei* G.L.Davis. *B. microcarpa* F.Muell. sens. lat. and *B. whitei* G.L.Davis sens. str. are unusual in the genus because their uppermost leaves (subtending the peduncles) are in opposite pairs. These species are further recognisable by their conspicuously petiolate lower leaves, a feature not otherwise found in *Brachyscome* spp. from Queensland or New South Wales.

Short (2014) placed *B. whitei* in a taxonomic group by itself, far removed from *B. microcarpa*. The present author considers *B. microcarpa* and *B. whitei* to be close-

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ly allied, and non-fruiting specimens of these species are quite difficult to distinguish. *B. whitei* subsp. *lophoptera* P.S.Short is, however, more readily diagnosed by its alternate upper leaves and the presence of septate eglandular hairs, and it is described here at species rank as *B. pedleyi*. Other plants formerly included in the circumscription of *B. microcarpa* are here reinstated (*B. discolor* C.Stuart ex Benth.) or newly described (*B. stenoloba* and *B. vegrandis*).

Six species are recognised and treated here: *Brachyscome discolor* C.Stuart ex Benth., *B. microcarpa* F.Muell., *B. pedleyi* A.R.Bean, *B. stenoloba* A.R.Bean, *B. vegrandis* A.R.Bean and *B. whitei* G.L.Davis.

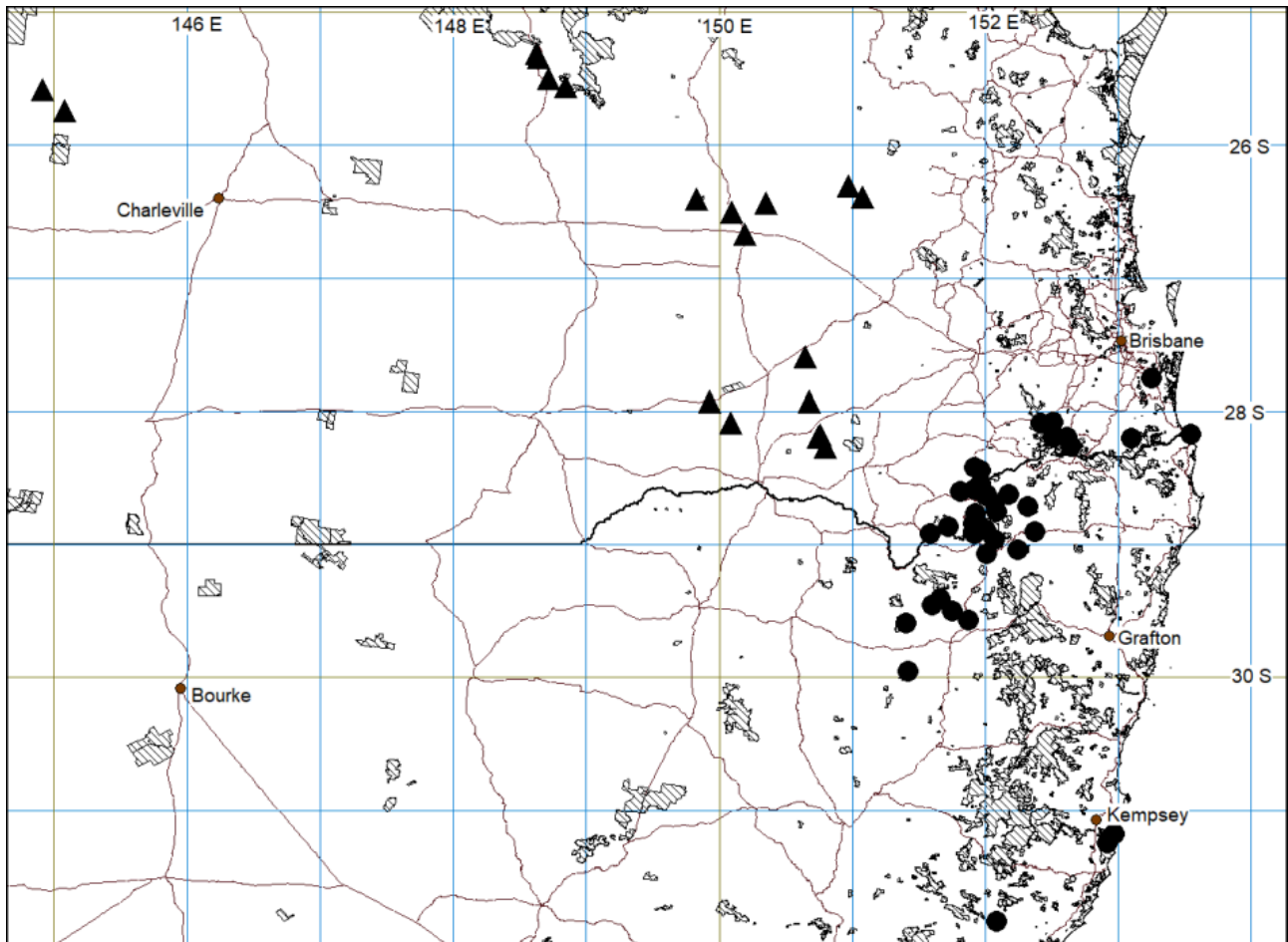
Methods

Based on a study of herbarium specimens from BRI and NSW, and observations made in the field. In cases where the leaf lamina decreases gradually in width, the petiole is here defined as the portion that is less than 1.2 mm across. The distribution maps were compiled using Diva-GIS 7.5.0.

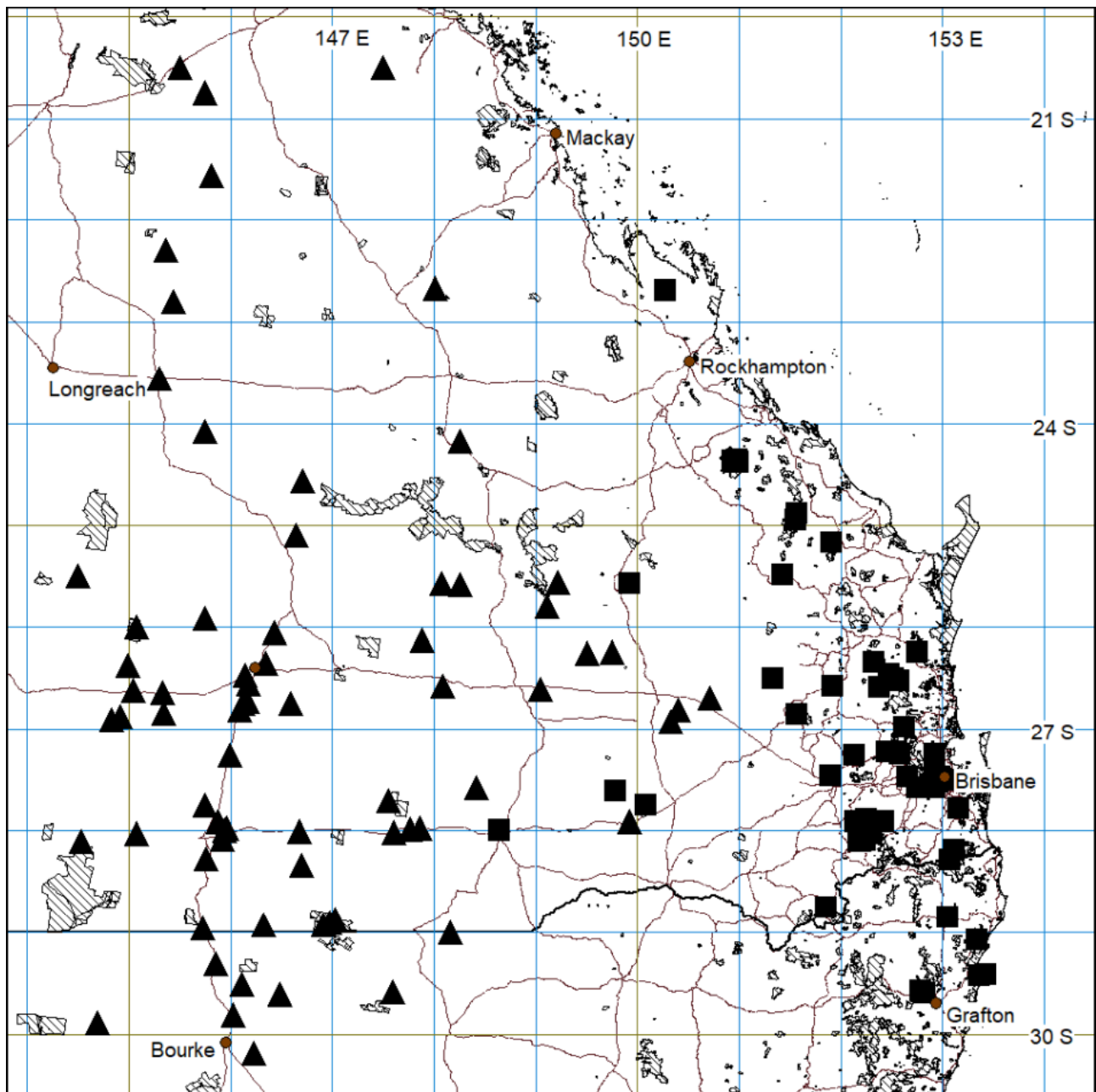
Taxonomy

Key to the species of the *Brachyscome microcarpa* complex

- 1 Uppermost leaves alternate; lower stems (and often leaves) with septate eglandular hairs **B. pedleyi**
- 1 Uppermost leaves opposite; stems and leaves glabrous or with glandular hairs only **2**
- 2 Peduncles glabrous or with fewer than 10 glandular hairs **3**
- 2 At least the upper part of peduncle with moderately dense to dense glandular hairs **4**
- 3 Lamina deeply divided; fruits not winged; pappus bristles 0.05–0.2 mm long **B. stenoloba**
- 3 Lamina shallowly lobed; fruits winged; pappus bristles 0.35–0.5 mm long **B. whitei**
- 4 Achenes 0.8–1.0 mm long; involucre bracts 1.5–2.1 mm long; annual plant **B. vegrandis**
- 4 Achenes 1.0–1.8 mm long; involucre bracts 2.5–4.2 mm long; perennial plants **5**



Map 1. Distribution of *Brachyscome discolor* (circles) and *B. stenoloba* (triangles).



Map 2. Distribution of *Brachysome microcarpa* (squares) and *B. pedleyi* (triangles).

5 Leaves glabrous; peduncle glandular-hairy only in upper half; pappus 0.15–0.25 mm long

B. discolor

5 Leaves sparsely to densely hairy; peduncle hairy throughout; pappus 0.05–0.1 mm long

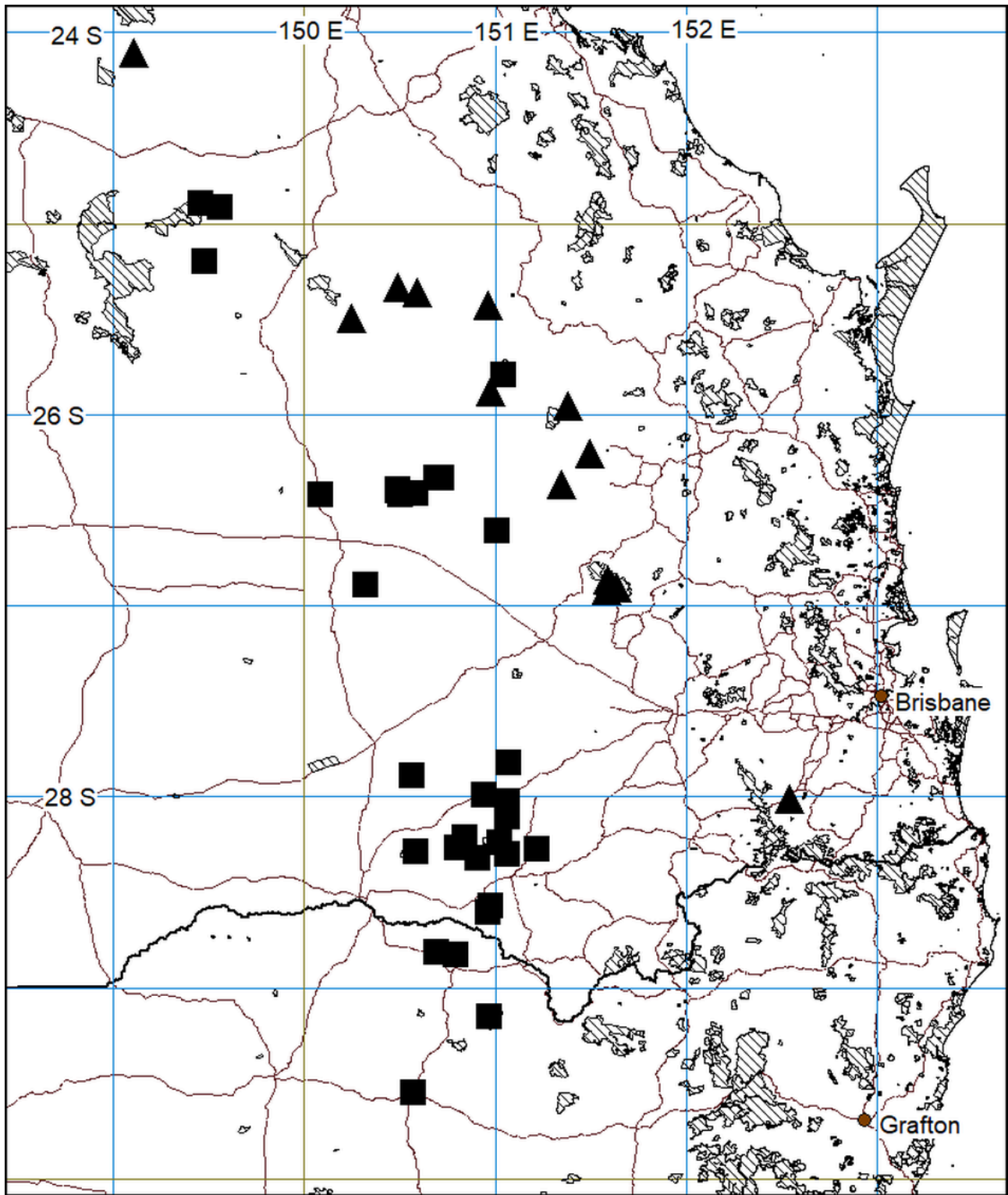
B. microcarpa

***Brachysome discolor* C. Stuart ex Benth., Fl. Austral. 3: 520 (1867).**

Type: New South Wales. New England, undated, *C. Stuart* 271 (lecto: MEL 116007 [plant on the right], *fide* Davis (1948: 176); isolecto: MEL 116007, plants on the left).

Fig. 1

Erect or sprawling perennial. Vegetative stems 3–30 cm long, terete, glabrous. Lower leaves alternate; lamina obovate to spatulate, 17–50 x 11–20 mm, green on both sides or sometimes purple on lower surface, glabrous, with a midrib and a few indistinct lateral veins, margins irregularly crenate, petioles 10–50 mm long. Upper leaves opposite; lamina oblanceolate to spatulate, 10–16 x 5–7 mm, green, glabrous, with a midrib and a few indistinct lateral veins, sessile, margins crenate to dentate. Inflorescence in upper leaf axils; peduncles terete, 55–170 mm long, 0.4–0.7 mm diameter, glabrous in lower half, with sparse to dense glandular hairs in upper half, hairs 0.05–0.1 mm long; capitula solitary, 6–7 mm wide; involucre bracts in two rows, all more or less equal, elliptical, 2.6–3.3 mm long, not reflexed at fruiting stage, acute or obtuse, green throughout or pur-



Map 3. Distribution of *Brachyscome whitei* (squares) and *B. vegrandis* (triangles).

plish near apex, with numerous glandular hairs 0.05–0.1 mm long. Receptacle conical to hemispherical, areolate, 1.1–1.9 mm diameter, glabrous. Ray florets 16–29, female; corolla tube c. 1.2 mm long, sparsely glandular-hairy; rays 5.0–6.5 mm long, white or mauve, apex acute or obtuse; style branches c. 0.4 mm long, not papillose. Disc florets 28–40, bisexual; corolla cylindrical, 1.8–2.4 mm long, yellow to pale green, glabrous or with a few

glandular hairs, 5-lobed, lobes 0.3–0.6 mm long; anthers 1.0–1.5 mm long, terminal appendage c. 0.2 mm long; style branches 0.5–0.7 mm long, papillose. Achenes flattened, obovate, 1.2–1.6 mm long, pale brown to black, obtuse, with scattered glandular hairs on the upper one-third; surfaces sparsely tuberculate, tubercles glabrous, wings absent; pappus of numerous very short bristles, 0.15–0.25 mm long, white, persistent.

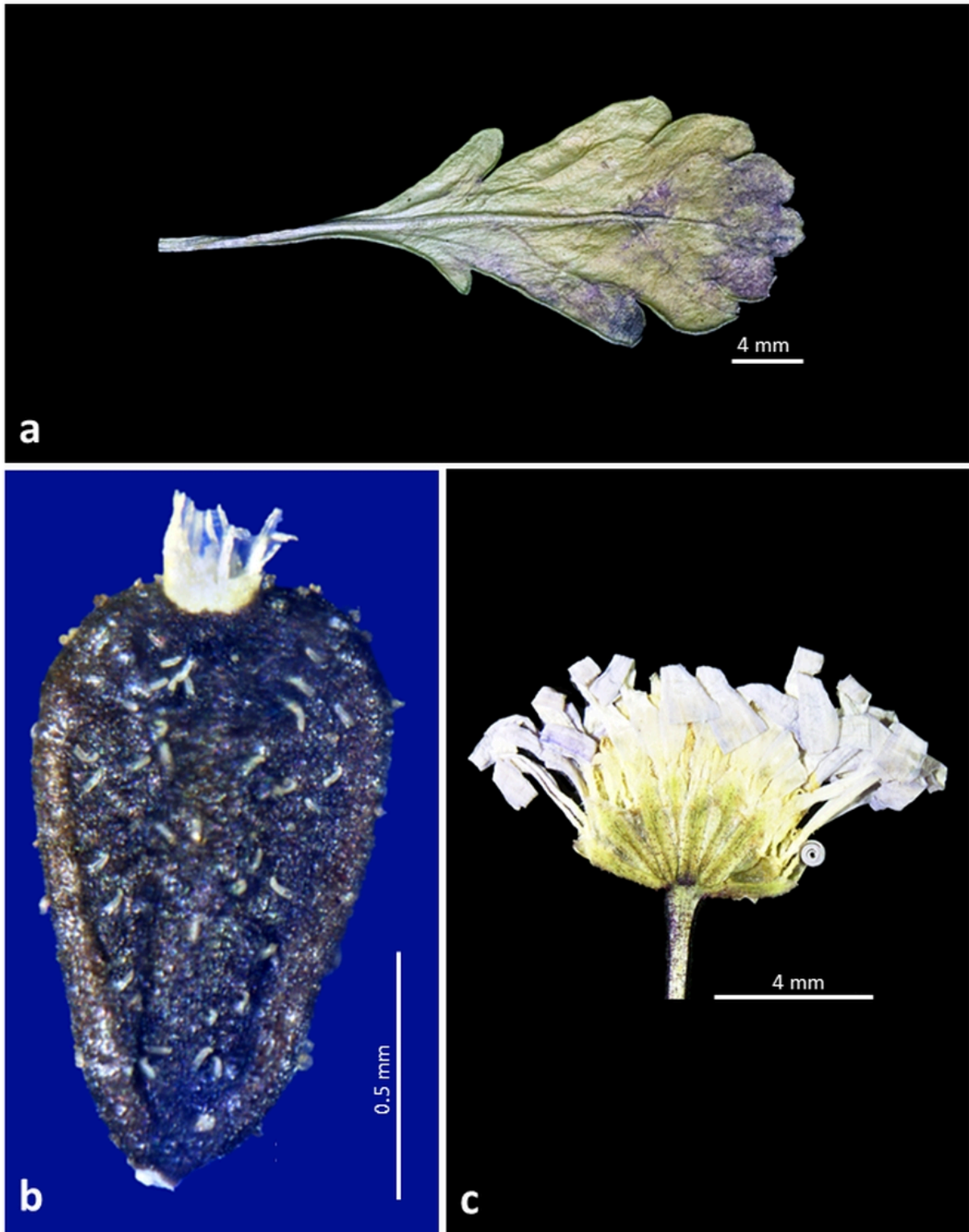


Figure 1. *Brachyscome discolor*. a. lower leaf (Bean 32698) b. achene and pappus (Bean 24584) c. flower head (Bean 32698).

Queensland. Darling Downs. Between 'K' junction and 'L' junction, Girraween National Park, Jan 2016, A.R. Bean 32698 (BRI); Girraween National Park, near Wyberba and Wallangarra, Nov 1971, S.T. Blake 23641 (BRI); Mt Tully, 6 miles [10 km] SE of Stanthorpe, Oct 1963, L. Pedley 1448(BRI); Sundown National Park, near Red Rock

Gorge, road to Severn River, Jan 1993, P.I. Forster PIF12675 & D. Halford (BRI). Moreton. Eastern slopes of Mt Bangalora, May 1990, Forster PIF6761 et al. (BRI, MEL); Ormeau, undated, N. Michael 1882 (BRI); Mt Greville, 15 km SW of Boonah, Moogerah area, Sep 1988, L. Bird s.n. (BRI, K, US). **New South Wales.** Northern Table-

lands. Willsons Downfall State Forest, just W of Willsons Downfall, Dec 2015, *A.R. Bean 32501* (BRI); Junction of Stanthorpe - Amosfield road with Maryland road, Jan 1992, *P.G. Wilson 1290 & R. Rowe*(BRI, NSW); 22.5 km from Tingha, on Guyra road, Dec 2005, *A.R. Bean 24584* (BRI); Kings Plains National park, c. 550 metres E of car park, May 2012, *R. Johnstone 3153* (NSW); c. 6 km S of Boonoo Boonoo along road to Tenterfield, Jan 1993, *P.S. Short 3970* (AD, CANB, DNA, HO, NSW); Emmaville, Jun 1904, *J.L. Boorman s.n.* (NSW); Manning River, Dec 1899, *E. Cheel s.n.* (NSW); Drake, Jun 1913, *J. Richards s.n.* (NSW).

Diagnostic features. *Brachyscome discolor* has for many years been included in the synonymy of *B. microcarpa*. It is reinstated here as it can be consistently distinguished from that species. It differs from *B. microcarpa* by the pappus bristles 0.15–0.25 mm long (0.05–0.1 mm long for *B. microcarpa*); the glabrous leaves (sparsely to densely hairy in *B. microcarpa*); the peduncle and involucre bracts with glandular hairs 0.05–0.1 mm long (0.05–0.25 mm for *B. microcarpa*); and the lower part of the peduncle being glabrous (glandular hairs distributed throughout peduncle for *B. microcarpa*).

Phenology. Flowers and fruits may be found throughout the year.

Distribution & habitat. In Queensland, *Brachyscome discolor* is mostly found on the 'Granite Belt' around Stanthorpe, but there are also records from the mountains of the 'Scenic Rim', south and south-west of Boonah, and an apparently isolated occurrence at Ormeau. In New South Wales, its main occurrence is on the New England tableland, but it extends as far south as the Manning River near Taree (Map 1). It grows on shallow sandy or loamy soils in eucalypt forest.

Brachyscome microcarpa F. Muell., *Fragm.* 1: 50 (1858).

Type: Queensland. Brisbane River, July 1855, *F. Mueller s.n.* (lecto: MEL 220355 [plant on the right], *fide* Davis (1948: 176); isolecto: K 000882175, MEL 220355 [plant on the left]).

Fig. 2.

Erect, procumbent or prostrate perennial. Vegetative stems 2–40 cm long, terete, sparsely to densely glandular-hairy. Lower leaves alternate; lamina spatulate to orbicular, 14–27 x 8–22 mm, green on both sides, very sparsely to densely glandular-hairy, with a midrib and a few distinct lateral veins, tertiary veins sometimes visible, margins dentate to crenate, petioles 5–32 mm long. Upper leaves opposite; lamina narrowly elliptical to spatulate, 7–29 x 2–13 mm, green, very sparsely to densely glandular hairy, with a midrib and a few distinct lateral veins, margins crenate to dentate; petioles absent or up to 12 mm long. Inflorescences in upper leaf axils; peduncles terete, 45–200 mm long, 0.4–1.0 mm diameter, with sparse to dense glandular hairs through-

out its length, hairs 0.05–0.25 mm long; capitula solitary, 4.5–6.5 mm wide, involucre bracts in two rows, all more or less equal, elliptical, 2.4–4.0 mm long, acute, green throughout or purplish near apex, with numerous glandular hairs 0.05–0.2 mm long, not reflexed at fruiting stage. Receptacle conical to hemispherical, areolate, 1.2–2.5 mm diameter, glabrous. Ray florets 32–42, female, corolla tube 0.4–0.6 mm long, glabrous or glandular hairy; rays 4.0–7.0 mm long, white or mauve, obtuse; style branches 0.7–0.8 mm long, glabrous or somewhat papillose. Disc florets 60–71, bisexual; corolla cylindrical, 2.2–2.7 mm long, yellow to pale green, with numerous glandular hairs, 5-lobed, lobes 0.3–0.4 mm long; anthers 1.0–1.2 mm long, terminal appendage absent or up to c. 0.2 mm long; style branches c. 0.4 mm long, papillose. Achenes flattened, obovate, 1.1–1.7 mm long, dark brown to black, obtuse, with a few glandular hairs on the upper one-third; surfaces sparsely to densely tuberculate, tubercles each with a tiny hair, wings absent; pappus of numerous very short bristles, 0.05–0.1 mm long, white, persistent.

Queensland. Port Curtis. Shoalwater Bay Training area, 1 km east of North-South road, Apr 2011, *Neldner VJN4727 & Fairfax* (BRI); Forestry barracks, Kroombit Tops, 64 km SW of Calliope, Dec 1983, *P.R. Sharpe 3451* (BRI). Burnett. Bania National Park, headwaters of Burnett River; Burnett Range, Jun 2013, *P.I. Forster PIF39861 & M.B. Thomas* (BRI); Bania National Park, eastern headwaters of Mountain Creek, Burnett Range, Jun 2013, *P.I. Forster PIF40223 & M.B. Thomas* (BRI, CANB). Wide Bay. Bella Creek Rd, W of Imbil, Jan 2004, *Bean 21670 & Ryan* (BRI); Southern shoreline of Lake Borumba just east of Borumba Creek, SW of Imbil, Dec 1996, *W.J. McDonald 6402 & J. Holman*(BRI). Darling Downs. 3 km S of Glen Aplin along highway to Tenterfield, Jan 1993, *P.S. Short 3969 et al.* (CANB, NSW); Near Cherry Plain picnic area, Bunya Mountains National Park, Dec 1997, *A.R. Bean 12739* (BRI); Upper Pilton, E of Clifton, Mar 1999, *A.R. Bean 14683* (BRI). Moreton. East of Swanborough Road, Logan Village, 20 Aug 2022, *A.R. Bean 34895* (BRI; B, BM, CANB, MEL, NSW, US, to be distributed); Crossdale ridge, E of Wivenhoe Dam, Jun 1990, *A.R. Bean 1635*(BRI, MEL); NW slopes of Mt Archer, off Westvale road, S of Villeneuve, SE of Kilcoy, Apr 2021, *S.P. Phillips 3254 & B.A. Phillips* (BRI); Honeyeater track, near Fleming Road, Mt Coot-tha reserve, 4 Aug 2022, *L. Ngugi s.n.* (BRI). **New South Wales.** Yamba, near Clarence Heads, Nov 1941, *J. McCornish s.n.* (NSW); Smiths Creek, 7 miles [11 km] NE of Ramornie, Jul 1922, *W.F. Blakely & D.W. Shires s.n.*(NSW); Woodburn, Aug 1896, *W. Bauerlen 1815* (NSW); Casino, Jun 1891, *W. Bauerlen s.n.* (NSW).

Phenology. Flowers and fruits may be found throughout the year.

Distribution & habitat. *Brachyscome microcarpa* extends from Shoalwater Bay, N of Rockhampton in Qld, to as far south as Grafton in N.S.W., and as far west as St George

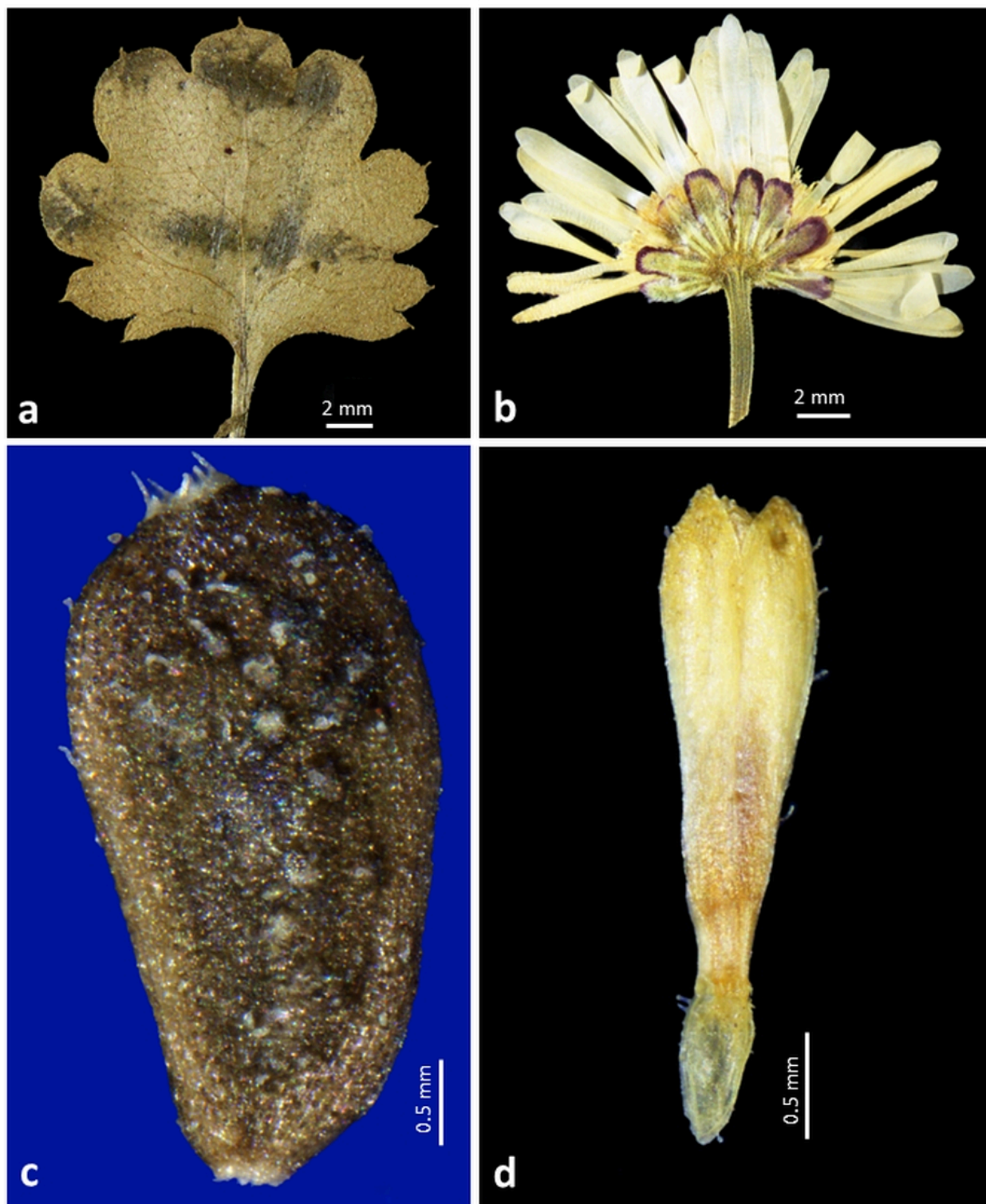


Figure 2. *Brachyscome microcarpa*. a. lower leaf (Forster 40223) b. flower head (Forster 40223) c. achene and pappus (Bean 21670 & Ryan) d. disc floret (Forster 39861).

(Map 2). It grows in eucalypt woodland on sandy loam to clay-loam soils.

Notes. *Brachyscome microcarpa* remains the most variable of the species treated in this paper. The upper leaves may be sessile or petiolate, the glandular hairs vary greatly in density and length depending on prove-

nance, and even the achene size is quite variable. It does not seem possible to separate distinct taxa from herbarium material, but a comprehensive greenhouse study of potted plants may be instructive.

Specimens formerly identified as *B. microcarpa* subsp. *darlingensis* are here treated as *B. stenoloba* sp. nov.

Brachyscome pedleyi A.R.Bean sp. nov.

Type: Queensland. Maranoa district. Balonne Highway, at Murra Murra turnoff, W of Bollon, 30 August 2022, A.R. Bean 34933 (holo: BRI; iso: MEL, NSW).

B. whitei subsp. *lophoptera* P.S.Short, *J. Adelaide Bot. Gard.* 28: 167 (2014). Type: Queensland. Warrego district: 41 km S of Charleville, 16 August 1988, P.S. Short 3159 (holo: MEL 1578425; iso: BRI).

Fig. 3.

With affinity to *B. whitei* but differing by alternate leaves throughout, the upper leaves tapering to the base and lacking a petiole, the presence of septate eglandular hairs on the lower stems, the longer involucre bracts, and the dark brown to black mature achenes with thick wings.

Erect perennial. Vegetative stems 2–18 cm long, terete, sparsely to densely hairy with septate hairs, and sometimes glandular hairs. Lower leaves alternate; lamina obovate to orbicular, 9–15 x 6–12 mm, green on both sides, with septate eglandular hairs and sometimes tiny glandular hairs, with a midrib and a few lateral veins visible, margins crenate to dentate, petioles 8–18 mm long. Upper leaves alternate; lamina elliptical to oblanceolate or cuneate, 5–16 x 1–9 mm, green, with glandular and sometimes septate hairs, with a midrib and a few lateral veins visible, margins crenate to dentate, sessile. Inflorescence in upper leaf axils; peduncles terete, 30–110 mm long, 0.6–1.0 mm diameter, with septate hairs 0.2–1.0 mm long, or glandular hairs 0.05–0.1 mm long, or occasionally glabrous; capitula solitary, 5.5–7.0 mm wide; involucre bracts in two rows, all more or less equal, elliptical, 3.3–4.1 mm long, not reflexed at fruiting stage, acute, green throughout or purplish near apex, with numerous glandular hairs c. 0.05 mm long and often with septate hairs. Receptacle hemispherical, not areolate, 3.0–4.2 mm diameter, glabrous. Ray florets 30–40, female, corolla tube c. 0.5 mm long, sparsely glandular-hairy; rays 6–8 mm long, white, pink or mauve, apex acute; style branches c. 0.5 mm long, not papillose. Disc florets 40–60, bisexual; corolla cylindrical, 1.8–2.0 mm long, yellow to pale green, glabrous or with a few glandular hairs, 5-lobed, lobes 0.4–0.5 mm long; anthers 1.0–1.2 mm long, terminal appendage c. 0.2 mm long, style branches 0.5–0.6 mm long, papillose. Achenes swollen, cylindrical, 1.5–1.7 mm long, dark brown to black, obtuse, without glandular hairs on the upper one-third; surfaces +/- smooth due to coalescent tubercles, with 6–20 apically curled hairs per surface, each 0.05–0.1 mm long; lateral wings prominent, 0.35–0.4 mm wide, thick, opaque; wing margins entire, with numerous apically curled hairs; pappus of numerous short bristles, 0.25–0.5 mm long, white, persistent.

Queensland. North Kennedy. NW of Pentland, ESE of Lolworth, Jul 1954, S.T. Blake 19355 (BRI). South Kennedy. 2 km NW of Lake Constant, May 1991, V.J. Neldner 3518A

& E.J. Thompson (BRI). Mitchell. Myross station, 27.4 km NE of Aramac, May 2006, E.J. Thompson MUT310A & G.W. Wilson (BRI). Leichhardt. Injune-Taroom Road, c. 54 km E of Injune, Apr 2010, C. Eddie CPE1930 (BRI). Warrego. 18 km N of Cunnamulla along main road to Charleville, Aug 1989, P.S. Short 3579 & K. Watanabe (BRI, MEL); 102 km W of Charleville on Quilpie road, Aug 2005, G.N. Batianoff 0508003 & D. Butler (BRI); Mariala National Park; 52.5 km east by road from Adavale, Aug 2009, P.I. Forster PIF35735 & M.B. Thomas (BRI). Maranoa. Balonne Highway, 40 km E of Bollon, Aug 1978, K.A. Williams 78252 (BRI); 17.8 km SE of "South Glen", c. 90 km E of Cunnamulla, Aug 2006, A.R. Bean 25542 (BRI); 75 km W of Bollon, on Bollon Hwy, Aug 1981, T. Whaithe 3824 (BRI, CANB); Karoola Road, S of Dirranbandi, 0.2 km N of state border, Sep 2004, A.R. Bean 22856 (BRI). Darling downs. Stanbroke feedlot property, 23 km WSW of Chinchilla, Jul 2013, R. Aisthorpe CPE2497 & R. Johnson (BRI); 54 km SW of Moonie on Moonie Hwy towards Westmar, Nov 1993, A.E. Holland 1033 & M. McGowan (BRI). **New South Wales.** North west plains. 2.1 km N of Ledknapper Crossing, SE of Enngonia, Sep 2004, A.R. Bean 23065 (BRI); "Prairie", NE of Bourke, Aug 1977, W.E. Mulham 1149 (NSW); "Eureka Plains", Enngonia, Sep 1985, N. Irons & P. Fogarty 830 (NSW); Kurrajong station, near Glengarry opal field, c. 100 km NE of Brewarrina, Sep 1974, J. Thompson 2115 (NSW); Mt Oxley, SE of Bourke, Jul 1958, C.K. Ingram s.n. (NSW).

Diagnostic features. *Brachyscome pedleyi* can be distinguished from all other Queensland *Brachyscome* by the presence of septate eglandular hairs on the lower stems and sometimes the involucre bracts. On specimens from New South Wales and southern Queensland, these hairs are long and conspicuous, but for specimens from the northern part of its geographical range, the septate hairs are much shorter and sparser and largely confined to the basal part of the stems and on new basal shoots. This type of hair is absent from *B. whitei* and other species of the *B. microcarpa* complex.

B. pedleyi is perhaps most closely related to *B. whitei* because the achenes of these are very similar in size and shape, but *B. pedleyi* achenes are dark brown to black at maturity (usually pale yellowish-brown for *B. whitei*), and they have thick opaque wings (thin translucent wings for *B. whitei*). Other differences are the alternate, sessile upper leaves (opposite, petiolate for *B. whitei*); and the involucre bracts 3.3–4.1 mm long (2.3–3.0 mm long for *B. whitei*).

Phenology. Flowering or fruiting specimens are recorded from March to November, with most in the July to October period.

Distribution & habitat. *Brachyscome pedleyi* has a wide distribution extending from Pentland in Queensland to Bourke in New South Wales; it is recorded as far west as Adavale and as far east as Chinchilla (Map 2). It grows in sandy or sandy loam soils, often near watercourses.

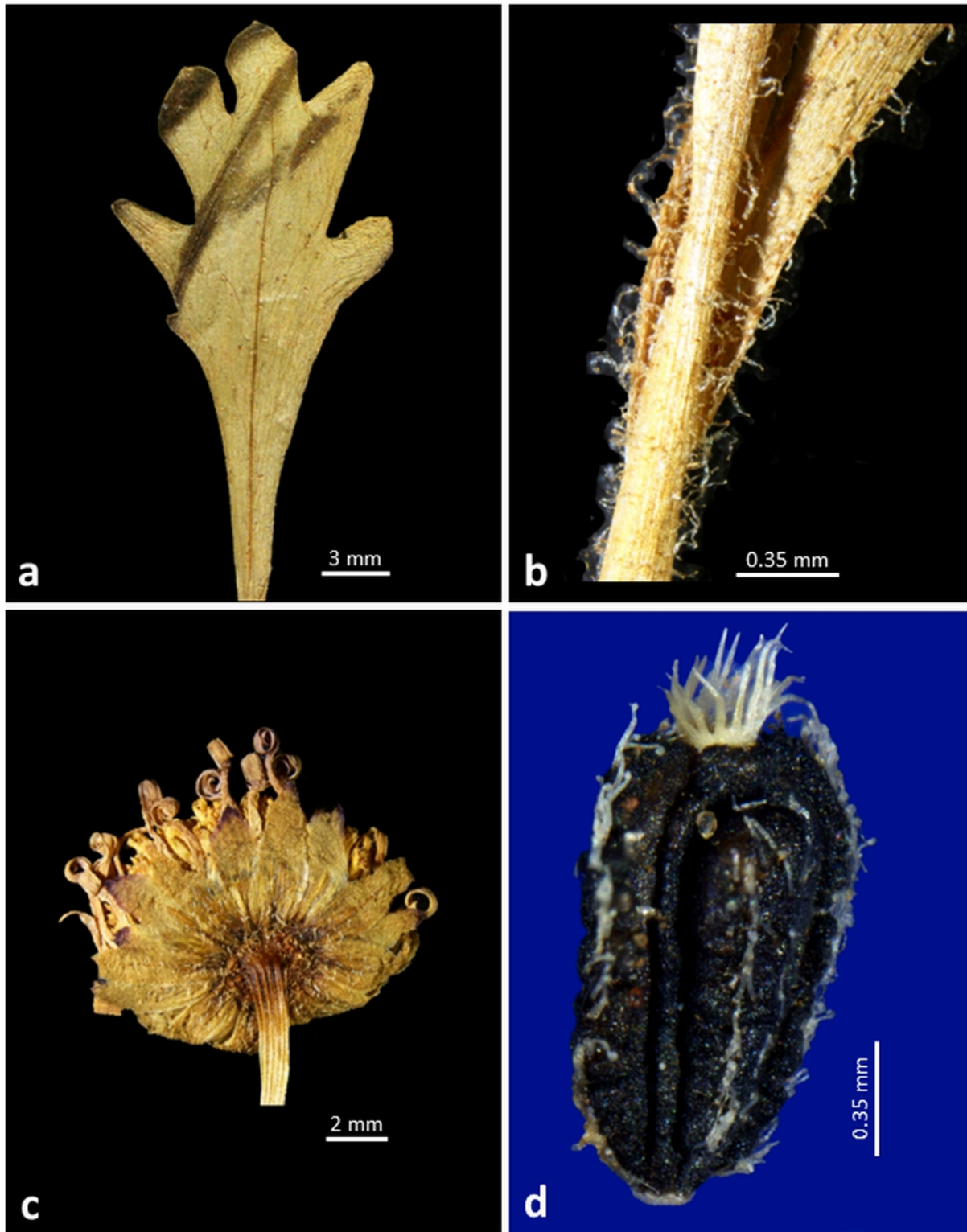


Figure 3. *Brachyscome pedleyi*. a. lower leaf (Williams 78252) b. stem showing septate eglandular hairs (Williams 78252) c. flower head (Williams 78252) d. achene and pappus (Bean 22856).

In the west it is most commonly associated with *Acacia aneura* and *Eucalyptus populnea*; in the east it grows with several *Eucalyptus* spp. and *Callitris glaucophylla*.

Etymology. Named in honour of Leslie Pedley (1930-2018), a talented plant taxonomist from Queensland and a kind and modest person. While his taxo-

onomic studies concentrated on the Leguminosae, he did describe a few species in Asteraceae.

Notes. The distributions of *B. pedleyi* and *B. whitei* overlap only in the Chinchilla-Miles area, and there is no evidence of intergradation or hybridisation between them.

Brachyscome stenoloba A.R.Bean sp. nov.

Type: Queensland. Darling Downs. Boondandilla State Forest, SE of Moonie, 28 August 2022, A.R. Bean 34899 (holo: BRI (1 sheet + spirit); BM, CANB, MEL, NSW, US).

B. microcarpa subsp. *darlingensis* P.S.Short, *J. Adelaide Bot. Gard.* 28: 132 (2014). Type: Queensland. Darling Downs. Burraburri Creek, 16 km W of Durong, 7 May 1992, P.I. Forster PIF9831 (holotype: MEL 713635; isotype: BRI, AQ543817).

Brachyscome sp. (Darling Downs) in Salkin et al. (1995: 246–7).

Figs. 4, 5.

With affinity to *B. microcarpa* but differing by the glabrous leaves, stems and peduncles, the deeply divided upper and lower leaves, the longer corolla lobes of the disc florets, and the achenes lacking glandular hairs on the upper one-third.

Erect perennial. Vegetative stems 2–25 cm long, terete, glabrous. Lower leaves alternate; lamina deeply divided, pinnatisect, 10–22 x 6–26 mm, green on both sides, glabrous, with a midrib and lateral veins, lobe margins entire or toothed, petioles 20–36 mm long. Upper leaves opposite; lamina deeply divided, pinnatifid to pinnatisect, 9–23 x 9–21 mm, green, glabrous, with a midrib and lateral veins, lobe margins entire or toothed, petioles 7–12 mm long. Inflorescences in upper leaf axils; peduncles terete, 60–210 mm long, 0.5–0.9 mm diameter, glabrous throughout; capitula solitary, 3.5–5 mm wide, involucre bracts in two rows, all more or less equal, elliptical, 2.3–2.7 mm long, not reflexed at fruiting stage, acute or obtuse, green throughout or purplish near apex, with scattered glandular hairs c. 0.05 mm long at base. Receptacle conical to hemispherical, areolate, 1.8–3.0 mm diameter, glabrous. Ray florets 22–38, female, corolla tube c. 0.6 mm long, sparsely glandular-hairy; rays 6.5–7.0 mm long, white or pink, apex notched; style branches 0.5–0.6 mm long, obscurely papillose. Disc florets 61–88, bisexual; corolla cylindrical, 2.0–2.5 mm long, yellow, with a few glandular hairs, 5-lobed, lobes 0.5–0.6 mm long; anthers c. 1.0 mm long, terminal appendage absent; style branches 0.5–0.6 mm long, papillose. Mature achenes flattened, obovate, 1.1–1.3 mm long, black, apex obtuse, without glandular hairs on the upper one-third; surfaces sparsely to densely tuberculate, tubercles each with an apically curled hair, wings absent; pappus of numerous extremely short bristles, c. 0.05 mm long, white, persistent.

Queensland. Warrego. 50 km NE of Adavale, Jul 1989, P. Gregg 116 (BRI). Leichhardt. 'Kentucky', ca. 45 km north-east of Injune, May 2010, C. Eddie CPE1573 & A. Harris

(BRI); N of Boxvale, near Injune-Rolleston road, Aug 1990, A.R. Bean 2072 (BRI). Darling Downs. 14 miles [23 km] E of Westmar, Apr 1962, L. Pedley 976 (BRI); Wyaga State Forest; 43 km N of Yelarbon, Aug 2009, P.I. Forster PIF36154 & M.B. Thomas (BRI); Possum Park, 20 km N of Miles, Jun 2011, D. Halford QM492 (BRI); c.3.9 km SSE of Durah Waterhole, on Barakula forest road, Durah Creek, Aug 1998, A.B. Pollock ABP718 & L. Dean (BRI); Bybera, Inglewood-Millmerran, Sep 1934, C.T. White 10143 (BRI).

Diagnostic features. *Brachyscome stenoloba* differs from *B. microcarpa* by the consistently glabrous stems, leaves and peduncles (sparsely to densely hairy for *B. microcarpa*); the deeply divided upper and lower leaves (shallowly lobed for *B. microcarpa*); the corolla lobes of the disc florets 0.5–0.6 mm long (0.3–0.4 mm long for *B. microcarpa*); and the achenes lacking small glandular hairs on its upper one-third (glandular hairs present for *B. microcarpa*).

Phenology. Flowers and fruits may be found throughout the year.

Distribution & habitat. *Brachyscome stenoloba* is endemic to Queensland, where it is found from Yelarbon to Injune, and with a disjunct occurrence further west near Adavale (Map 1). It occurs in sandy or loamy soils with various species of *Eucalyptus* and often with *Callitris glaucophylla*. In the most westerly populations, it occurs with *Acacia aneura*.

Etymology. From the Greek *stenos* - narrow and *lobus* - lobed, referring to the slender leaf lobes in this species.

Brachyscome vegrandis A.R.Bean sp. nov.

Type: Queensland. Burnett. Borania State Forest, S of the Eidsvold - Theodore road, 17 April 2015, P.I. Forster PIF42336 & M.B. Thomas (holo: BRI).

Fig. 6.

With affinity to *B. microcarpa* but differing by annual habit, the smaller capitula, the shorter involucre bracts, the fewer disc florets, and the shorter achenes.

Erect annual. Vegetative stems 2–15 cm long, terete, glabrous or sparsely glandular hairy. Lower leaves alternate; lamina broadly obovate to cuneate, 8–12 x 6–12 mm, green on both sides, glabrous or sparsely glandular-hairy, with a midrib and a few distinct lateral veins, tertiary veins sometimes visible, margins crenate, petioles 7–19 mm long. Upper leaves opposite; lamina elliptical to spatulate, 5–11 x 6–10 mm, green, glabrous or sparsely glandular hairy, with a midrib and a few distinct lateral veins, margins crenate to dentate; petioles 3–18 mm long. Inflorescence in upper leaf axils; peduncles terete, 35–90 mm long, 0.3–0.5 mm diameter, with sparse to moderately dense glandular hairs throughout its length, hairs 0.05–0.1 mm long; capitula solitary, 3.0–4.0 mm wide; involucre bracts in two rows, all more or less equal, elliptical, 1.5–2.1 mm long, obtuse, green throughout or purplish near apex, with numerous glandular hairs on the upper one-third.

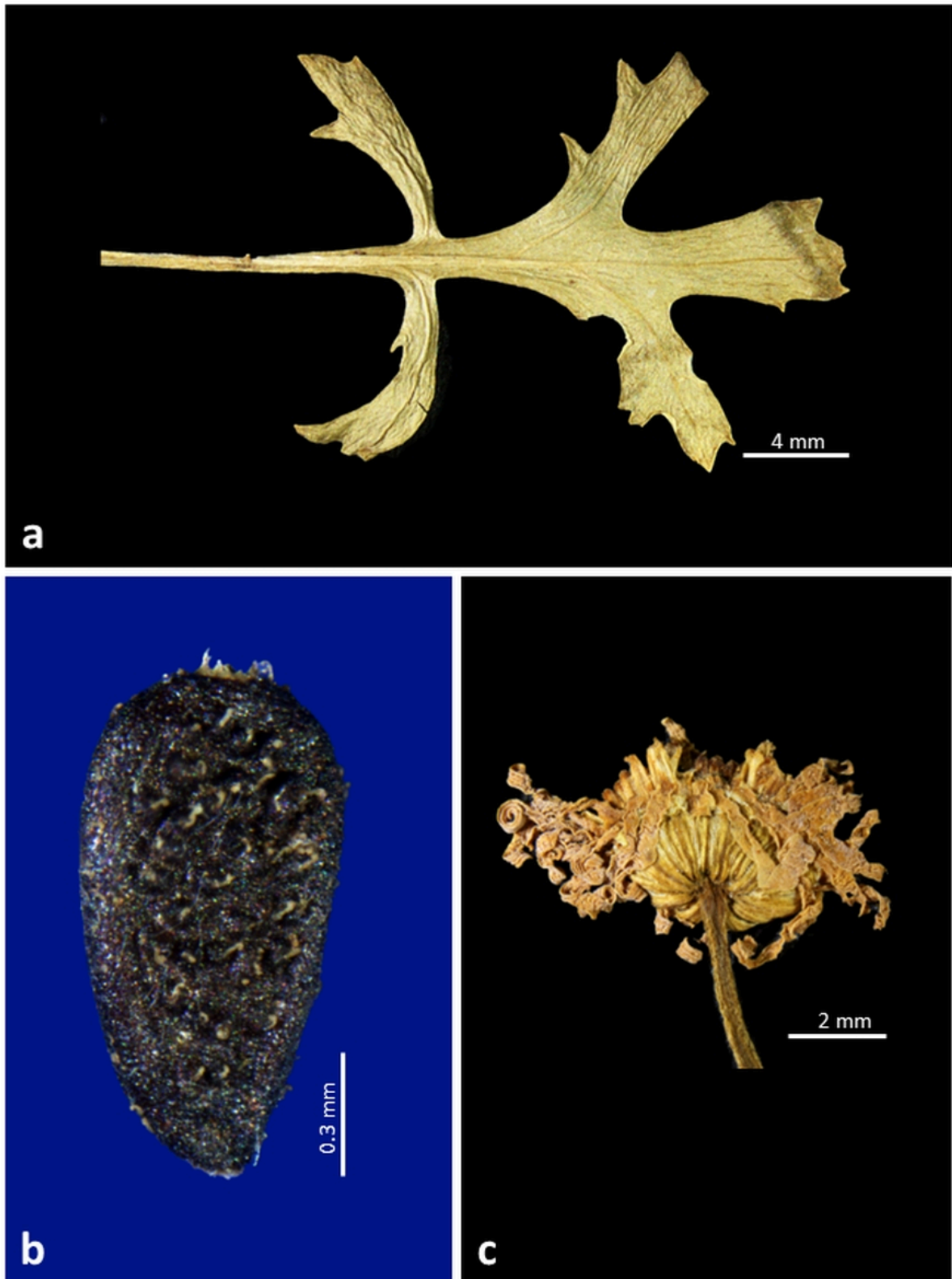


Figure 4. *Brachyscome stenoloba*. a. lower leaf (Pedley 976) b. achene and pappus (Pedley 976) c. flower head (Pedley 976).

dular hairs 0.05–0.1 mm long, not reflexed at fruiting stage. Receptacle conical to hemispherical, areolate, 0.9–1.1 mm diameter, glabrous. Ray florets 24–32,

female, corolla tube 0.3–0.5 mm long, sparsely glandular-hairy; rays 2.5–4.5 mm long, white or mauve, obtuse; style branches c. 0.4 mm long, not papillose. Disc florets



Figure 5. *Brachyscome stenoloba*, plant in habitat (Photo: D. Fielder)

24–36, bisexual; corolla cylindrical, 1.5–2.0 mm long, yellow to pale green, glabrous or with sparse glandular hairs, 5-lobed, lobes 0.3–0.4 mm long; anthers 1.0–1.2 mm long, terminal appendage c. 0.1 mm long; style branches 0.4–0.5 mm long, papillose. Achenes flattened, obovate, 0.8–1.0 mm long, 0.5–0.55 mm wide, dark brown to black, apex obtuse, lacking glandular hairs; surfaces sparsely tuberculate, tubercles each with a tiny hair; wings absent; pappus of numerous very short bristles, 0.05–0.1 mm long, white, persistent.

Queensland. Leichhardt. Planet Downs pastoral holding, adjacent to Planet Creek, Apr 1998, *J. Brushe JB1569* (BRI); 27 km from Cracow along Nathan Gorge Road, Mar 2004, *D. Halford Q8207 & M. Edginton* (BRI). Burnett. 5.4 km along Shelleytop Road, NE of Durong, Mar 1999, *A.R. Bean 14707* (BRI); Well Station Creek, c. 50 km SW of Mundubbera, Nov 2008, *A.R. Bean 28169 & P. Grimshaw* (BRI); Mt Mowbullen, Bunya Mountains, Sep 1954, *S.T. Blake 19691* (BRI); 'Toondahra', Langtree paddock fence with 'Blackdown', Mar 1984, *P.I. Forster PIF1739* (BRI);

Ironpot, South Burnett Regional council reserve, S of Ironpot farmers hall, off Jarail Road, Mar 2022, *P.I. Forster PIF47998* (BRI). Moreton. Northern slopes of Mt Edwards, Jun 1969, *R.J. Henderson H510* (BRI).

Diagnostic features. *Brachyscome vegrandis* is related to *B. microcarpa*, but differs by its small size (stems to 15 cm long) and annual habit (stems to 40 cm long, perennial for *B. microcarpa*); the capitula 3.0–4.0 mm wide (4.5–6.5 mm for *B. microcarpa*); the involucre bracts 1.5–2.1 mm long (2.4–4.0 mm long for *B. microcarpa*); the receptacle 0.9–1.1 mm wide (1.2–2.5 mm wide for *B. microcarpa*); the disc florets 24–36 per head (60–71 for *B. microcarpa*); the corolla of the disc florets 1.5–2.0 mm long (2.2–2.3 mm long for *B. microcarpa*); the achenes 0.8–1.0 mm long, lacking glandular hairs in the upper one-third (1.1–1.7 mm long, with glandular hairs for *B. microcarpa*).

Phenology. Flowers and fruits may be found throughout the year.

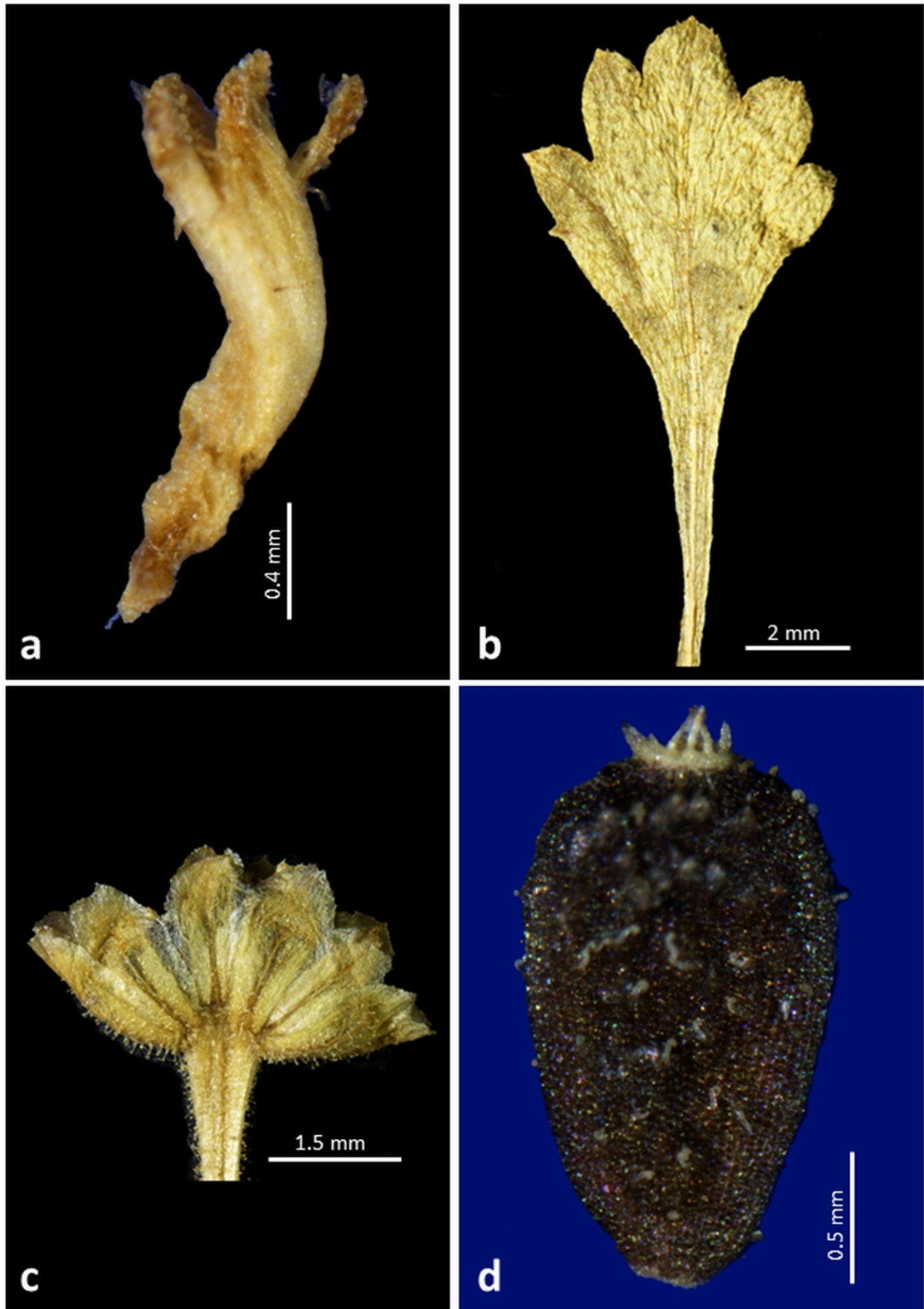


Figure 6. *Brachysome vegrandis*. a. disc floret (*Bean 14707*) b. lower leaf (*Bean 14707*) c. involucre bracts (*Bean 14707*) d. achene and pappus (*Bean 14707*).

Distribution & habitat. *Brachyscome vegrandis* is endemic to Queensland and is found from Mount Edwards (near Aratula) to 'Planet Downs', east of Rolleston (Map 3). It grows in shallow sandy to clayey soil close to rock outcrops in eucalypt woodland or on grassy balds.

Etymology. The epithet is from the Latin meaning 'little' or 'diminutive'. This is in reference to the habit of the plant.

Brachyscome whitei G.L.Davis, Proc. Linn. Soc. New South Wales 73: 164 (1948).

Type: Queensland. Darling Downs. Bybera, between Inglewood and Milmerran, 5 September 1935, C.T. White 10751 (holo: BRI; iso: CANB, K, MEL, NSW).

Brachyscome whitei G.L.Davis subsp. *whitei*, J. Adelaide Bot. Gard. 28: 167 (2014).

Fig. 7.

Erect perennial. Vegetative stems 2–20 cm long, terete to angular, glabrous. Lower leaves alternate; lamina obovate to orbicular, 7–17 x 5–15 mm, green on both sides, glabrous, with a midrib and a few indistinct lateral veins, margins crenate, petioles 11–35 mm long. Upper leaves opposite; lamina orbicular, 5–9 x 5–10 mm, green, glabrous, with a midrib and a few indistinct lateral veins, margins crenate to dentate, petioles 4–14 mm long. Inflorescence in upper leaf axils; peduncles terete, 50–140 mm long, 0.6–1.1 mm diameter, glabrous throughout; capitula solitary, 5–6.5 mm wide, involucre bracts in two rows, all more or less equal, elliptical, 2.3–3.0 mm long, reflexed at fruiting stage, acute, green throughout or purplish near apex, with numerous glandular hairs c. 0.05 mm long. Receptacle conical to hemispherical, areolate, 2.2–3.7 mm diameter, glabrous. Ray florets 25–40, female, corolla tube 0.5–0.6 mm long, sparsely glandular-hairy; rays 5.5–7.5 mm long, white or mauve, apex obtuse; style branches c. 0.6 mm long, papillose. Disc florets 60–77, bisexual; corolla cylindrical, 2.2–2.5 mm long, yellow to pale green, with numerous glandular hairs, 5-lobed, lobes c. 0.5 mm long; anthers 1.2–1.3 mm long, terminal appendage c. 0.2 mm long, style branches 0.4–0.5 mm long, papillose. Achenes swollen, cylindrical, 1.2–1.9 mm long, pale yellow-brown or rarely dark brown, obtuse, without glandular hairs on the upper one-third; surfaces +/- smooth due to coalescent tubercles, with 8–18 hairs per surface, each 0.05–0.1 mm long; lateral wings prominent, 0.4–0.5 mm wide, thin, often translucent; wing margins obscurely dentate, with numerous recurved hairs; pappus of numerous short bristles, 0.25–0.5 mm long, white, persistent.

Queensland. Leichhardt. Gwambagwine, Sep 1996, P.I. Forster PIF19665 (BRI, CANB, MEL, NSW). Burnett. 'Toon-doori', 34 km SW Mundubbera, off Myola Rd, Aug 2013, R. Buchanan s.n. (BRI). Darling Downs. On the Auburn Rd at crossing of Hellhole Creek, Jul 2015, J.J. Halford JH432

& K. Jones (BRI); Bringalily State Forest (S.F.241), north-east portion; NNE of Inglewood, Jan 2012, P.I. Forster PIF38641 (BRI, MEL, NSW); Hellhole Ck, 0.9 km S of Stockyard Ck road, Barakula S.F., Sep 1998, A.R. Bean 13856 (BRI); Milmerran-Goondiwindi road, 37.1 km from Milmerran, Feb 1996, A.R. Bean 9934 (BRI, MEL); Bracker State Forest, about 25 km SW of Inglewood, Oct 1993, D. Halford Q2009 (BRI); Near east boundary of Bendidee State Forest, c. 40 km NE of Goondiwindi, Dec 2007, A.R. Bean 26992 (BRI). **New South Wales.** North west slopes. Nicholls Road, 10 km NNW of Yetman, Nov 1983, R.G. Coveny 11727 (BRI, CANB, MEL, NSW); Warialda, Sep 1905, H.M. Rupp s.n. (NSW).

Diagnostic features. While the winged achenes of *B. whitei* are very different in size and ornamentation from the unwinged achenes of *B. microcarpa*, *B. discolor* and *B. vegrandis*, flowering specimens of *B. whitei* are difficult to distinguish from these species. A most useful feature is the length of the pappus (0.35–0.5 mm long in *B. whitei*; 0.05–0.25 mm long in the other three species). This feature can be used in flowering specimens, because the pappus does not appear to change in length between flowering and fruiting.

Phenology. Flowers and fruits may be found throughout the year.

Distribution & habitat. *Brachyscome whitei* extends from Theodore in Queensland to Warialda in New South Wales (Map 3). It grows in sandy soils in association with *Eucalyptus* spp., and frequently with *Angophora leiocarpa* or *Callitris glaucophylla*.

Note: Specimens previously identified as *B. whitei* subsp. *lophoptera* are here treated as *B. pedleyi* sp. nov.

Disclosures

No conflict of interest.

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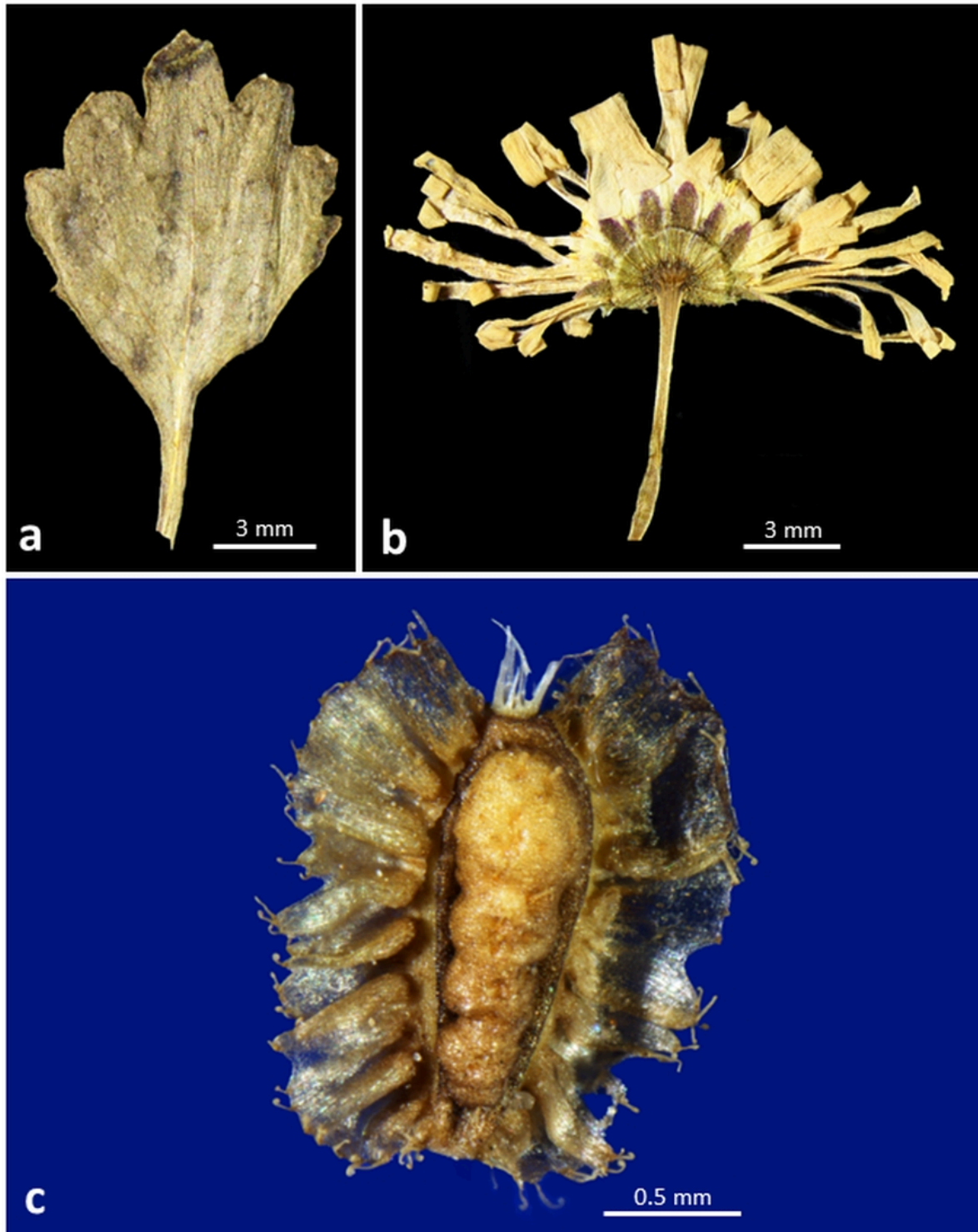


Figure 7. *Brachysome whitei*. a. lower leaf (Halford Q2009) b. flower head (Halford JJH432 & Jones) c. achene and pappus (Halford Q2009).

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