

A taxonomic revision of *Camptacra* N.T.Burb. (Asteraceae: *Astereae*)

A.R. Bean

Summary

Bean, A.R. (2020). A taxonomic revision of *Camptacra* N.T.Burb. (Asteraceae: *Astereae*). *Austrobaileya* **10(4)**: 564–575. The genus *Camptacra* N.T.Burb. is taxonomically revised. Four species are recognised, including two newly named: *C. perdita* A.R.Bean and *C. robusta* A.R.Bean. A lectotype is chosen for *Eurybia gracilis* Benth. All species are fully described with notes on distribution (including maps), habitat and proposed conservation status. A key to the identification of all species is provided.

Key Words: Asteraceae; *Camptacra*; *Camptacra barbata*; *Camptacra gracilis*; *Camptacra perdita*; *Camptacra robusta*; New Guinea flora, Australia flora; new species; identification key; distribution maps

A.R. Bean, Queensland Herbarium, Department of Environment and Science, Brisbane Botanic Gardens, Mt Coot-tha Road, Toowong, Queensland 4066, Australia. Email: tony.bean@des.qld.gov.au

Introduction

Camptacra N.T.Burb. is a small genus of herbaceous or low-shrubby daisies. It belongs to the tribe *Astereae*, and is most closely related to *Vittadinia* A.Rich., *Peripleura* (N.T.Burb.) G.L.Nesom and *Tetramolopium* Nees (Lowrey *et al.* 2001). It can be distinguished from these genera by the slender, compressed shallowly-ribbed achenes that are often maroon or purplish when mature, the smooth receptacle, and by the frequent presence of a trifid apex on the leaves.

The genus was described by Burbidge (1982) with two species, *C. brachycomoides* (F.Muell.) N.T.Burb. and *C. barbata* N.T.Burb. These species she distinguished largely on the morphology of the involucre bracts. The author split *C. brachycomoides* into three “forms”, based on the varying indumentum of the stems and leaves.

Lander (1987) published some new combinations after finding that the name *Eurybia gracilis* Benth. is referable to *Camptacra* and concluded that *C. gracilis* (Benth.) Lander and *C. brachycomoides*

are synonymous. Despite Burbidge’s comprehensive treatment of *Camptacra* (and related genera) and the small size of the genus, the identification of the constituent taxa has remained surprisingly difficult. This is partly because Burbidge’s key to her two recognised species is difficult to use – it relies on interpretation of several qualitative characters of the capitulum and involucre bracts, and no other part of the plant is mentioned. Also, it seems likely that intergradation is occurring between three species in the genus (the rarely encountered *C. perdita* is the exception), and there appear to be few characters where discontinuities are evident. The net result has been general confusion about the identity of many *Camptacra* specimens.

Another complication has been the misapplication of the name *Olearia arguta* var. *lanata* Benth. in Queensland since the 1990s. This taxon is in fact endemic to the Northern Territory and Western Australia, and is characterised most easily by the dense glandular hairs on the leaves and peduncles, and the relatively large leaves. The Queensland plants that have gone under this name do not have any glandular hairs, and are merely a particularly hairy form of *Camptacra robusta*. Their generic status has

been confirmed by two molecular studies on the phylogeny of Tribe *Astereae* (Lowrey *et al.* 2001; Cross *et al.* 2002).

Materials and methods

This study is based on an examination of herbarium specimens at the Queensland Herbarium (BRI), as well as material received on loan from CANB, DNA and MEL. High-quality images of type specimens from K and W have also been examined and are indicated as *i.d.v.* (*imago digitalis visa*).

Measurements made on the leaves, stems, peduncles and involucre bracts are based on dried material. Measurements of floral parts are based on material preserved in spirit, or reconstituted with boiling water. Dimensions are inclusive, i.e. 1–1.7 indicates 1.0–1.7.

In the specimen citations, abbreviations include Mt (Mountain or Mount) and NP (National Park).

Taxonomy

Camptacra N.T.Burb., *Brunonia* 5: 11 (1982). **Type:** *C. brachycomoides* (F.Muell.) N.T.Burb.

Perennial shrubs or herbs, stems ribbed, woolly hairs frequent, glandular hairs uncommon. Leaves alternate, sessile, entire or with short lobes, apex usually acute to apiculate, but a minority of leaves with apex trifid; sessile glands uncommon. Peduncles longer than the leaves, bearing a single capitulum; involucre bracts 3–5-seriate; receptacle convex, smooth, epaleate; all florets fertile. Ray florets in 1–2 rows, female, conspicuously ligulate; glabrous except for sparse antrorse eglandular or glandular hairs near junction of tube and ligule; style 2-branched, not conspicuously swollen at base but set into an erect nectary disc. Disc florets actinomorphic, hermaphrodite and fertile, 5-merous, narrowly funnelform; staminal filaments attached at or below middle of corolla tube; anther apices lanceolate or trullate; stigmatic appendages linear to ellipsoidal, coarsely papillose. Achenes linear, laterally flattened, with 3–7 longitudinal ribs. Pappus 1–2-seriate, bristles with pectines only *c.* 0.025 mm long, scarcely visible at 40× magnification.

Four species in northern Australia with one extending to Papua New Guinea.

A key to the species of *Camptacra*

- 1 Leaves 4.5–15 mm wide (excluding marginal teeth); capitula 8–12 mm long and 13–21 mm across; marginal floret (including ligule) 10–15 mm long; peduncles 0.8–1.5 mm diameter at midpoint; inner involucre bracts 6–7.5 mm long **4. *C. robusta***
- 1. Leaves 1.1–5 mm wide (excluding marginal teeth); capitula 5–8 mm long, 8–14 mm across; marginal floret (including ligule) 5–12 mm long; peduncles 0.4–0.8 mm diameter at midpoint; inner involucre bracts 3.5–6 mm long **2**
- 2 Glandular hairs abundant on outer involucre bracts; corolla lobes of disc floret glandular-hairy **3. *C. perdita***
- 2. Glandular hairs absent from involucre bracts; corolla lobes of disc floret glabrous **3**
- 3 Leaves glabrous or sparsely hairy, all leaves with acute apex or a few with trifid apex; terminal part of inner involucre bracts glabrous or with ciliate margins; receptacle 1.3–3.5 mm diameter. **2. *C. gracilis***
- 3. Leaves sparsely to densely hairy, numerous leaves with trifid apex; cluster of hairs usually present on terminal part of inner involucre bracts (inner surface); receptacle (2.5–) 3–6 mm diameter **1. *C. barbata***

1. *Camptacra barbata* N.T.Burb., *Brunonia* 5: 15 (1982). **Type:** Queensland. MORETON DISTRICT: Dinmore, near Ipswich, 29 October 1960, *L. Pedley 726* (holo: CANB; iso: BRI).

Camptacra brachycomoides f. *arachnoidea* N.T.Burb., *Brunonia* 5: 14 (1982); *C. gracilis* f. *arachnoidea* (N.T.Burb.) Lander, *Nuytsia* 6: 61 (1987). **Type:** Queensland. NORTH KENNEDY DISTRICT: Rockingham's Bay, *s.dat.*, *J. Dallachy s.n.* (holo: MEL 1004261).

Erect herb to 50 cm high. Stems glabrous or sparsely to densely woolly-hairy. *Leaves* linear, 18–55 mm long, 1.4–5 mm wide excluding marginal teeth, glabrous or woolly, glands absent; apex acute, apiculate or rarely to frequently trifid; base narrowly to broadly cuneate; margins entire or with a few teeth up to 2 mm long, more or less evenly distributed; midrib obvious and sometimes 2 additional parallel veins evident. *Capitula* 5–8 mm long, 8–14 mm diameter. Peduncles 5–12 cm long, 0.4–0.8 mm wide at midpoint, with sparse woolly hairs confined to upper part or densely woolly throughout. *Involucral bracts* 24–36, graduated in length; outer bracts narrowly ovate, 1.6–3.1 mm long, glabrous or with sparse woolly hairs on outer surface, apex acute; inner bracts narrowly lanceolate, 3.5–5.5 mm long, usually with dense tuft of hairs near apex, apex acute to obtuse. *Receptacle* (2.5–) 3–6 mm across. *Ray florets* 25–48, corolla tube 2.2–3.5 mm long, glabrous except for sparse antrorse eglandular hairs near junction of tube and ligule; tube + ligules 5–12 mm long, white, apex obtuse or minutely notched. *Disc florets* 30–68, yellow, corolla tube 3.3–4.2 mm long, glabrous except for sparse antrorse hairs near the midpoint; corolla lobes 0.4–0.6 mm long, deltate, glabrous. *Achenes* 2.2–3.1 mm long, maroon or purplish when mature, glabrous or with sparse antrorse hairs on upper half. *Pappus* bristles 24–30 in number, each 2.6–4.5 mm long.

Additional selected specimens examined: Northern Territory. Daguragu Land Trust area, S of Gill Creek, c. 51 km NW of Kalkarindji, Mar 2012, *Cowie 12973* (DNA); Mt Sanford, Threeways holding paddock, Aug 2000, *Brock 118* (CANB, DNA). **Queensland.** COOK DISTRICT: Metal Hills section, Chillagoe – Mungana Cave NP, Jan 2005, *Little LL36* (BRI). NORTH KENNEDY

DISTRICT: Lolworth Creek, N of Charters Towers, Nov 1985, *Jacks 12* (BRI); 2.5 km S of “Doongara”, Mar 1988, *Forster PIF3729 & Bolton* (BRI); 13 km N of Burdekin Falls, on Burdekin Falls – Mingela road, Apr 1990, *Jobson 1119* (BRI, CANB, MEL). SOUTH KENNEDY DISTRICT: c. 6 km due SE of Strathmore Station, along road to Collinsville, Mar 2003, *Pollock ABP1690 & Edginton* (BRI); 16.4 km W of Oxenhope Outstation, May 1991, *Neldner 3240 & Thompson* (BRI). MITCHELL DISTRICT: 18 km ENE of Prairie, on Flinders Highway, Mar 1993, *Thompson HUG320 & Henderson* (BRI). LEICHHARDT DISTRICT: Uncle Toms Road, SE of Moura, Sep 1999, *Bean 15331* (BRI, MEL). WARREGO DISTRICT: Morven, Apr 1936, *Blake 10985* (BRI). MARANOVA DISTRICT: Beside airstrip, Mt Moffatt NP, NW of Injune, Oct 1998, *Bean 14285* (BRI); 24 km NE of Roma, Apr 2003, *Baumgartner 3371-6* (BRI). BURNETT DISTRICT: c. 8 km NW of ‘Rawbelle’, W of Monto, Jun 1996, *Bean 10383* (BRI, MEL); 2 km S of Derrabungy Creek Bridge, S of Mundubbera, Nov 1997, *Bean 12590* (BRI, MEL); Monto – Mt Perry Road, 0.5 km W of Yarrol Road turnoff, Mar 2013, *Bean 32112* (BRI, CANB, MEL, US). DARLING DOWNS DISTRICT: Road to Kupunn, 1 km from the Moonie Highway turnoff, 16 km SW of Dalby, Oct 1996, *Lowrey 1751* (BRI); Jondaryan cemetery, Apr 1994, *Fensham 1688* (BRI, MEL). MORETON DISTRICT: Grounds of TAFE college, Byrne Street, Bundamba, Oct 2007, *Bird s.n.* (BRI [AQ745021]); Boonah, S of Ipswich, Nov 1934, *Michael 2093* (BRI). **New South Wales.** 3 miles [5 km] E of Inverell, Jun 1955, *Jessup & Gray 2800* (CANB); 1 mile [1.6 km] N of Howell, Jun 1955, *Jessup & Gray 2784* (CANB); Travelling Stock Route, 5.5 km N of Warialda on road to Yetman, Oct 1993, *Prober s.n.* (CANB 00500874).

Distribution and habitat: *Camptacra barbata* is widely distributed in the eastern half of Queensland, and in the Victoria River district of Northern Territory. It also extends into northern New South Wales, west of the Great Dividing Range (**Map 1**). It is found almost exclusively on plains in grassland or open woodland, with heavy dark-brown to black cracking clay soil.

Phenology: Flowers and fruits have been recorded for every month of the year.

Affinities: *Camptacra barbata* appears to be closely related to *C. gracilis* (see Affinities under that species).

Notes: Burbidge (1982) distinguished *Camptacra barbata* from *C. brachycomoides* (= *C. gracilis*) by the ‘hemispheric’ mature capitulum (vs. campanulate for *C. gracilis*) and the ‘subglobose budding heads’ (vs. ‘campanulate bud’ for *C. gracilis*); the sub-apical colouration on the inner involucral

bracts (vs. uniformly coloured for *C. gracilis*); and the woolly hairs on the inner face of the involucre bracts at the distal end (vs. woolly hairs absent for *C. gracilis*). I cannot discern any consistent difference in the capitulum shape between specimens determined by Burbidge as *C. barbata* or *C. brachycomoides*, and all *Camptacra* specimens have subglobose budding heads at the earliest stage. The sub-apical colouration of the bracts is apparent on some specimens that Burbidge labelled *C. barbata* (particularly those from far south-eastern Qld), but not on others. The 'woolly hairs on the inner surface of the bracts' character does appear to be a useful character for *C. barbata*, though not universally present.

Conservation status: Least Concern (IUCN 2012). While the habitat of this species has undoubtedly been reduced over the last century, it is a common species with a very large geographical range, occurring in numerous conservation reserves.

2. *Camptacra gracilis* (Benth.) Lander, *Nuytsia* 6: 61 (1987); *Eurybia gracilis* Benth., *Enum. Pl. [Endlicher]* 59 (1837); *Camptacra gracilis* (Benth.) Lander f. *gracilis*, *Nuytsia* 6: 61 (1987). **Type:** Nova Hollandia, *s.dat.*, *F. Bauer s.n.* (lecto: W 0047219 *i.d.v.* [here designated]); probable isolecto: K 000890338 *i.d.v.*

Aster brachycomoides F.Muell., *Fragm.* 5: 86 (1865); *Vittadinia brachycomoides* (F.Muell.) Benth., *Fl. Austral.* 3: 490 (1867); *Camptacra brachycomoides* (F.Muell.) N.T.Burb., *Brunonia* 5: 12 (1982); *Camptacra brachycomoides* f. *brachycomoides*, N.T.Burb., *Brunonia* 5: 13 (1982). **Type:** Arnhem's Land, 14 July 1856, *F. Mueller s.n.* (lecto: MEL 1004273, *vide* Burbidge (1982: 13); isolecto: K 000890337 *i.d.v.*)

Erect herb to 40 cm high. Stems glabrous or sometimes sparsely woolly-hairy. *Leaves* linear, 26–50 mm long, 1.1–2.5 mm wide excluding marginal teeth, glabrous, glands absent; apex acute or occasionally trifid; base narrowly cuneate to attenuate; margins entire or with a few teeth up to 0.7 mm long, more or less evenly distributed; midrib obvious but all other venation obscure. *Capitula* 5.5–7

mm long, 9–11 mm diameter. Peduncles 4.5–14 cm long, 0.4–0.6 mm wide at midpoint, glabrous throughout or with sparse woolly hairs on upper part. *Involucre bracts* 26–40, graduated in length, outer bracts narrowly ovate, 1.8–3.3 mm long, glabrous or with sparse woolly hairs on outer surface, apex acute to acuminate; inner bracts narrowly lanceolate, 3.5–4.5 mm long, glabrous throughout or with ciliate margins on upper part, apex acute to acuminate. *Receptacle* 1.3–3.5 mm across. *Ray florets* 20–42, corolla tube 2–2.7 mm long, glabrous except for sparse antrorse eglandular hairs near junction of tube and ligule; tube + ligules 6–11 mm long, white and becoming pink with age, apex obtuse or minutely notched. *Disc florets* 28–66, yellow, corolla tube 3.2–4.2 mm long, glabrous except for sparse antrorse hairs near the midpoint; corolla lobes 0.5–0.65 mm long, deltate, glabrous. *Achenes* 2.3–3.7 mm long, maroon or purplish when mature, glabrous or with sparse antrorse hairs on upper half. *Pappus* bristles 24–30 in number, each 2.6–4.2 mm long.

Additional selected specimens examined: Northern Territory. Emu Springs, central Arnhem Land, Sep 1999, *Cowie 8446 & Dunlop* (BRI); c. 10 km N of the Mainoru River towards Bullman Station from Mainoru Station, May 1974, *Pullen 9373* (CANB); 100 km SE of Nhulunbuy, Arnhem Land, Sep 1985, *Wightman 2239* (CANB). **Queensland.** COOK DISTRICT: Brooklyn, near Rifle Creek/Luster Creek junction, Jan 1996, *Godwin MGC4201 & Russell* (BRI); Blackbraes NP, Dec 2010, *McDonald KRM10250 & Jensen* (BRI, CANB); 1 km N of Lakeland beside the Cooktown Road, Feb 2001, *Wannan 2162* (BRI); 16.5 km N of Mareeba Post Office, on Mt Molloy Road, Dec 1993, *Neldner 4126 & Milne* (BRI). NORTH KENNEDY DISTRICT: 40 miles [64 km] S of Ayr, on W bank of Burdekin River, Feb 1963, *Seton 27* (BRI); "Etonvale", WSW of Bowen, May 1992, *Bean 4543* (BRI); near Gumlu, Oct 1950, *Blake 18633* (BRI); 50 km S of Mt Garnet, May 1999, *Wannan 1235 & Jago* (BRI); Wambiana Station, 70 km S of Charters Towers, Jun 1998, *O'Reagain 729* (BRI). SOUTH KENNEDY DISTRICT: Red Hill Station, 79.5 km SSW of Charters Towers, Apr 2006, *Thompson CHA705 & Wilson* (AD, BRI). PORT CURTIS DISTRICT: Broad Sound, Sep 1802, *Brown s.n.* (CANB); Marlborough serpentine landscape, May 2010, *Hendry 744/7* (BRI); 2 km NW of Seahound Hard boat ramp, Shoalwater Bay Training area, N of Yeppoon, Feb 2012, *Bean 31609 & Mathieson* (BRI, L, MEL, NY, P); 7.5 km from Bruce Highway at Bajool, towards Port Alma, Apr 2012, *Bean 32009* (BRI, CANB, DNA, E, MO, W); The Springs, Shoalwater Bay Military Area, N of Rockhampton, May 2014, *Halford QM1496* (BRI); S end of Duck Lagoon, South Percy

Island, Mar 1906, *Tryon s.n.* (BRI [AQ246175]); Mt Bonnie Doon, Rockhampton – Marlborough area, Jan 1989, *Specht 210 & Reeves* (BRI); Old Byfield Road, near Pine Mountain, May 1996, *Plumb JP4* (BRI); Clinton Lowlands, Freshwater sector, Shoalwater Bay Training Area, N of Yeppoon, Apr 2016, *Halford QM2078 & Mathieson* (B, BM, BRI, CANB, DNA, HO, NSW, PRE, US).

Distribution and habitat: *Camptacra gracilis* occurs in the north-east of the Northern Territory (eastern Arnhem Land) and in Queensland, where it extends from Lakeland Downs to south of Gladstone, and usually less than 200 km from the coast (**Map 2**). In coastal areas, it inhabits marine plains in association with, or near to, *Sporobolus virginicus* (L.) Kunth. Elsewhere it grows in ephemeral swamps, in heavy soil with native *Dichanthium* grassland, or in mixed eucalypt woodland. It has also been recorded from soils derived from serpentinite.

Phenology: Flowers are recorded from October to June; fruits are recorded from November to May.

Typification: The sheet at W is chosen as the lectotype for *Eurybia gracilis* Benth. as it is the only known Bauer specimen matching the protologue that was seen by Bentham before the date of publication. The specimen at K was received in 1854, and has somewhat broader leaves, but is probably part of the same gathering.

Affinities: *Camptacra gracilis* is closely related to *C. barbata*, and some collections are difficult to place. *C. gracilis* lacks the tuft of hairs on the apex of the involucre bracts, and it generally has narrower leaves, glabrous leaves and stems, a smaller receptacle, and few or no leaves with a trifold apex.

Notes: From the date of collection of *Aster brachycomoides*, it can be inferred that Mueller collected it near present-day Mataranka, at the south-western extent of the range of *C. gracilis* in the Northern Territory. Specimens collected further south and west are a closer match for *C. barbata*.

It is not known where Ferdinand Bauer collected the type material for *Eurybia gracilis*, but the type matches material collected by Robert Brown from “Broad

Sound” and labelled *Eurybiopsis macrorrhiza* DC., and both are very similar to some recent collections from the Shoalwater Bay Training Area in Queensland (cited above).

Conservation status: **Least Concern** (IUCN 2012). While the habitat of this species has been reduced over the last century, it is a common species with a large geographical range. It occurs in at least two National Parks.

3. *Camptacra perdita* A.R.Bean sp. nov. Differing from *C. barbata* by the white densely-woolly hairy stems, the glandular-hairy involucre bracts, the consistently unlobed leaf apex, and the smaller capitula and florets. **Typus:** Queensland. DARLING DOWNS DISTRICT: Oakey rail line, southern side of Oakey, Cutella Road, 22 November 2001, *I.L. Menkins ILM0074* (holo: BRI; iso: DNA).

Erect herb to 35 cm high. Stems very densely woolly-hairy, snowy white. *Leaves* narrowly-elliptical to oblanceolate, 14–24 mm long, 2–5 mm wide, sparsely woolly-hairy throughout, glands absent; apex acute, never trifid; base narrowly cuneate to attenuate; margins occasionally entire but usually with 2–4 pairs of teeth up to 1.2 mm long, more or less evenly distributed; midrib obvious but all other venation obscure. *Capitula* 4–5.5 mm long, 7–9.5 mm diameter. *Peduncles* 3–7 cm long, 0.4–0.6 mm wide at midpoint, sparsely woolly-hairy throughout, and with dense stalked glandular hairs on upper part. *Involucre bracts* 30–36, graduated in length, outer bracts narrowly ovate, 1.3–1.8 mm long, with dense glandular hairs on outer surface, apex acute to obtuse; inner bracts narrowly elliptic, 2.7–3.4 mm long, sparsely glandular-hairy throughout and with ciliate margins on upper part, apex acute to obtuse. *Receptacle* 1–1.5 mm across. *Ray florets* 20–30, corolla tube 1.3–1.5 mm long, glabrous except for sparse antrorse stalked glandular hairs near junction of tube and ligule; tube + ligules 4–6 mm long, white to light mauve, apex obtuse or minutely notched. *Disc florets* 19–29, yellow, corolla tube 2.9–3.3 mm long, glabrous; corolla lobes *c.* 0.6 mm long, deltate, with stalked glandular hairs on outer surface. *Achenes* 2.5–2.7 mm long, brown when

mature, with moderately dense antrorse hairs throughout, and with scattered glandular hairs. *Pappus* bristles 23–28 in number, each 2.7–3.5 mm long. **Fig. 1.**

Additional specimens examined: Queensland. MARANO DISTRICT: Bungegoral Stock Route, NW of Howard, Oct 2017, *Fensham 6812* (BRI); 7 km W of St George, Sep 1973, *Trapnell & Williams 287* (BRI). DARLING DOWNS DISTRICT: Warrego Highway near Oakey, Mar 2013, *Fensham 6344* (BRI). New South Wales. NORTH WESTERN PLAINS: Kirramingly Nature Reserve, c. 30 km SSW of Moree, 2.5 km WSW of Kirramingly Homestead, May 2010, *Copeland 4440* (BRI; CANB, K, MEL, NSW, PERTH, all *n.v.*)

Distribution and habitat: *Camptacra perditia* is known from four collections in southern Queensland (two from near Oakey, one near St George and one near Roma), and from a single location in New South Wales (**Map 2**). It is recorded growing in grassland on heavy black soil on alluvium, at least two sites dominated by *Dichanthium sericeum* (R.Br.) A.Camus.

Phenology: Flowers and fruits are recorded for March, May, September, October and November.

Affinities: *Camptacra perditia* differs from its closest relative *C. barbata* by the white densely-woolly hairy stems, the glandular-hairy involucre bracts, the consistently unlobed leaf apex, and the capitula 4–5.5 × 7–9.5 mm (5–8 × 8–14 mm for *C. barbata*), and the corolla tube of the disc florets 2.9–3.3 mm long (3.3–4.2 mm long for *C. barbata*).

Notes: This is the only species of *Camptacra* with glandular hairs; they are most obvious on the involucre bracts and upper part of the peduncle, but are also found on the corolla lobes of the disc florets and on the achenes. The contrast between the densely hairy snowy-white stems and the sparsely-hairy green leaves is also diagnostic.

Conservation status: The habitat of *Camptacra perditia* (grassland on fertile cracking clays) has been extensively utilised for cropping and grazing for over a century, and the few collections suggest that it is threatened. A status of **Endangered** (IUCN 2012) is recommended, criterion **B2ab(iii)**.

Etymology: From the Latin *perditus*, meaning ‘lost’ or ‘abandoned’. This alludes to the species co-existing with, but being vastly outnumbered by *Camptacra barbata*.

4. *Camptacra robusta* A.R.Bean sp. nov. With affinity to *C. barbata*, but differing by the longer and broader capitula, the wider leaves, the thicker peduncles and the longer involucre bracts. **Typus:** Queensland. NORTH KENNEDY DISTRICT: Kennedy Highway, c. 12 km W of Ravenshoe, 11 December 2000, *R.L. Jago 5792 & B. Wannan* (holo: BRI; iso: DNA, US).

Vittadinia brachycomoides var. *latifolia* Benth., *Fl. Austral.* 3: 490 (1867). **Types:** [Queensland. COOK DISTRICT:] Albany Island, Cape York, 25 October 1849, *J. Macgillivray s.n.* (syn: K 000890335 *i.d.v.*); [Queensland.] Rockingham Bay, *s.dat.*, *J. Dallachy s.n.* (syn: K 000890334 *i.d.v.*).

Camptacra brachycomoides f. *lanata* N.T.Burb., *Brunonia* 5: 14 (1982); *Camptacra gracilis* f. *lanata* (N.T.Burb.) Lander, *Nuytsia* 6: 61 (1987). **Type:** Queensland. BURKE DISTRICT: Near source of Poison Creek, c. 90 miles [145 km] N of Hughenden, 11 April 1935, *S.T. Blake 8545* (holo: BRI).

[*Olearia arguta* var. *lanata*, *auct. non* Benth., Queensland populations; Britten (1901: 249)].

Illustration: Britten (1901: t. 153) [as *Olearia arguta*].

Erect or procumbent herb or shrub to 50 cm high. Stems sparsely to densely woolly-hairy. *Leaves* linear to narrowly-elliptic, 22–55 mm long, 4.5–12 mm wide excluding marginal teeth, sparsely to densely woolly, glands absent; apex acute, apiculate, or rarely to frequently trifid; base broadly cuneate to obtuse; margins entire or with a few teeth up to 4 mm long, more or less evenly distributed; midrib and 2 additional parallel veins prominent. *Capitula* 8–12 mm long, 13–21 mm diameter. Peduncles 5–25 cm long, 0.8–1.5 mm wide at midpoint, sparsely to densely woolly throughout. *Involucre bracts* 28–36, graduated in length; outer bracts narrowly ovate, 1.8–4 mm long, with sparse woolly hairs on outer surface, apex acute;

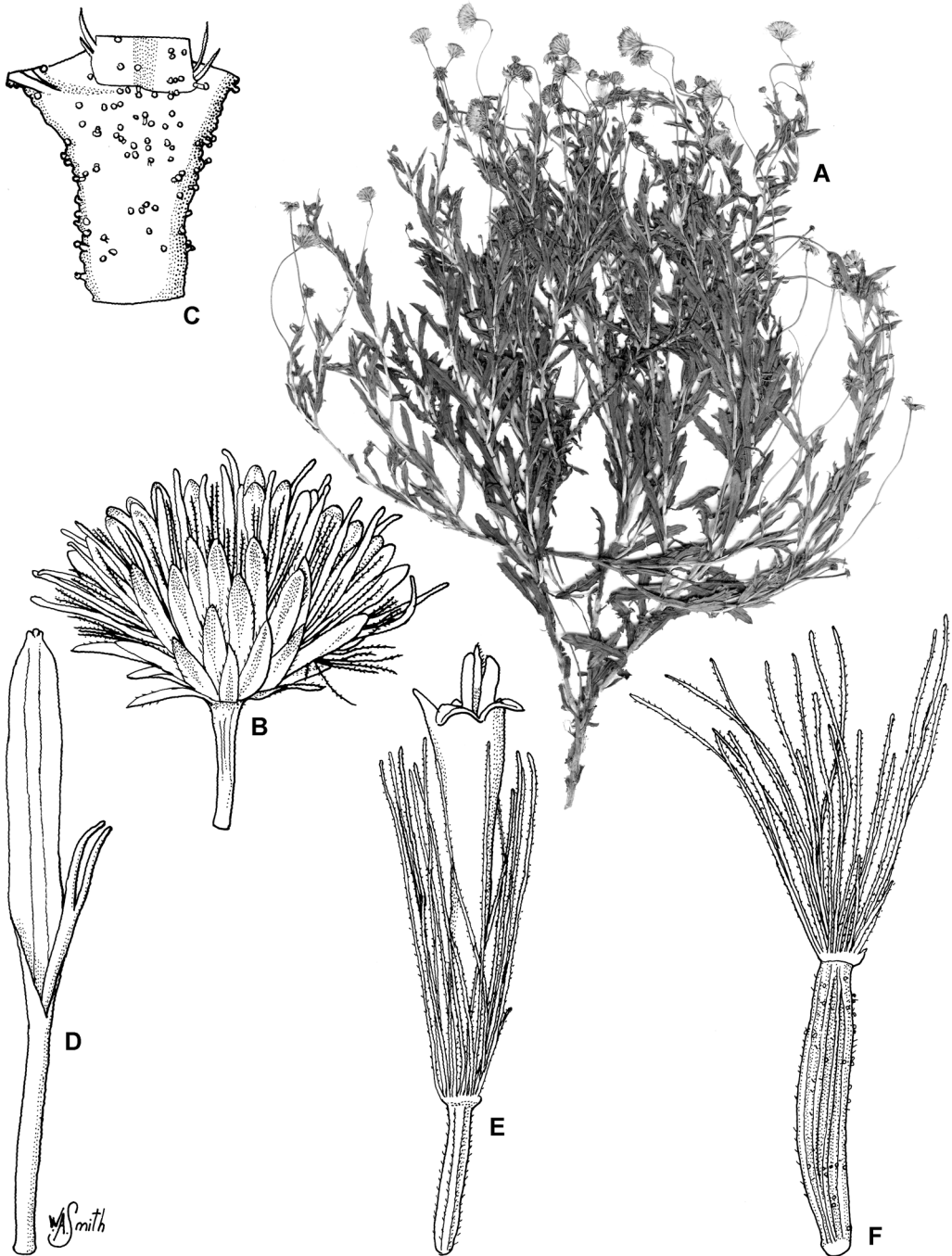


Fig. 1. *Camptacra perdita*. A. whole plant $\times 0.5$. B. flowering capitulum, lateral view $\times 5$. C. uppermost section of peduncle, showing glandular hairs $\times 32$. D. ligulate floret $\times 16$. E. disc floret, pappus and immature achene $\times 16$. F. mature achene with pappus $\times 16$. All from *Menkins ILM0074* (BRI). Del. W. Smith.

inner bracts narrowly lanceolate, 6–7.5 mm long, glabrous or shortly ciliate, apex acute to obtuse. *Receptacle* 4–6.2 mm across. *Ray florets* 36–60, corolla tube 3–3.5 mm long, glabrous except for sparse antrorse eglandular hairs near junction of tube and ligule; tube + ligules 10–15 mm long, white to lilac, apex obtuse or minutely notched. *Disc florets* 52–78, yellow, corolla tube 4.2–4.6 mm long, glabrous except for sparse antrorse hairs near the midpoint; corolla lobes 0.4–0.6 mm long, deltate, glabrous. *Achenes* 2.9–4 mm long, maroon or purplish when mature, glabrous or with sparse antrorse hairs on upper half. *Pappus* bristles 25–34 in number, each 4.7–5.2 mm long. **Fig. 2.**

Additional selected specimens examined: **Papua New Guinea.** MOROBE PROVINCE: Karmanuntina River valley, near Habaya, Goroka subdistrict, Sep 1957, *Robbins 916* (CANB). CENTRAL PROVINCE: Astrolabe Range, Jul 1918, *White 245* (BRI); Aiyura, Oct 1944, *Smith NGF1147* (BRI). **Queensland.** COOK DISTRICT: Piccaninny Plain turnoff near Bamaga – Weipa Road junction, Oct 2008, *McDonald KRM8005 & Winter* (BRI); Lizard Island, May 1975, *Byrnes 3171* (BRI); Undara NP, Yaramulla ranger base, Dec 2004, *McDonald KRM3234* (BRI); c. 1 km S of Bailey Point, Jun 2003, *Jago 6499* (BRI); c. 30 miles [48 km] W of Cardwell, Nov 1967, *Boylard 573* (BRI); 4 km S of Mareeba, on the Kennedy Highway, Dec 1983, *Clarkson 5073* (BRI, CANB, CNS, DNA); 7.1 km by road W of Petford, Jan 2008, *McDonald KRM7126 & Ford* (BRI); Newcastle Range, 29.5 km by road E of Forsyth, Feb 2013, *McDonald KRM13816* (BRI). BURKE DISTRICT: Blackbraes NP, Mar 2003, *Kemp TH7040 & Cutt* (BRI). NORTH KENNEDY DISTRICT: Herberton, *s.dat.*, *Kenny s.n.* (BRI [AQ246199]); 116 km from Kennedy on Mt Garnet Road, Jan 1992, *Forster PIF9512* (BRI, MEL); Mt Fox crater, Seaview Range, Apr 1985, *Rodd & Hardie 4461* (BRI, NSW); c. 0.6 km from junction of Kennedy Highway and Gulf Development Road, towards Mt Surprise, Dec 2004, *McDonald KRM3151 et al.* (BRI, NSW); End of Deception Creek Road, Mt Zero/Taravale Wildlife Sanctuary, Dec 2011, *Jensen 2539* (BRI); 2 km N of Burra microwave tower, Feb 1994, *Bean 7491 & Forster* (BRI); Mt Abbot, 50 km W of Bowen, Aug 1992, *Bean 4852* (BRI). SOUTH KENNEDY DISTRICT: ‘Glen Innes’, NW of Alpha, Jul 2003, *Fensham 4888* (BRI); c. 35 km SE of Lake Buchanan, Jun 1998, *Thompson BUC2084* (BRI). MITCHELL DISTRICT: Moorinya NP, 17.6 km NW of ranger station, May 2006, *Thompson TAN449 & Wilson* (BRI); 20 km SE of Muttaborra on Aramac Road, Apr 2012, *Silcock JLS1177* (BRI). LEICHHARDT DISTRICT: Near Station Creek, 0.5 km W of Arcturus Downs, E of Springsure, Oct 1998, *Bean 13992* (BRI); Peak Downs, Jun 1951, *Everist 4404* (BRI).

Distribution and habitat: *Camptacra robusta* occurs in northern Queensland, from Springsure to Cape York, and in Papua New Guinea (**Map 3**). In Queensland, it prefers basaltic plains with red to brown clayey soil, but also occurs on plains with red sandy soils, and on sandstone slopes, all in eucalypt woodland. For Papua New Guinea, the habitat is merely stated to be “grassland”.

Phenology: Flowers and fruits have been recorded for every month of the year.

Affinities: *Camptacra robusta* appears closest to *C. barbata*, but differs by the capitula 8–12 mm long and 13–21 mm across (5–8 mm long and 8–14 mm across for *C. barbata*), the leaves 4.5–12 mm wide (1.4–5 mm wide for *C. barbata*), the peduncles 0.8–1.5 mm wide at midpoint (0.4–0.8 mm wide for *C. barbata*), and the inner involucre bracts 6–7.5 mm long (3.5–5.5 mm long for *C. barbata*).

Notes: *Camptacra* specimens from Papua New Guinea are here tentatively included under *C. robusta*, based on the relatively long disc florets and ligules on the most mature specimen (*Robbins 916*). However, in the few Papuan specimens available, there is much variation in leaf size, capitulum size and pappus length. More collections are needed before a reliable taxonomic assessment can be made.

Some Queensland specimens of *Camptacra robusta* have been misidentified as *Olearia arguta* Benth. The first such instance was by Britten (1901), who identified a Banks & Solander collection from Endeavour River as *Shawia arguta* (Benth.) Britten, a synonym of *O. arguta*. Another specimen (*Rodd & Hardie 4461*, cited above) was identified by N. Lander in 1990 as *O. arguta*, and subsequently, numerous specimens at BRI were named *O. arguta* or *O. arguta* var. *lanata* Benth. Molecular studies have confirmed that the Queensland taxon is correctly placed in *Camptacra* (see Introduction). Some specimens of this species have very dense woolly indumentum on the leaves and stems.

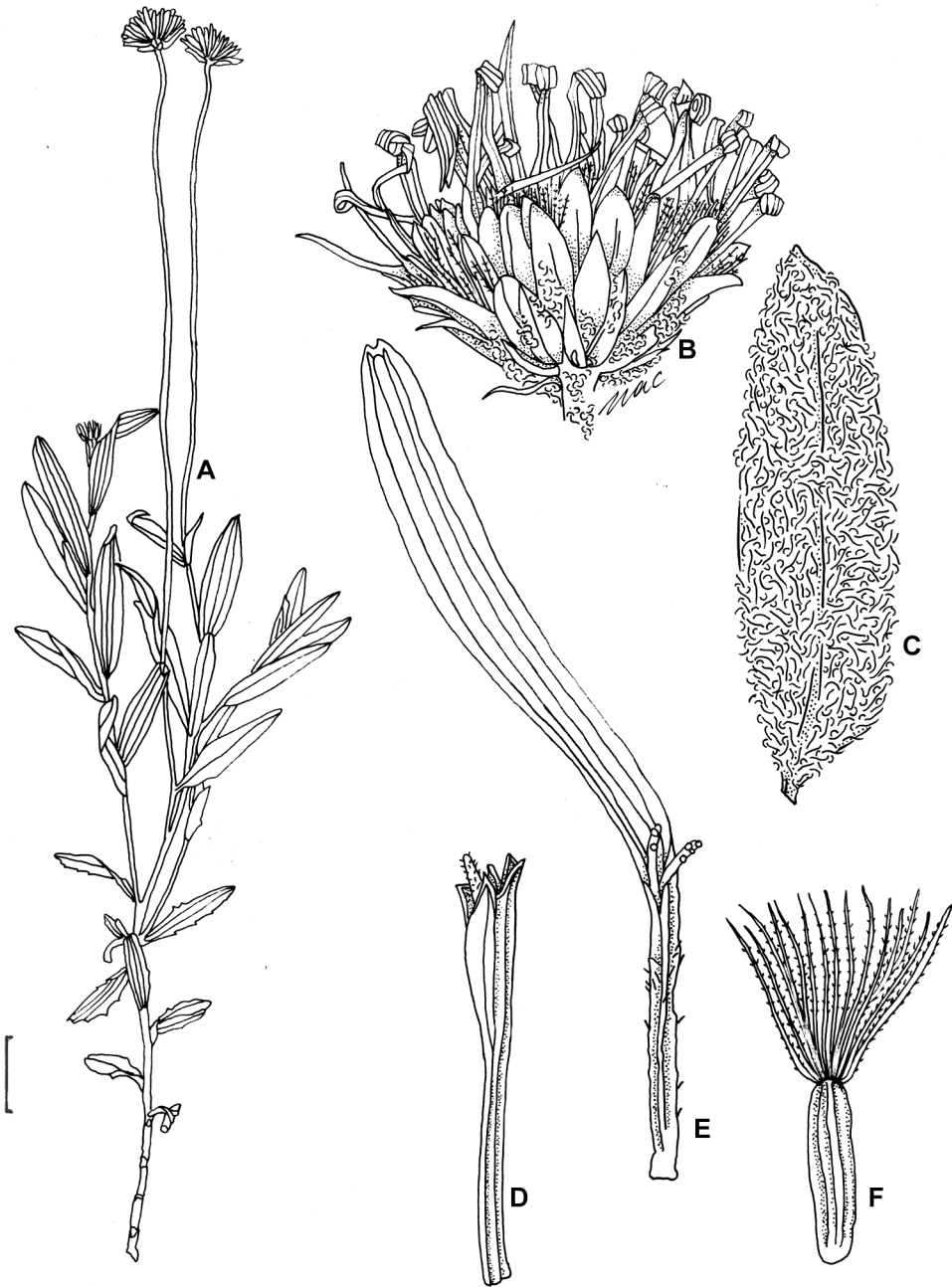


Fig. 2. *Camptacra robusta*. A. flowering branchlet $\times 0.5$. B. flowering capitulum, lateral view $\times 4$. C. a leaf from the densely hairy form $\times 4$. D. disc floret $\times 12$. E. ligulate floret $\times 12$. F. mature achene with pappus $\times 6$. A from McDonald KRM3234 (BRI); B,C,E from Jensen 2539 (BRI); D from Forster PIF9512 (BRI); F from Thompson BUC2084 (BRI). Scale bar = 10 mm at $\times 1$ magnification. Del. N. Crosswell.

Conservation status: Least Concern (IUCN 2012). The habitat of this species has been reduced over the last century; however, it is a common species with a large geographical range, and is present in at least ten National Parks.

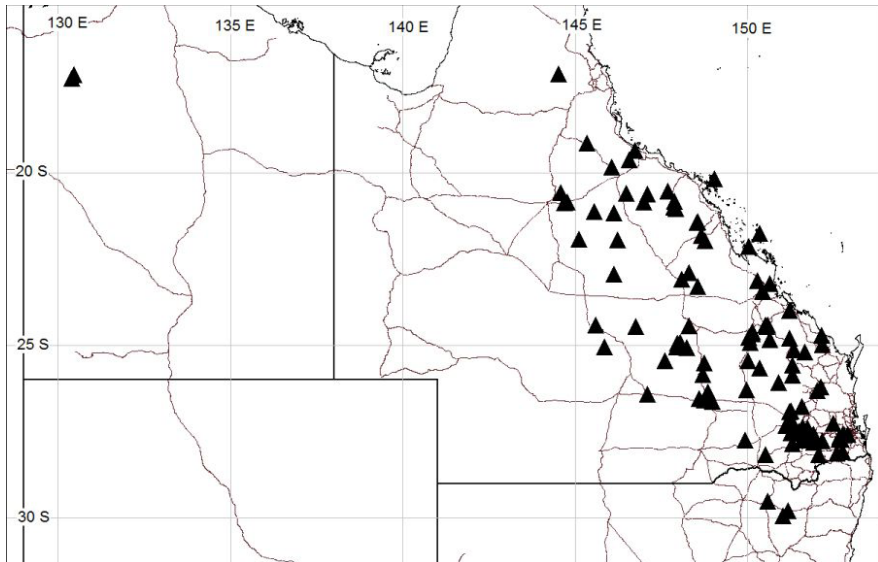
Etymology: From the Latin *robustus*, meaning solid or strong; this refers to the sturdy and vigorous appearance of the species in comparison with other species of *Camptacra*.

Acknowledgements

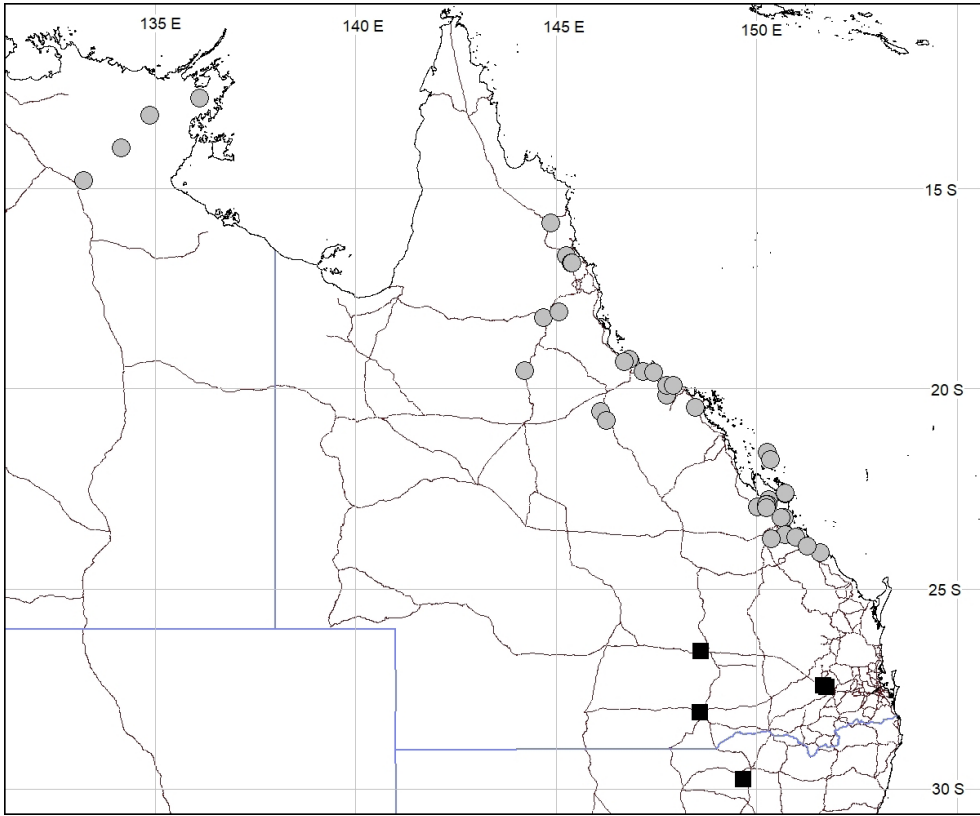
I thank the Directors of DNA, CANB and MEL for sending their holdings of *Camptacra* on loan. I am also grateful to Will Smith for the illustrations of *C. perdita* and Nicole Crosswell for the illustrations of *C. robusta*. Peter Jobson made numerous helpful suggestions. I thank Teghan Collingwood for her efforts to locate the New South Wales specimen of *C. perdita* at BRI.

References

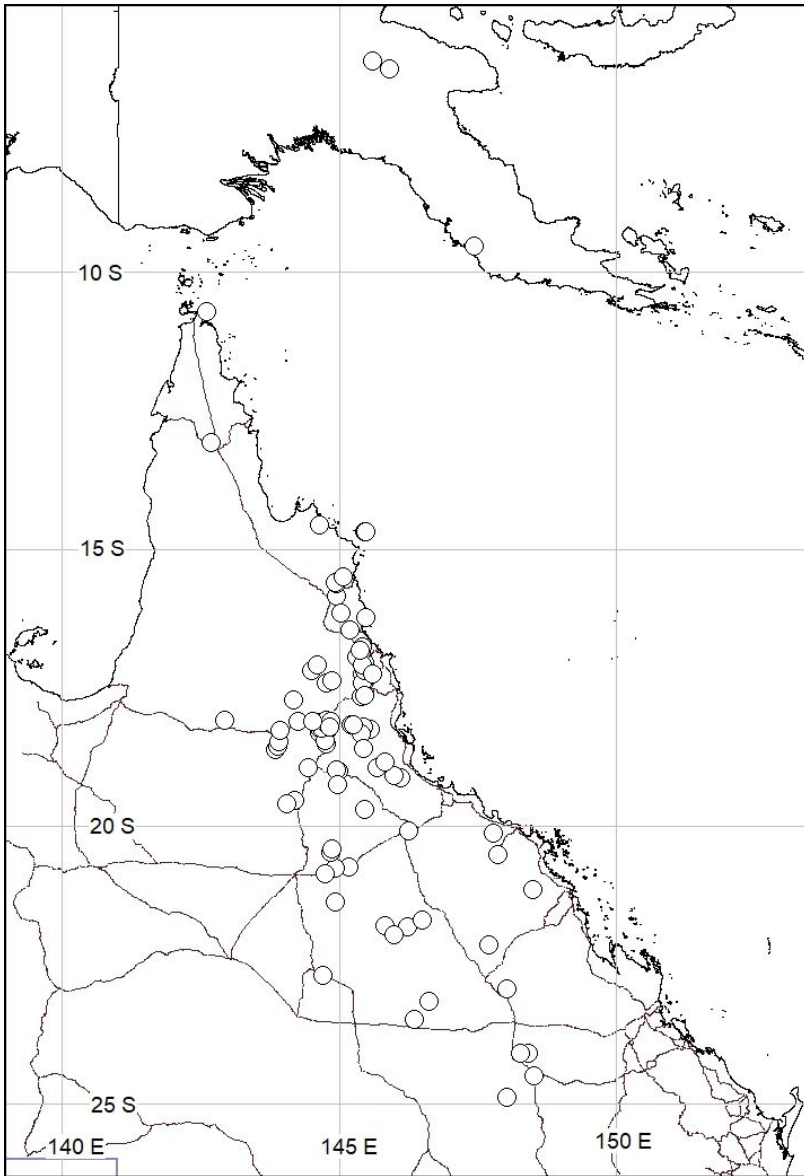
- BRITTEN, J. (1901). In J. Banks & D.C. Solander, *Illustrations of Australian plants collected in 1770 during Captain Cook's voyage round the world in H.M.S. Endeavour* 2: 49, t. 153. Trustees of the British Museum: London.
- BURBIDGE, N.T. (1982). A revision of *Vittadinia* A. Rich. (Compositae) together with reinstatement of *Eurybiopsis* DC. and description of a new genus, *Camptacra*. *Brunonia* 5: 1–72.
- CROSS, E.W., QUINN, C.J. & WAGSTAFF, S.J. (2002). Molecular evidence for the polyphyly of *Olearia* (Asteraceae: Asteraceae). *Plant Systematics and Evolution* 235: 99–120.
- IUCN (2012). *IUCN Red List Categories and Criteria, version 3.1*, 2nd ed. International Union for the Conservation of Nature: Gland. <https://portals.iucn.org/library/e/files/documents/RL-2001-001-2nd.pdf>, accessed 20 January 2019.
- LANDER, N.S. (1987). New combinations in *Camptacra* N.Burb. (Asteraceae: Astereae). *Nuytsia* 6: 61.
- LOWREY, T.K., QUINN, C.J., TAYLOR, R.K., CHAN, R., KIMBALL, R.T. & DE NARDI, J.C. (2001). Molecular and morphological reassessment of relationships within the *Vittadinia* group of Astereae (Asteraceae). *American Journal of Botany* 88: 1279–1289.



Map 1. Distribution of *Camptacra barbata*.



Map 2. Distribution of *Camptacra gracilis* ● and *C. perdita* ■.



Map 3. Distribution of *Camptacra robusta*.