Olearia bella A.R.Bean & Jobson and *O. orientalis* A.R.Bean & Jobson (Asteraceae: Astereae), two new species from Queensland

A.R. Bean & P.C. Jobson

Summary

Bean, A.R. & Jobson, P.C. (2017). *Olearia bella* A.R.Bean & Jobson and *O. orientalis* A.R.Bean & Jobson (Asteraceae: Astereae), two new species from Queensland. ***Austrobaileya* 10(1): 102–112.** Two species of *Olearia* of restricted distribution in Queensland, *O. bella* and *O. orientalis*, are described as new. They are compared with their closest relatives, *O. ferresii* (F.Muell.) Benth. and *O. macdonnellensis* D.A.Cooke respectively. The new species are illustrated and their conservation status is assessed. A distribution map is provided for all four species, along with an identification key to Queensland *Olearia* species.

Key Words: Asteraceae, Astereae, *Olearia*, *Olearia bella*, *Olearia ferresii*, *Olearia macdonnellensis*, *Olearia orientalis*, Australia flora, Northern Territory flora, Queensland flora, new species, taxonomy, identification key, conservation status

A.R. Bean, Queensland Herbarium, Department of Science, Information Technology & Innovation, Mt Coot-tha Road, Toowong 4066, Queensland, Australia. Email: Tony.Bean@dsiti.qld.gov.au

P.C. Jobson, Northern Territory Herbarium, Alice Springs, Department of Environment and Natural Resources, PO Box 1120, Alice Springs, Northern Territory, Australia.

Introduction

The two species described here, *Olearia bella* A.R.Bean & Jobson and *O. orientalis* A.R.Bean & Jobson, are of restricted distribution in Queensland. They have, in the past, been referred to *O. ferresii* (F.Muell.) Benth. and *O. macdonnellensis* D.A.Cooke respectively. Closer examination of the taxa showed clearly that the Queensland populations are easily distinguishable from their named relative, and that they deserve specific rank. Full descriptions are provided for the two newly named species and the two previously named species, and the new species are illustrated. Cross *et al.* (2002) have shown that *Olearia* Moench is polyphyletic, and that the circumscription of the genus is very likely to change after further study. *O. ferresii* was included in Cross *et al.* (2002), with an unresolved position, while none of the other three taxa was included.

A key to the Queensland species of *Olearia* is provided.

Accepted for publication 9 August 2017

Materials and methods

This study is based on the morphological examination of specimens held at AD, BRI and NT. Measurements are taken from dried material except for floral parts, which were reconstituted with boiling water. The distribution map was compiled using DIVA-GIS Version 7.5.0, using geocodes given on the labels of herbarium specimens at BRI and NT. Northern Territory botanical districts follow Chippendale (1971).

A common abbreviation in the specimen citations is NP for National Park.

Taxonomy

Olearia bella A.R.Bean & Jobson **sp. nov.** with affinity to *O. ferresii* (F.Muell.) Benth. but differing by the dense eglandular hairs on stems, leaves and involucral bracts, non-glandular leaf surfaces, the more numerous involucral bracts, and mauve to purple ligules. **Typus:** Queensland. Warrego District: *c.* 15 km S of Quilpie, towards Eulo, 4 September 1990, *Peter G. Wilson 513 & R. Rowe* (holo: BRI; iso: NSW, PERTH).

Bushy shrub to 80 cm high. Stems terete, but with several longitudinal ribs; dense indumentum of patent eglandular hairs to 0.1–0.3 (–0.5) mm long, and a sparse covering of shorter glandular hairs; oil glands absent. Leaves alternate, decurrent, narrowly-lanceolate to linear, 75–115 × 8–15 mm (6.7–11.5 times longer than broad), sessile, oil glands absent; apex acute; margins entire or denticulate, with teeth 0.2–0.5 mm long; venation visible throughout, mostly penninerved, but parallel-veined near base, with three prominent veins at base continuing onto stem and forming stem-ribs; indumentum of patent eglandular hairs and sessile glands; sparse to moderately dense on upper surface, moderately dense to dense on lower surface. Capitula in terminal corymbose clusters of 2–5, pedunculate, radiate, 11–14 mm long, 14–23 mm diameter. Peduncles 10–60 mm long, with a few slender leaf-like bracts along their length. Involucral bracts 70–80, graduated in length, 4–5-seriate, outer surface with many multicellular, patent, eglandular hairs, margins entire, not membranous, apex acuminate; outer bracts linear to narrowly-lanceolate, *c.* 4 × 0.6 mm, inner bracts linear, 7.5–11 × 1–1.4 mm. Receptacle slightly convex, *c.* 5 mm across, with short irregular projections between the floret scars. Ray florets 14–18, uniseriate, female, corolla tube 4–4.5 mm long, glabrous; ligule 11–14 mm long, mauve to purple, apex minutely 3-lobed; stylar arms filiform, *c.* 1.5 mm long. Disc florets 80–100, bisexual, yellow, corolla tube 7.2–8.7 mm long, glabrous; corolla lobes 0.8–0.9 mm long, acute. Achenes narrowly obovoid, flattened, 3.2–3.5 mm long, with dense appressed white silky hairs throughout, carpopodium oblique. Pappus comprising 24–31 uniseriate barbellate bristles 7.5–9 mm long, and 2–7 bristles < half length of the rest; barbellae *c.* 0.05 mm long for most of bristle, but 0.1–0.15 mm long near apex. **Figs. 1–3.**

***Additional specimens examined*: Queensland.** Mitchell District: Near Glenara – Bramble Creek boundary, *c.* 30 km S of Yaraka, Aug 2012, *Silcock JLS1269 & McRae* (BRI); 7 km W of Milo Station, near entrance to Bat Cave, Dec 2013, *Silcock JLS1593* (BRI). Gregory South District: *c.* 2 km W of Nine Mile Tank, S of dog fence, Araluen, Aug 2011, *Silcock JLS1002* (BRI). Warrego District: Diamond Hill, Idalia NP, 113 km S of Blackall, Jun 1999, *Nicholls SN025* (BRI, CANB); Ranges N of Idalia homestead, Idalia NP, Jul 2010, *Silcock JSL632* (BRI).

***Distribution and habitat*:** *Olearia bella* is confined to a relatively small area of south-western Queensland, between Idalia NP and south of Quilpie, and west to Milo Station (**Map 1**). It inhabits stony slopes or 'breakaways' associated with tertiary plateaux or mesas, where there is a moderately dense tree cover, including *Eucalyptus thozetiana* (Maiden) R.T.Baker. The soil is skeletal.

***Phenology*:** Flowers are recorded from June to September; fruits are recorded from August and September.

***Affinities*:** *Olearia bella* is allied to *O. ferresii*, but differs by the decurrent leaf base, with three veins from the leaf continuing onto the stem and forming stem ribs (stem ribs not formed from decurrent leaf base for *O. ferresii*); oil glands absent from stems and leaves (present on stems and leaves for *O. ferresii*); involucral bracts 70–80 (40–60 for *O. ferresii*); ray florets 14–18, tube glabrous (ray florets 8–10, tube with sparse hairs at apex for *O. ferresii*); ligules mauve to purple (cream to white for *O. ferresii*); stems with dense indumentum of patent eglandular hairs (hairs predominantly glandular, rarely with short eglandular hairs for *O. ferresii*).

***Conservation status*:** The species is known from five locations, with a total of around 500 plants (J. Silcock pers. comm. Feb 2017). Using IUCN guidelines (IUCN 2012), a conservation status of **Vulnerable** is recommended (criterion D2).

***Etymology*:** From the Latin *bellus*, meaning 'pretty'. This refers to the flower heads which are relatively large and showy.

Olearia ferresii (F.Muell.) Benth., *Fl. Austral.* 3: 487 (1867); *Eurybia ferresii* F.Muell., *Fragm.* 3: 18 (1862); *Aster ferresii* (F.Muell.) F.Muell., *Fragm.* 5: 75 (1865). **Type:** Northern Territory. Brinkley's Bluff, Macdonnell Ranges, *s.dat.*, *J.M. Stuart s.n.* (holo: MEL 689422 [JSTOR image!]).

Bushy shrub to 1.5 m. Stems terete, but with several longitudinal ribs, to almost squarish; indumentum of minute patent glandular hairs,

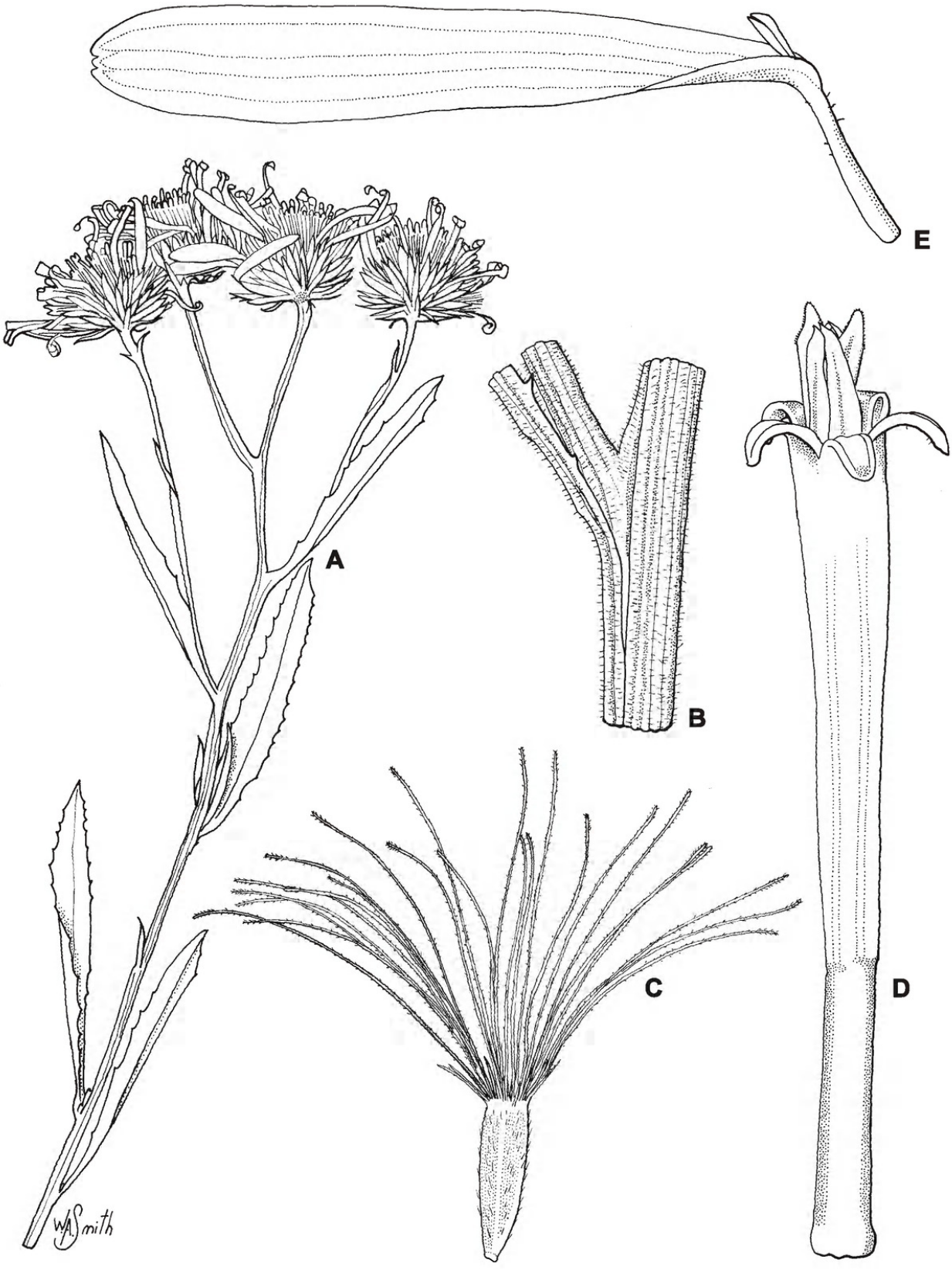


Fig. 1. ***Olearia bella***. A. flowering branchlet ×0.8. B. base of leaf showing decurrent leaf tissue ×4. C. achene and pappus ×6. D. disc floret ×14. E. ray floret ×6. A from *Wilson 513 & Rowe* (BRI); B–E from *Silcock JLS1002* (BRI). Del. W. Smith.

Fig. 2. ***Olearia bella***. Colony of plants in habitat, Araluen Station, Queensland, August 2011. Photo: T. Wattz.

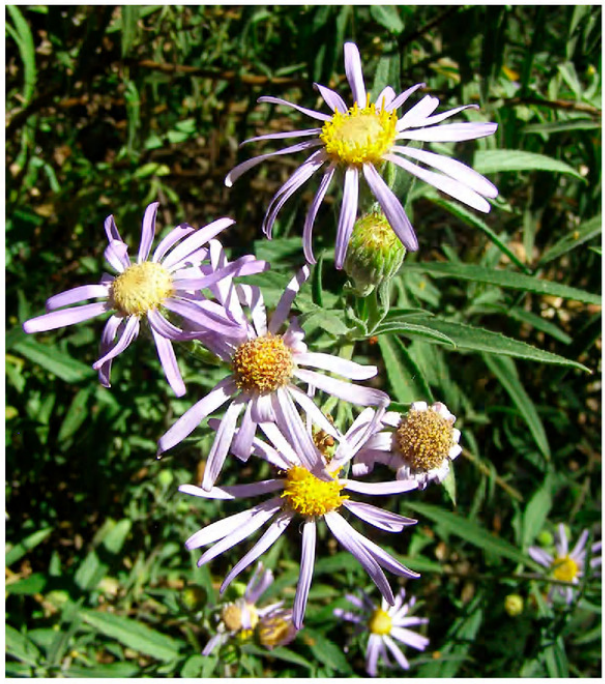


Fig. 3. ***Olearia bella***. Flowering plant, Araluen Station, Queensland, August 2011. Photo: T. Wattz.

becoming glabrous, or sometimes glabrous, or very rarely with erect eglandular hairs to 0.05 mm; oil glands often present on ribs of glabrous stems. Leaves alternate, narrowly-lanceolate to lanceolate, rarely oblanceolate, 40–80 × 6–22 mm (4.2–8.6 times longer than broad), base attenuate, oil glands present on lamina, apex acute; margins denticulate mostly in upper two-thirds, rarely with teeth in lower third, or rarely entire, teeth 0.05–0.8 mm long; venation visible throughout, mostly penninerved, upper leaf nerves looped and almost parallel to mid-rib; indumentum of sessile to erect glandular hairs, rarely with scurfy hairs on juvenile leaves, often becoming glabrous with age; sparse to moderately dense on both surfaces, appearing glabrous with age, older leaves occasionally with a pruinose bloom. Capitula in terminal corymbose clusters of 2–5, pedunculate, radiate, 15–20 mm long, 19–27 mm diameter. Peduncles 18–73 mm long, with a few slender leaf-like bracts along their length. Involucral bracts 40–60, graduated in length, 4–5-seriate, outer surface with sessile glandular hairs, margins entire but appearing dentate due to white, yellow or brown stiff erect to appressed hairs, not membranous, apex acuminate;

outer bracts linear to narrowly-lanceolate, 3.25–4.25 × 0.6–1.1, inner bracts lanceolate to narrowly-oblanceolate, 5–6.5 × 0.65–1.1 mm. Receptacle slightly convex, 5–5.5 mm wide with short irregular projections between the floret scars. Ray florets 8–10, uniseriate, female, corolla tube 5–7.5 mm long, glabrous except for very sparse hairs at apex, ligule 9–11 (–12) mm long, cream to white, apex minutely 3-lobed; stylar arms filiform, *c.* 1 mm long. Disc florets 90–110, bisexual, yellow, corolla tube 7.5–9 mm long, glabrous; corolla lobes 0.8–1.1 mm long, acute. Achenes narrowly obovoid, flattened, 3–4 mm long, with dense appressed white silky hairs throughout, often appearing ribbed on ventral face, carpopodium oblique. Pappus comprising *c.* 40 uniseriate barbellate bristles 7.25–9 mm long, and 2–4 bristles roughly half length of the rest; barbellae *c.* 0.05 mm long for most of bristle, but *c.* 0.1 mm long near apex and often darker coloured.

***Specimens examined*: Northern Territory.** Central Southern: Rowley Range, 68 km ENE of Docker River, Sep 2005, *Latz 21180* (NT); Farrar Spring, Eastern section of George Gill Range on N side, Sep 2012, *Duguid 1421* (NT); 20 km S of Mt Tate, Mereenie Gas Pipeline, Jun 2012, *Latz 27461 & Rilstone* (DNA, NT); Giles Yard Spring, Chewings Range, West MacDonnell NP, May 2002, *Barnetson 83* (NT). Central Northern: Dulcie Range, Arapunyah Station, Aug 1987, *Thomson 2035* (DNA). **South Australia.** North-western: SW of Mt Cuthbert, Musgrave Ranges, Jul 1982, *Conrick 796* (AD); 8 km NE of Yurangka, Western Musgrave Ranges, Oct 1998, *Lang et al. BS23-28943* (AD).

***Distribution and habitat*:** *Olearia ferresii* occurs from the Everard Range in South Australia, to Yuendumu in Northern Territory and eastwards to the Harts Range (**Map 1**). It grows in gullies or screes of quartzite, sandstone or granite hills and ranges, in open woodland with *Eucalyptus camaldulensis* Dehnh. or *Acacia aneura* F.Muell. ex Benth. shrubland with *Triodia*-dominated understorey.

***Phenology*:** Flowers and fruiting heads are recorded from May to October. All specimens examined had both flowers and mature achenes.

Olearia orientalis A.R.Bean & Jobson **sp. nov.** with affinity to *O. macdonnellensis* but differing by the solitary capitula, the shorter but more numerous ligules, the shorter corolla of the disc florets, the shorter capitula, and the very sparsely hairy achenes. **Typus:** Queensland. Port Curtis District: 3 km E of Glenavon homestead, Five Mile Creek headwaters, 1 March 1994, *P.I. Forster PIF15039 & A.R. Bean* (holo: BRI [2 sheets]; iso: AD, CANB, DNA, K, L, MEL, NSW, PE).

Olearia sp. (Glenavon P.I.Forster+ PIF15039); Henderson (2002).

Bushy shrub to 50–200 cm high. Stems angular to ribbed; young branchlets with an indumentum of scurfy eglandular hairs 0.1–0.2 mm long, often coated with resin, glandular hairs absent. Leaves alternate, obovate, 18–36 × 9–14 mm (1.8–2.6 times longer than broad), sessile or shortly petiolate, oil glands absent; apex mucronate or acute; margins sparsely denticulate, with 2–4 pairs of teeth 0.2–0.5 mm long; venation obscure to faintly visible, often more so on abaxial surface, venation penninerved with looped veins at apex; indumentum absent, but surface conspicuously resinous especially on younger leaves. Capitula terminal, solitary, pedunculate, radiate, 6–9 mm long, 8–11 mm diameter. Peduncles 12–55 mm long, with a few short antrorse bracts along their length, sometimes uncinate. Involucral bracts 42–52, graduated in length, outer surface glabrous, resinous, margins entire, not membranous, apex acute; outer bracts ovate to broadly-lanceolate, 1.5–2.5 × 0.8–1.2 mm, inner bracts lanceolate, 3.6–4.3 × 0.8–0.9 mm. Receptacle convex, 3.1–3.7 mm across, with short irregular projections between the floret scars. Ray florets 14–20, uniseriate, female, corolla tube *c.* 3 mm long, glabrous; ligule 3–6 mm long, white, apex minutely 3-lobed; stylar arms filiform, 0.6–0.9 mm long. Disc florets 16–26, bisexual, yellow, corolla tube 4–4.7 mm long, with scattered very short antrorse hairs midway along tube; corolla lobes 0.8–0.9 mm long, acute. Achenes narrowly obovoid, flattened, 2–2.8 mm long, with numerous longitudinal ribs or striae,

very sparse antrorse white hairs throughout, carpopodium not oblique. Pappus comprising 31–40 uniseriate barbellate bristles 4–4.7 mm long, and 2–7 bristles < half length of the rest; barbellae < 0.05 mm long for most of bristle, but slightly longer near apex. **Figs. 4 & 5.**

***Additional specimens examined*: Queensland.** PORT CURTIS DISTRICT: Bukulla, *c.* 10 km NW of Marlborough, Jun 2004, *Hanger 20* (BRI); Marlborough, May 2010, *Hendry 744/1* (BRI); Mt Redcliffe, 6 km SW of Marlborough railway station, Oct 1991, *Batianoff 911021 & Franks* (AD, BRI, CANB, DNA, MEL, NSW); Gumigil Mining Lease, 18 km SSW of Marlborough

Fig. 4. ***Olearia orientalis***. A. flowering branchlet ×1.5. B. achene and pappus ×12. C. disc floret ×16. D. ray floret ×8. A, C–D from *Hendry 744/1* (BRI); B from *Forster PIF15039* & Bean (BRI). Del. W. Smith.

Fig. 5. ***Olearia orientalis***. Flowering plant, Glen Geddes, Queensland, July 1989. Photo: A.R. Bean.

township, Jul 2000, *Champion 1645 & Whereat* (BRI, NSW); 1 km W of Glen Geddes, Jan 1988, *Forster PIF3398* (BRI); Marlborough Nickel Project, off Coorumburra Road, section known as 'Magpie', Aug 1999, *Champion IGC1535 et al.* (BRI); lower slopes of Mt Bonnie Doon, *c.* 26 km W of Yaamba, Jun 2006, *Hendry & Hendry s.n.* (BRI [AQ737794]); 4 km W of Kunwarara, between Canoona & Princhester, track to microwave tower, Jun 2011, *Forster PIF38214* (BRI, MEL); Glen Geddes siding, forestry reserve, May 1998, *Batianoff 98057R & Ryan* (BRI, CANB, DNA, MEL, NSW); Glen Geddes, 2–3 km from Bruce Highway, Apr 2008, *Reeves 3465 & Batianoff* (BRI, E).

***Distribution and habitat*:** *Olearia orientalis* has a restricted distribution northwest of Rockhampton in Queensland (**Map 1**). It is confined to serpentinite hills and ridges, with shallow or skeletal soil, in woodland dominated by *Eucalyptus fibrosa* F.Muell. subsp. *fibrosa* and/or *Corymbia xanthope* (A.R.Bean & Brooker) K.D.Hill & L.A.S.Johnson.

***Phenology*:** Flowers are recorded for almost every month of the year, while fruits are recorded from March and October.

***Affinities*:** *Olearia orientalis* is similar in appearance to *O. macdonnellensis*, but differs by the solitary capitula (corymb of 2–5 capitula for *O. macdonnellensis*), 14–20 ray florets (6–8 for *O. macdonnellensis*), ligules 3–6 mm long (7–11 mm long for *O. macdonnellensis*), disc corolla 4–4.7 mm long (6–7 mm long for *O. macdonnellensis*), achenes almost glabrous (very dense antrorse hairs throughout for *O. macdonnellensis*) and capitula 6–9 mm long (10–12 mm long for *O. macdonnellensis*).

***Conservation status*:** *Olearia orientalis* is known from 13 subpopulations throughout its range, each of which is small and localised. The serpentinite rocks on which the species grows contain valuable minerals, and the area has numerous mines and more mines are anticipated. The extent of occurrence of this species is around 1800 km^2, while the estimated area of occupancy is *c.* 5 km^2. A conservation status of **Vulnerable** (criteria

C1, C2a(i), D2) is recommended based on the IUCN guidelines (IUCN 2012).

***Etymology*:** From the Latin *orientalis*, meaning 'eastern' or 'of the east'. This refers to the distribution of the species in eastern Australia.

Olearia macdonnellensis D.A.Cooke, *Muelleria* 6: 181 (1986). **Type:** Northern Territory. 1 km W of Ellery Creek Big Hole, 17 August 1983, *P.K. Latz 9636* (holo: NT; iso: AD, CANB, DNA).

Erect bushy shrub to 1.2 m. Stems angular to semi-terete, ribbed, red-brown; young branchlets with a dense to sparse indumentum of scurfy hairs often coated with resin (especially at growing tips), glandular hairs absent. Leaves alternate, broad elliptic, oblong, to broad ovate, 17–27 × 8–15 mm (1.8–2.1 times longer than broad), petiole 2.25 –6.25 mm long, oil glands absent, apex mucronate or acute; margins sparsely denticulate, with 3–5 pairs of teeth, 0.25–1 mm long; venation obscure to faintly visible, often more so on abaxial surface, venation penninerved with looped veins at apex; surface punctate, often covered in resin. Capitula in terminal corymbose clusters of 2–5, pedunculate, radiate, 10–12 mm long, 9–14 mm wide. Peduncles 7.5–24(–55) mm long, with 1–5 bracts along their length, bracts often uncinate. Involucral bracts 16–20, graduated in length, outer surface with occasional hairs in upper midrib, resinous, margins entire or coarsely erose-ciliate with occasional hairs, more towards the apex, margins membranous particularly in outer bracts, apex acute; outer bracts narrow lanceolate 2.75–5 × 0.6–0.8 mm, inner bracts linear-lanceolate, 7–8 × 0.9–1.25 mm. Receptacle convex, *c.* 2 mm across, with short irregular projections between the floret scars. Ray florets 6–8, uniseriate, female, corolla tube 3.5–4 mm long, glabrous except for rare obtuse hairs in upper portion; ligule 7–11 mm long, white or yellow, apex minutely 3-lobed; stylar arms filiform, 1.25–1.6 mm long. Disc florets 15–20, bisexual, yellow, corolla tube 6–7 mm long, with very sparse obtuse antrorse hairs midway along tube; corolla lobes 0.75–1 mm long, acute. Achenes narrowly obovoid, flattened or tetragonous, 2.25–4 mm long, with very dense antrorse white hairs throughout, occasionally appearing to present a marginal rib along one side, carpopodium oblique. Pappus comprising 20–32 uniseriate barbellate bristles 3.75–8.25 mm long with 2–4 bristles < 3/4 length of the rest; barbellae *c.* 0.05 mm long for most of bristle, barbellae consistent along length of bristle.

***Additional specimens examined*: Northern Territory.** Central Southern: 19 km E of Glenn Helen Resort, Aug 2004, *Albrecht 11008 & Latz* (DNA, NT); Gorge behind old Serpentine Chalet, Jul 1988, *Leach 2059 & Barritt* (AD, DNA, NT); 5 km E of Ellery Creek Big Hole, May 2000, *Latz 16156* (NT); Ranges S of Paddy's Plain, East MacDonnell Ranges, Sep 1989, *Soos 102* (NT).

***Distribution and habitat*:** *Olearia macdonnellensis* is endemic to the Northern Territory where it is restricted to the West MacDonnell Ranges between Glen Helen and Ellery Rockhole (**Map 1**). It inhabits rocky screes or creek gullies of either dolorite or quartzite, in open low eucalypt or mulga woodland.

***Phenology*:** Flowering is recorded from May to October, with an a seasonal flowering specimen from February; fruiting from June to October

***Notes*:** When Cooke (1986) described *Olearia macdonnellensis*, the material available to him was limited. With subsequent collections, it was noted that a number of measurements and descriptors did not match what was being observed and an expanded description has been presented here.

Key to Queensland species of *Olearia*

1 Stems and leaves with stellate hairs **2**
1. Stems and leaves without stellate hairs **7**

2 Leaves 5–8 mm wide, green on both sides; Stradbroke Island only . . . . . **O. hygrophila**
2. Leaves 9–35 mm wide, lower surface grey-green to white; mainland only **3**

3 Upper surface of fully expanded leaves glabrous or with a few scattered hairs **4**
3. Upper surface of fully expanded leaves moderately or densely stellate-hairy **5**

4 Leaf margins with 12–30 pairs of teeth; corymbose terminal conflorescences with more than 40 capitula; Border Ranges SE Qld . . . **O. heterocarpa**
4. Leaf margins entire; paniculate or corymbose conflorescences with (1–2)–20 capitula . . . . . **O. canescens** subsp. **discolor**

5 Stellate hairs on stems or leaves 0.15–0.25 mm across; involucres 3–4.5 mm long, 4–7 mm diameter; leaves entire . . . . . **O. canescens** subsp. **canescens**
5. Stellate hairs on stems or leaves 0.25–0.5 mm across; involucres 5–11 mm long, 10–18 mm diameter; leaves often lobed or toothed **6**

6 Indumentum of leaf underside very dense, obscuring surface at 10× magnification; fully developed leaves 9–19 mm wide; SE Qld . . . . . **O. gravis**
6. Indumentum of leaf underside moderately dense to dense, surface visible at 10× magnification; fully developed leaves 14–35 mm wide . . . . . **O. nernstii**[1]

7 Leaves and branchlets on new growth viscid **8**
7. Leaves and branchlets not viscid **10**

8 Leaves entire, elliptical; older leaves varnished, shiny; petiole distinct, 5–10 mm long . . . . . **O. elliptica** subsp. **elliptica**
8. Leaves toothed or denticulate, obovate to cuneate; older leaves often neither varnished nor shiny; petiole absent **9**

9 Leaves cuneate, 3.5–4.5 times longer than broad; involucres 14–16 mm long; achenes densely hairy; NW of Mitchell . . . . . **O. cuneifolia**
9. Leaves obovate, 1.8–2.6 times longer than broad; involucres 6–9 mm long; achenes sparsely hairy; NW of Rockhampton . . . . . **O. orientalis**

10 All leaves < 9 mm long **11**
10. Larger leaves on any given specimen > 9 mm long **14**

11 Leaves appressed to stems, in clusters of 3–6; involucral bracts with golden sessile glands along much of their length; SE Qld . . . . . **O. ramosissima**
11. Leaves spreading, usually solitary (occasionally clustered); golden glands absent from involucral bracts or confined to apical part **12**

12 Capitula solitary, terminal; involucres 6.5–9 mm long, 9–14 mm wide; pappus 7.5–8 mm long; S Qld . . . . . **O. pimeleoides**
12. Capitula terminal and axillary; involucres 3.5–5 mm long, 4–6 mm wide; pappus 3–4 mm long **13**

---

[1] Integrades occur between this species and *O. gravis,* and some specimes are difficult to place.

13 Leaves obovate to broadly obovate, orange glands not prominent on underside; achenes of ray florets glabrous, those of disc florets densely glandular . . . . . **O. microphylla**
13. Leaves narrowly-elliptic, orange glands prominent on underside; all achenes densely silky hairy . . . . . **O. ramulosa** *sens. lat.*

14 Stems and leaves with stalked glandular hairs **15**
14. Stems and leaves lacking stalked glandular hairs **17**

15 Leaves broadly elliptic to broadly ovate; eglandular hairs equally as frequent as glandular hairs . . . . . **O. xerophila**
15. Leaves linear to narrowly-elliptic or oblanceolate; eglandular hairs much less frequent than glandular hairs **16**

16 Leaves 9–22 mm long; glandular hairs of varying length (0.05–0.2 mm long) abundant on leaves and stems; stems without ribs; W Qld. . . . . **O. stuartii**
16. Leaves 37–53 mm long; glandular hairs (all *c.* 0.05 mm long) sparse to dense on leaves and stems; stems with ribs formed by decurrent leaf midrib . . . . . **O. gordonii**

17 Leaves opposite; reticulate veins raised on upper surface **18**
17. Leaves alternate; reticulate veins not raised on upper surface **19**

18 Leaves 1–2(–8.5) mm wide, margins entire or obscurely toothed . . . . **O. rosmarinifolia**[2]
18. Leaves 10–21 mm wide, margins distinctly toothed . . . . . **O. oppositifolia**

19 Stems and leaves glabrous; leaves with prominent glands along margins; Girraween NP, SE Qld . . . . . **O. glandulosa**
19. Stems and leaves hairy; leaves without glands along margins **20**

20 Leaf and stem hairs completely appressed, individual hairs scarcely distinguishable; 'Scenic Rim', SE Qld . . . . . **O. cydoniifolia**
20. Hairs on leaves and stems not completely appressed; individual hairs readily distinguished; western and northern Qld. **21**

21 Hairs on leaves and stems erect, not woolly or silky; involucres 14–23 mm diameter; rays mauve to purple . . . . . **O. bella**
21. Stems and leaves with woolly or silky hairs; involucres 4–14 mm diameter; rays white . **22**

22 Hairs > 1 mm long, silky, ± straight; leaves elliptical; involucres 11–14 mm diameter; peduncles 50–180 mm long . . . . . **O. arguta** var. **lanata**
22. Hairs < 1 mm, woolly, crisped; leaves linear to oblanceolate; involucres 4–7 mm diameter; peduncles 1–4 mm long . . . . . **O. subspicata**

---

[2] Mostly the leaves are 1–2 mm wide, but specimens from Mt Glorious are broader (up to 8.5 mm wide), and approach the narrower forms of *O. oppositifolia.*

Acknowledgements

We are grateful to Jennifer Silcock for her distributional and ecological notes on *O. bella*, to Tracy Wattz for the use of her photos of that species, and to Will Smith for the illustrations.

References

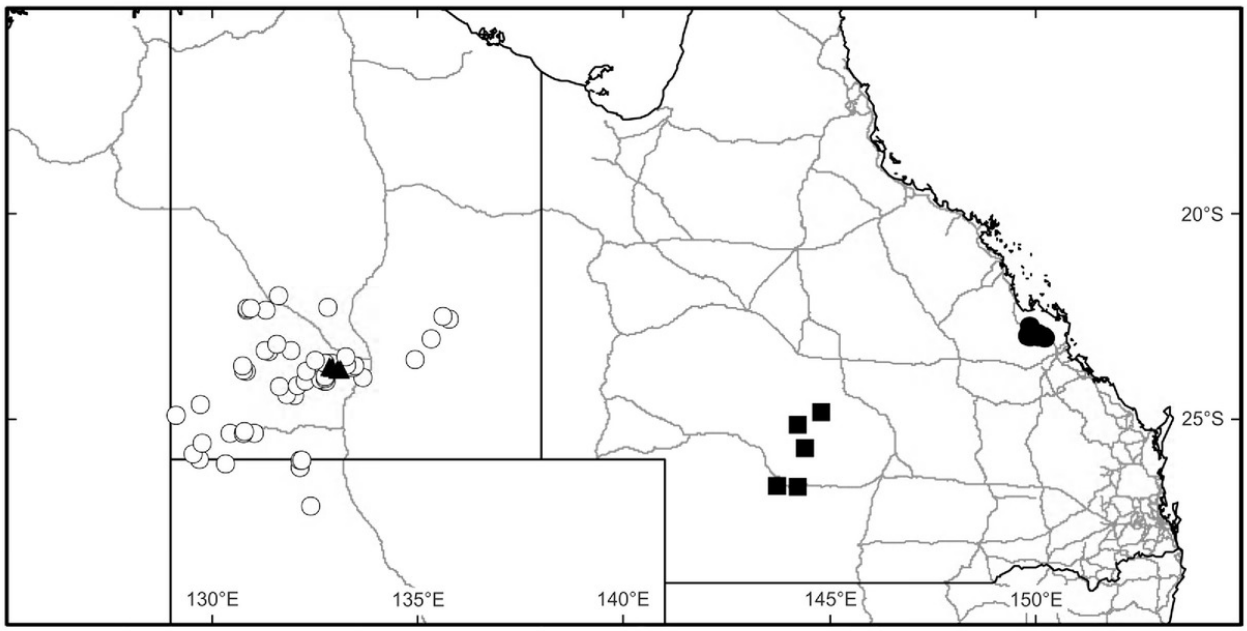
Chippendale, G.C. (1971). Checklist of Northern Territory Plants. *Proceedings of the Linnean Society of New South Wales* 96: 207–267.

Cooke, D.A. (1986). Two new species of *Olearia* Moench (Compositae: Astereae) from Central Australia. *Muelleria* 6: 181–184.

Cross, E.W., Quinn, C.J. & Wagstaff, S.J. (2002). Molecular evidence for the polyphyly of *Olearia* (Astereae: Asteraceae). *Plant Systematics and Evolution* 235: 99–120.

Henderson, R.J.F. (2002). *Names and Distribution of Queensland Plants, Algae and Lichens.* Brisbane: Environmental Protection Agency.

Iucn (2012). International Union for the Conservation of Nature. *IUCN Red List Categories and Criteria, version 3.1*, 2nd ed. https://portals.iucn.org/library/efiles/documents/RL-2001-001-2nd.pdf, accessed 20 February 2017.



Map 1. Distribution of *Olearia* spp. *Olearia bella* ■, *O. ferresii* ○, *O. macdonnellensis* ▲ and *O. orientalis* ●