

Olearia cuneifolia A.R.Bean & M.T.Mathieson (Asteraceae: Astereae), a new species from Queensland

A.R. Bean & M.T. Mathieson

Summary

Bean, A.R. & Mathieson, M.T. (2015). *Olearia cuneifolia* A.R.Bean & M.T.Mathieson (Asteraceae: Astereae), a new species from Queensland. *Austrobaileya* **9(3)**: 404–407. *Olearia cuneifolia* A.R.Bean & M.T.Mathieson is described, illustrated and compared to related taxa. It has a restricted distribution in the Mungallala area of southern Queensland. A conservation status of Endangered is recommended.

Key Words: Asteraceae, *Olearia*, *Olearia cuneifolia*, endangered species, Maranoa, Queensland flora

A.R.Bean & M.T.Mathieson, Queensland Herbarium, DSITI, Brisbane Botanic Gardens, Mt Coot-tha Road, Toowoong, Queensland 4066, Australia. Email: Tony.Bean@dsiti.qld.gov.au

Introduction

Olearia Moench with 122 indigenous species is currently Australia's most species diverse Asteraceae genus (APC 2015). The molecular study by Cross *et al.* (2002) showed that *Olearia* is polyphyletic, with some species appearing in clades with species from other genera of the tribe Astereae. They identified two major taxonomic groups for *Olearia*, 'primary clade I' and 'primary clade II', to which all species could be assigned. The study also revealed the presence of eight robust clades within *Olearia*, which they designated A–H. It is possible that the name *Olearia* will, after further study, be confined to Clade A (including the Queensland species *O. ramulosa* (Labill.) Benth., *O. microphylla* (Vent.) Maiden & Betche and *O. nernstii* (F.Muell.) Benth.); otherwise all members of primary clade I will retain the generic name of *Olearia*. Messina *et al.* (2014) have provided a revision of the species included in *Olearia* sect. *Asterotriche* Benth., a monophyletic subset of the Clade A of Cross *et al.* (2002).

Olearia cuneifolia, newly named here, belongs to Clade B of Cross *et al.* (2002) and is related to *O. magniflora* (F.Muell.) Benth., *O. muelleri* (Sond.) Benth. and *O. calcarea* F.Muell. ex Benth.

Materials and methods

This study is based on the morphological examination of specimens held at BRI, together with field observations. The measurements for floral parts are based on material preserved in 70% alcohol or reconstituted with hot water; other plant parts were measured from dried material.

Taxonomy

Olearia cuneifolia A.R.Bean & M.T.Mathieson **sp. nov.** with affinity to *O. muelleri*, but differing by the cuneate leaves, the much longer involucre, the disc florets with hairs on the corolla tube and corolla lobes, and the two-whorled pappus. **Typus:** Queensland. MARANOA DISTRICT: Nalpa Downs, c. 16 km NE of Mungallala, 26 March 2015, *M.T. Mathieson MTM1999* (holo: BRI; iso: CANB, K, MEL, NSW, US, *distribuendi*).

Erect shrub to 2 m high. Branchlets very viscid and with sparse, erect eglandular hairs to 0.15 mm long. Young branchlets distinctly angular due to decurrent leaf-bases, but older branchlets terete. Leaves alternate, sessile, oblanceolate to cuneate, 8–15 × 2–5.2 mm, ± glutinous, ± concolorous, venation not visible, except midrib; glabrous or with short sparse erect eglandular hairs, mainly along margins; apex acute or truncate; base attenuate; margins flat or recurved, entire or with 2 small teeth near apex. Capitula terminal,

solitary, sessile. Involucres ellipsoidal at anthesis, 14–16 mm long, 7–9 mm diameter; campanulate to hemispherical at fruiting stage. Bracts 5–7-seriate; outer bracts 3–4 × 1.8–2.5 mm, elliptical, with ± dense eglandular hairs near distal end; margins irregularly ciliate; inner bracts lanceolate, 6–10 × 1.5–2 mm, inner surface glabrous, outer surface with eglandular hairs near apex; apex obtuse, margin irregularly ciliate near apex. Receptacle slightly to markedly alveolate, 3–3.8 mm diameter. Ray florets 14–21, female; corolla tube linear, 6.2–6.9 mm long, with small antrorse eglandular hairs on apical ¼ of tube; ligule 7.5–9.5 mm long, white; styles exserted, recurved. Disc florets 28–42, bisexual; corolla tube linear, 6.5–7.5 mm long, with antrorse eglandular hairs on medial section; corolla lobes 5, acute, 0.8–1.6 mm long, glabrous except for a cluster of small eglandular hairs near apex; anthers 1.2–1.4 mm long, with sterile tip 0.8–1 mm long, anther tails *c.* 0.1 mm long. Achenes flattened-cylindric, 4–6-ribbed, 3.8–4.2 mm long, densely silky-hairy throughout; pappus bristles barbellate, creamy-white, in two whorls; inner whorl 7.5–8 mm long at fruiting stage, the outer whorl 1–1.5 mm long. **Figs. 1–3.**

Additional specimens examined: Queensland. MARANO DISTRICT: Lot 23, CP847082 Mitchell 8445 – Morven 8346 [Umberill Station], Sep 2003, *Baumgartner s.n.* (BRI [AQ764458]); Nalpa Downs, WNW of Mitchell, Dec 2013, *Mathieson MTM1599* (BRI); Nalpa Downs, *c.* 40 km NW of Mitchell, Sep 2014, *Mathieson MTM1790* (AD, BRI, HO, NE, NT); Andromeda, Mar 2015, *Mathieson MTM2000* (BRI, NSW); Andromeda, N of Mungallala, May 2008, *Silcock 125* (BRI); Andromeda, *c.* 24 km NNE of Mungallala, Oct 2008, *Wang JW0170* (BRI).

Distribution and habitat: *Olearia cuneifolia* is endemic to Queensland. The species is known from sites north and north-east of Mungallala, between Roma and Charleville. It occurs within the ecotone between open or degraded forests dominated by *Acacia harpophylla* F.Muell. ex Benth. and *Casuarina cristata* Miq. and open sclerophyll woodland dominated by *Eucalyptus crebra* F.Muell. and/or *E. thozetiana* (Maiden) R.T.Baker. The soils are derived from sedimentary rocks and

consist of self-mulching cracking clays on flat areas or stony clays on lower slopes of low mesas and rises.

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

Affinities: *Olearia cuneifolia* is related to *O. muelleri*, *O. magniflora* and *O. calcarea*. All of these species have solitary and sessile capitula, and the involucres are cylindrical to ellipsoidal at anthesis. All have small resinous leaves.

Olearia cuneifolia differs from *O. muelleri* by the narrower, more cuneate-shaped leaves (broadly-ovate to orbicular in *O. muelleri*), the much larger involucres, the greater number of disc and ray florets, the presence of hairs on the corolla tube and lobes of the disc florets (glabrous in *O. muelleri*), the longer achenes and the pappus with two whorls of bristles (one whorl in *O. muelleri*).

Olearia cuneifolia differs from *O. magniflora* by the leaves without teeth or with only two teeth (at least some leaves with four or more teeth in *O. magniflora*), the shorter rays of the ray florets, the rays white in colour (mauve to purple in *O. magniflora*), and the densely hairy achenes (glabrous in *O. magniflora*).

Olearia cuneifolia is similarly in leaf morphology to *O. calcarea*, but differs from *O. calcarea* by the longer involucres, the greater number of ray florets, the much shorter rays of the ray florets, and the shorter achenes and pappus. *O. calcarea* is often regarded as a hybrid between *O. magniflora* and *O. muelleri* (Walsh & Lander 1999). *O. cuneifolia* is not considered to be a hybrid as other species of *Olearia* in the area (*O. canescens* (Benth.) Hutch., *O. elliptica* DC., *O. gordonii* Lander, *O. subspicata* (Hook.) Benth.) are not related to it.

Conservation status: *Olearia cuneifolia* is only known from three locations in a small area (approximately 19.5 km²) to the north of Mungallala in south central Queensland. It has not been located elsewhere in the surrounding district despite many surveys in similar



Fig. 1. *Olearia cuneifolia*. A. flowering branchlet $\times 1$. B. outer involucre bract $\times 8$. C. inner involucre bract $\times 8$. D. mature achene and pappus $\times 8$. E. disc floret $\times 16$. F. ray floret $\times 8$. All from Mathieson MTM1999 (BRI). Del. W. Smith.



Fig. 2. Lateral view of young flowering capitulum (*Mathieson MTM1999*). Photo: M.T. Mathieson.

habitat. The total population is estimated to be < 250 individuals occupying a total area of less than two hectares. Applying the criteria of the IUCN (IUCN 2012), the recommended conservation status is **Endangered** (D2).

Etymology: The specific epithet is given in reference to the leaf shape.

Acknowledgements

We are grateful to Will Smith (BRI) for the line drawings.



Fig. 3. Disc and ray florets on young flowering capitulum (*Mathieson MTM1999*). Photo: M.T. Mathieson.

References

- APC (2015). *Australian Plant Census*. Council of Heads of Australasian Herbaria. <https://www.anbg.gov.au/chah/apc/>, accessed 23 May 2015.
- 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.
- IUCN (2012). *IUCN Red List Categories and Criteria, version 3.1, 2nd ed.* <https://portals.iucn.org/library/efiles/documents/RL-2001-001-2nd.pdf>, accessed 29 September 2014.
- MESSINA, A., WALSH, N.G., HOEBEE, S.E. & GREEN, P.T. (2014). A revision of *Olearia* section *Asterotriche* (Asteraceae: Astereae). *Australian Systematic Botany* 27: 199–240.
- WALSH, N.G. & LANDER, N.S. (1999). *Olearia*. In N.G. Walsh & T.J. Entwisle (eds.), *Flora of Victoria, Dicotyledons: Cornaceae to Asteraceae* 4: 886–912. Inkata Press: Melbourne.