

## ***Calotis cuneata* var. *pubescens* (Asteraceae), change in rank and notes on its distribution and ecology**

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### *Abstract*

*Calotis cuneata* (F.Muell. ex Benth.) G.L.Davis var. *pubescens* (F.Muell. ex Benth.) G.L.Davis is elevated to species rank as *Calotis pubescens* (F.Muell. ex Benth.) N.G.Walsh & K.L.McDougall and its ecology and conservation status are discussed.

### **Background**

Until recently *Calotis cuneata* (F.Muell. ex Benth.) G.L.Davis var. *pubescens* (F.Muell. ex Benth.) G.L.Davis was known from only four collections: F. Mueller's 1854 type from 'grassy mountains on the Mitta Mitta', Victoria (MEL), two 1956 collections by M. Mueller from Nungar Plain and Snowy Plain, Kosciuszko National Park, New South Wales (CANB), and a 1967 collection by W. Bryant from Nungar Plain (NSW). The taxon has not been recollected in Victoria and may now be extinct in that state although Ross (2000) regarded it as 'poorly known'. Many likely areas of occurrence in F. Mueller's rather vague collection area are now largely converted to pasture, although the possibility exists that it still occurs on grassy plains of the Alpine National Park, Bogong Unit. Surveys by one of us (KMCD) in February 2001 on Nungar Plain, recorded *C. cuneata* var. *pubescens* at four sites, and further surveys by both of us in December 2001 located the taxon at 19 individual sites on the same plain. Surveys of similar subalpine grassy plains in the area (e.g. Long Plain, Happy Jacks Plain, Boggy Plain, Gulf Plain) have not resulted in further discoveries of the taxon. A survey in February 2001 of Snowy Plain in Kosciuszko National Park, where *C. cuneata* var. *pubescens* had been collected by M. Mueller in 1956, failed to locate the taxon (R. Rehwinkel, NPWS, pers. comm.).

The recent gatherings of the taxon have allowed more detailed comparisons with the typical variety of *C. cuneata*. Following these comparisons we are convinced that, despite superficial similarities in the mature cypselas, *C. cuneata* var. *pubescens* is rather distantly related to *C. cuneata* sens. str. and is at least as closely related to *C. scabiosifolia* Sond. & F.Muell. (within which Bentham (1867) originally included both varieties of *C. cuneata*).

In erecting *Calotis cuneata* Davis (1952) distinguished it from *C. scabiosifolia* (in which she retained two of Bentham's (1867) original six varieties) by the presence of a second series of fine plumose awns within the ring of peripheral awns on the apex of the cypselas. The two varieties of *C. cuneata* were distinguished by foliar characters, indumentum, and by the presence of a patch of appressed hairs on the central part of the body of the cypselas of var. *pubescens*. Although significant within *C. cuneata*, this last feature also occurs on *C. scabiosifolia* var. *integrifolia* F.Muell. ex Benth. The main cypselas awns of *C. cuneata* var. *pubescens* are unique amongst all four taxa within *C. scabiosifolia* and *C. cuneata* in being non-scabrous.

More detailed comparison of the cypselas of the two varieties of *C. cuneata* shows some significant discriminating features not noted by Davis or in the account of the genus by Everett (1992). The central awns of *C. cuneata* var. *cuneata* are united into a solid column in their basal half. This column encircles the base of the corolla. The central awns

of *C. cuneata* var. *pubescens* are much finer and free to their bases. The margins of the cypselas of var. *cuneata* are narrow and acute while those of var. *pubescens* are broadly thickened and rounded rather like those of *C. scabiosifolia*.

The general indumentum of *C. cuneata* var. *pubescens* differs from the typical variety and from both varieties of *C. scabiosifolia*. The last three taxa have strigose, septate hairs of varying density and coarseness, but all are evenly tapered from base to apex. *Calotis cuneata* var. *pubescens* has hairs with a coarse, erect septate base that is rather abruptly attenuated into a distinctly longer and finer apical part. This apical filament is often lost from the hairs of older and/or exposed parts of the leaves and stems leaving the persistent basal stub which results in a coarse hispid indumentum on these parts.

The distribution of *C. cuneata* as it is currently circumscribed gives a pattern that cannot be reconciled with a notion of relatively recent evolution of two entities from a common ancestor (as might be inferred from their varietal status). The typical variety is widely distributed from inland northern New South Wales to central Queensland while var. *pubescens* is highly localised in the subalps of north-eastern Victoria and southern New South Wales.

For the reasons outlined above we here elevate *C. cuneata* var. *pubescens* to specific rank.

### Taxonomy

*Calotis pubescens* (F.Muell. ex Benth.) N.G.Walsh & K.L.McDougall, *stat. nov.*  
*Calotis scabiosifolia* Sond. & F.Muell. var. *pubescens* F.Muell. ex Benth., *Fl. Austral.* 3: 503 (1867). *Calotis cuneata* (F.Muell. ex Benth.) G.L.Davis var. *pubescens* (F.Muell. ex Benth.) G.L.Davis, *Proc. Linn. Soc. New South Wales* 77: 178 (1952). *Lectotype*: 'Grassy mountains on the Mitta Mitta', *F. Mueller s.n.*, 1854 (MEL) *fide* G.L. Davis *loc. cit.*

### Ecology

At Nungar Plain, *C. pubescens* occurs in a herbfield community (in which it may be dominant) on gentle slopes between *Eucalyptus pauciflora* woodland and the valley floor which is vegetated by a mosaic of *Poa*-dominated tussock grasslands, open heaths dominated by *Hovea montana* and Cyperaceae-rich wetland communities. Soils are of the alpine humus type developed on a parent material of Silurian siltstone and shale of the Tantangara Formation. The altitude range is small, between c. 1340 and 1380 m a.s.l.

Colonies of *C. pubescens* may comprise a single genet developed by rhizomatous growth and can be up to 10m in diameter. Typically associated species include *Bulbine glauca*, *Coprosma nivalis*, *Leptorhynchos elongatus*, *Oreomyrrhis argentea*, *Plantago euryphylla*, *Poa petrophila*, *Poa hookeri* and *Wahlenbergia densifolia*. *Calotis glandulosa* F.Muell. is also relatively abundant on the plain. A comprehensive checklist of the flora of Nungar Plain will be published elsewhere (McDougall & Walsh in prep.).

### Conservation Status

Based on Briggs and Leigh (1996), an appropriate conservation code for *Calotis pubescens* is 3ECi. The species is threatened by feral pigs, which have excavated large areas of vegetation on Nungar Plain, especially the herbland community containing *C. pubescens*.

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