

## Resolution of the taxonomy of *Eriocaulon* (Eriocaulaceae) taxa endemic to Australian mound springs, using morphometrics and AFLP markers

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### Abstract

The *Eriocaulon carsonii* F.Muell. species complex consists of rare perennial mat-forming forbs endemic to mound springs of central and north-eastern Australia. Even though the complex occurs across a range of more than 1500 km, the springs on which it occurs are naturally rare and highly disjunct, with groupings of springs ('super-groups') 200-500 km apart. The present paper investigated the taxonomy of the complex by analysing morphometric characters and amplified fragment length polymorphism (AFLP) genetic markers. Morphological measurements were made of 126 samples collected from 23 spring-subpopulations representing 15 spring-groups spread across all nine super-groups on which the complex occurs. Ordination and univariate analysis of data relating to 30 morphological characters revealed five morphologically distinct groups. These groupings were supported by an analysis of 613 AFLP loci markers derived from a subset of samples from all of the same springs. Ordination analysis of the genetic data matrix revealed that the morphological groups were also genetically distinct. It is proposed that the complex consists of five distinct taxa. Two new subspecies (*E. carsonii* F.Muell. subsp. *euloense* R.J.Davies and *E. carsonii* F.Muell. subsp. *orientale* R.J.Davies) are described, along with two new species (*E. aloefolium* R.J.Davies and *E. giganticum* R.J.Davies). All taxa are nationally endangered or critically endangered according to IUCN criteria, except for *E. carsonii* subsp. *orientale* which is vulnerable.

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