



## ***Cardamine cubita* (Brassicaceae), a new species from New Zealand with a remarkable reduction in floral parts**

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### **Abstract**

A new species, *Cardamine cubita*, is named and described from the central South Island, New Zealand. DNA sequence data confirm that *C. cubita* belongs to a clade comprising *C. hirsuta* and *C. oligosperma*. This new species has a unique suite of reduced vegetative and floral characters. *Cardamine cubita* is known from a single locality, and is assigned a New Zealand conservation status of Nationally Critical.

**Key words:** New Zealand flora, threatened, wetland habitat

### **Introduction**

The genus *Cardamine* Linneaus (1753: 654) is cosmopolitan and comprises about 200 species (Al-Shehbaz 2012). Six New Zealand species were recognised by Allan (1961) and five by Webb *et al.* (1988), but two additional species have subsequently been named and described: *C. lacustris* (Garnock-Jones & Johnson 1987: 603–604) Heenan (2002: 568) and *C. latior* Heenan (2008: 562–566). In New Zealand *Cardamine* remain poorly understood and there is considerable morphological variation. Druce (1993), for example, lists over 20 unnamed entities in *Cardamine*, and these along with other variants are being included in a taxonomic revision of the genus by PBH.

While undertaking fieldwork for the Queen Elizabeth the Second National Trust in Lees Valley, North Canterbury, South Island, BPJM collected a plant of the endemic orchid *Spiranthes novae-zelandiae* Hooker (1853: 243) from a wetland and cultivated this in a pot. The original plug of peaty soil collected with the *S. novae-zelandiae* was retained, and from this substrate several seeds subsequently germinated and produced five plants. Notable features of these five plants were their minuscule size (3.0–5.5 mm across), they flowered and produced fruit with their cotyledons persisting and only three or four adult leaves, and they have several reduced floral features (Fig. 1). Morphological examination of these plants, complemented by nuclear and chloroplast DNA sequence data, confirmed these plants belong to the family Brassicaceae, and should be assigned to *Cardamine*. In this paper these plants are treated as a new endemic New Zealand species of *Cardamine* and they are therefore formally named and described. This action is taken prior to the completion of the taxonomic revision of *Cardamine* since this species has many unique and unusual features and it has significant conservation values.

### **Materials and methods**

#### *Plant material*

Five plants were available for study from the original collection (3 February 2011) from Lees Valley,