



## Nomenclatural entanglements associated with *Racomitrium chlorocarpum* (Grimmiaceae)

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### Abstract

A nomenclatural history of one of the most neglected and misunderstood species *Racomitrium chlorocarpum* is presented. Valid publication of this species name was incorrectly ascribed to M. Fleischer and *R. chlorocarpum* of 1904 is merely a younger isonym of *R. chlorocarpum* Paris of 1897. The species name is lectotypified with a specimen from Tasmania, Australia, deposited in the Hooker herbarium (BM), and an isolectotype is present in the herbarium of W. Mitten (NY). *Racomitrium chlorocarpum* is a typical representative of the genus *Bucklandiella*, the largest segregate of the broadly interpreted genus *Racomitrium* and the relevant transfer to this genus is effected as *Bucklandiella chlorocarpa*, *comb. nov.* The diagnostic characters of the species are briefly summarised. This is a hydrophytic species, endemic to Australasia and is known from SE Australia, Tasmania and New Zealand.

**Key words:** Australia, author citation, Bryophyta, *Bucklandiella*, lectotypification, New Zealand, nomenclature, Tasmania, taxonomy

### Introduction

The genus *Racomitrium* Bridel (1818[1819]: 78) is well represented in Australasia, both in terms of frequency of species and cover. However, the real number of species in this region is still unknown because the genus has not been carefully and critically revised to provide a sound taxonomic framework for Australasian material. In addition, the traditionally conceived genus *Racomitrium* was split into four genera (Bednarek-Ochyra *et al.*, 2001; Ochyra *et al.*, 2003), three of which are present in Australasia, including *Racomitrium* s. str. (2 species), *Niphotrichum* Bedn.-Ochyra *et Ochyra in Ochyra et al.* (2003: 137) (2 species) and *Bucklandiella* Roivainen (1972: 116). The latter is the largest and least understood segregate of *Racomitrium*. Almost all species described in the nineteenth century from Australia and New Zealand, as well as from other regions of the Southern Hemisphere, and correctly belonging within this genus, were lumped with *Bucklandiella crispula* (Hooker & Wilson 1844: 544) Bedn.-Ochyra *et Ochyra in Ochyra et al.* (2003: 144) [as *Racomitrium crispulum* (Hook.f. et Wilson) Wilson (1854: 75)] (Dixon, 1926; Clifford, 1955; Lawton, 1973). However, various authors have shown that many of these are distinct and well defined species which are only distantly related to *B. crispula* (e.g. Roivainen, 1955; Bell, 1974; Deguchi, 1984; Bednarek-Ochyra *et al.*, 1999; Bednarek-Ochyra & Ochyra, 1998, 2010, 2011, 2012a,b,c, 2013a,b; Ochyra *et al.*, 2008a,b; Blockeel *et al.*, 2009; Ellis *et al.*, 2011a, 2012a,b, 2013a,b; Larraín *et al.*, 2011; Ochyra & van Rooy, 2013).

One of species which was merged with *Bucklandiella crispula* is *Racomitrium chlorocarpum* (Dixon, 1926). During the course of ongoing revisionary studies of Australasian *Bucklandiella* it became evident that this neglected species has an exceptionally chequered taxonomic and nomenclatural history. Although this name has often been used in the Australasian bryological literature, it is not certain who actually was the first to publish it validly. Consequently, this name has not been lectotypified, nor is the correct circumscription of this species known. For that reason the authority is abandoned on the first appearance of this name in this account and, in addition, the nomenclatural issues associated with *Racomitrium chlorocarpum* are thoroughly discussed.

## Concluding remarks

*Bucklandiella chlorocarpa* is a very distinct species which can be easily distinguished from all congeners in Australasia by a combination of both gametophyte and sporophyte characters. The leaves have a wide, 2–3(–4)-seriate basal marginal border of hyaline, pellucid cells which is usually obscured by the distinct recurvature of the leaf margins near the base. The costa is short-excurrent as a stout, massive and brown awn. The capsules are large, ellipsoid, to 2 mm long and the peristome teeth are massive, 460–580 µm long on average and 100–125 µm wide near their base, deeply purple below and strongly papillose with large warty papillae. The spores are large, 25–30(–40) µm in diameter. This is a hydrophytic species, growing typically on wet, often inundated rocks in stream beds in SE Australia, Tasmania and New Zealand. A detailed taxonomic circumscription of this species, with detailed illustrations, will be published in a separate account.

*Bucklandiella* is currently represented by 13 species in Australasia. Of these, 12 species are known to occur in New Zealand, seven from Tasmania and Australia, and *B. lamprocarpa* (Müller 1849: 802) Bedn.-Ochyra et Ochyra in Ochyra *et al.* (2003: 145) is the only species which occurs in Australasia exclusively on subantarctic Macquarie Island (Blockeel *et al.*, 2007), although this species has a much wider range in the Subantarctic (Bednarek-Ochyra & Ochyra, 1998; Ellis *et al.*, 2010, 2011b) as well as in South Africa (Ochyra & van Rooy, 2013) and South America and Europe (Ochyra *et al.*, 1988; Blockeel *et al.*, 2002). However, it is very likely that this number may still increase with progress in ongoing monographic studies on this genus. It is evidenced by the recent discoveries of some new species to New Zealand (Bednarek-Ochyra & Ochyra, 2010, 2011) and resurrection of some species from oblivion including *B. elegans* (Müller 1898: 168) Bednarek-Ochyra & Ochyra (2010: 254) (Ellis *et al.*, 2011a) and *B. chlorocarpa* in the present account. Moreover, several species previously known from elsewhere have been added to the moss flora of New Zealand (Blockeel *et al.*, 2008; Ellis *et al.*, 2011a, 2014), Tasmania (Blockeel *et al.*, 2010; Ellis *et al.*, 2011b) and Australia (Blockeel *et al.*, 2008). On the other hand, some species reported from Australia (Streimann & Klanzenga, 2002), such as *B. affinis* (Weber & Mohr 1807: 127) Bedn.-Ochyra et Ochyra in Ochyra *et al.* (2003: 144), *B. heterosticha* (Hedwig 1801: 109) Bedn.-Ochyra et Ochyra in Ochyra *et al.* (2003: 145), *B. obtusa* (Bridel 1801: 290) Bedn.-Ochyra et Ochyra in Ochyra *et al.* (2003: 146) and *B. rupestris* (Hooker & Wilson 1844: 544) Bedn.-Ochyra et Ochyra in Ochyra *et al.* (2003: 147) must be excluded from the bryoflora of this continent.

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