



## Two new genera and species of chiltoniid amphipods (Crustacea: Amphipoda: Talitroidea) from freshwater mound springs in South Australia

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### Abstract

Amphipods within the family Chiltoniidae are an abundant yet taxonomically poorly known member of Australian freshwater habitats. With only four species known from Australia, the group is inadequately defined and marked by taxonomists as difficult to identify. Recent molecular analyses of chiltoniids from mound springs in South Australia detected several distinct species, prompting a morphological revision of material from the central and southern Lake Eyre region. Clear groups defined by unique combinations of morphological characters (focusing on uropodal, coxal, male gnathopod 2, and antennal morphology) were found that closely correlated with clades found in the molecular analyses. *Arabunnachiltonia* n. gen. is established for *A. murphyi* n. sp. from Strangways Springs in South Australia. *Wangiannachiltonia* n. gen. is established for *W. guzikae* n. sp. from Davenport Springs in South Australia. The chiltoniid genera are discussed and a key is presented to the known Australian species.

**Key words:** Crustacea, Amphipoda, Talitroidea, Chiltoniidae, freshwater, springs, *Arabunnachiltonia*, *Wangiannachiltonia*, *Afrochiltonia*, *Austrochiltonia*, *Phreatochiltonia*

### Introduction

The Great Artesian Basin (GAB) stretches over roughly a quarter of the Australian continent, between Lake Eyre in South Australia, northern New South Wales and northern Queensland and is the largest confined groundwater aquifer in the world (fig 1A). Fractures and fault lines along the edges of the GAB have led to the formation of mound springs, with many found along the south-western edge of the GAB in the arid regions of South Australia (fig. 1B). These often isolated mound springs are the most reliable source of freshwater in these arid regions and are considered to be unique areas of biodiversity in terms of the endemic plant, invertebrate and vertebrate species that are associated with them (Ponder 2003; Ponder *et al.* 2005). The South Australian mound springs are listed as threatened ecological communities primarily due to aquifer drawdown from extensive water extraction from the GAB (Harris 1992; Murphy *et al.* 2009).

One of the most abundant invertebrate groups found in the mound springs are the amphipods (Crustacea: Amphipoda) of the family Chiltoniidae Barnard, 1972 (Talitrida: Talitroidea). This family is distributed across most of mainland Australia (Western Australia, South Australia, Victoria, New South Wales, Queensland), and Tasmania, as well as New Zealand and South Africa. Seven species have been described worldwide (See Table 1), with only four known from Australia.

Within the springs of the GAB, all four species of chiltoniids known from Australia have been identified (Bradbury and Williams 1999): *Austrochiltonia* Hurley, 1959 with three species (*A. australis* (Sayce, 1901), *A. dalhousiensis* Zeidler, 1997, *A. subtenuis* (Sayce, 1902)) and *Phreatochiltonia* Zeidler, 1991 for *P. anophthalma* Zeidler, 1991. Of these four species, two are described from one spring within the GAB (*A.*