



The brine shrimps (*Artemia* and *Parartemia*) of South Australia, including descriptions of four new species of *Parartemia* (Crustacea: Anostraca: Artemiina)

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Abstract

The Australian endemic brine shrimp *Parartemia* is more speciose than the literature suggests, with eight described species, four new ones added here from South Australia and many undescribed species elsewhere in Australia. *P. acidiphila* n. sp. occurs in acidic salinas on Eyre Peninsula, in the Gawler Ranges in South Australia and also in the Esperance hinterland, Western Australia, while *P. auriciforma* n. sp., *P. triquetra* n. sp. and *P. yarleensis* n. sp. occur in remote episodic salinas in western South Australia. Introduced *Artemia franciscana* and *A. parthenogenetica* are limited to present and defunct salt works; reports of *Artemia* beyond salt works in South Australia are enigmatic.

Key words: Taxonomy, biogeography, keys, salinas, *Artemia*

Introduction

Populations of introduced *Artemia* and native *Parartemia* in South Australia have been noted by De Deckker & Geddes (1980), Geddes (1980), Geddes and Williams (1987), Williams and Kokkinn (1988) and Timms (2009a). What is now known as *A. parthenogenetica* Bowen & Stirling 1978 lives in the salt works at Dry Creek, with *Artemia* sp. reported from pools at Port Adelaide, Port Augusta and Coopers Creek. Two *Parartemia* species (*P. cylindrifera* Linder 1941 and *P. zietziana* Sayce 1903) occur in the south from Eyre Peninsula to the Coorong, and *P. minuta* Geddes 1973 occurs in Lake Eyre in the far north. For Australia as a whole, *A. franciscana* Kellogg 1906, is known from salt works in Queensland (Geddes 1980; Clark & Bowen 1976), and *A. parthenogenetica* is common around Perth and in the southwest of Western Australia (McMaster *et al.* 2007; G. Jancke, pers.comm.). For the three species of *Parartemia* in South Australia, *P. cylindrifera* also occurs in southern Western Australia (Geddes *et al.*, 1981; Timms, 2004), *P. minuta* in northwestern New South Wales and Queensland (Timms 2007), and *P. zietziana* in Victoria and Tasmania (Geddes, 1980, Williams, 1981). A further five described and at least eight undescribed species occur in Western Australia (Linder, 1941; Geddes *et al.*, 1981; Timms, 2004; Timms *et al.* 2007).

The genus *Parartemia*, unique to Australia, was erected by Sayce (1903) to contain a newly discovered brine shrimp from waters near Lake Alexandrina, South Australia. Daday (1910) erected the Parartemiidae for the monotypic genus *Parartemia*, though Sayce (1903) included it in the Branchipodidae where it was usually placed until Weekers *et al.* (2002) revealed, by a DNA-based phylogeny, its separate status and affinity with the Artemiidae to which it is a sister group. The two together comprise the suborder Artemiina, thus separating them from all other anostracans. *Parartemia* is defined (Dumont & Negrea, 2002) as having the male basal antennomere of the second antennae fused to form a clypeus and the distal antennomere slender and pointed. Thoracopod praepodites are undivided. The ventral basal parts of the male gonopods have a