

BIOGEOGRAPHY AND ECOLOGY OF AUSTRALIAN ANOSTRACA (CRUSTACEA: BRANCHIOPODA)

MICHAEL C. GEDDES

Department of Zoology, University of Adelaide,
Adelaide, South Australia

SUMMARY

Three anostracan genera occur in Australia, the native genera *Branchinella* and *Parartemia* and the introduced genus *Artemia*. The nineteen described species of *Branchinella* include some that are widely distributed within Australia, especially *B. australiensis*, and others of local occurrence. Of the eight species of *Parartemia* five occur in south-western Australia, one occurs across southern Australia, another is found in the south-east, and one occurs in the north-east. *Branchinella* species usually occur in ephemeral freshwater pools while *Parartemia* is halobiont, but some species from both genera occur in brackish water. Cladocerans and calanoid copepods generally occur with *Branchinella* and notostracans and conchostracans are often present. *Parartemia* generally occurs with halobiont copepods and ostracods. Some samples contained more than one species of *Branchinella* but there were no co-occurrences of *Parartemia* species. The Australian anostracan fauna is compared with that from other continents and factors influencing the distribution of anostracans are discussed.

Introduction

Three genera of Anostraca occur in Australia, the genera *Branchinella* and *Parartemia* established for Australian material by Sayce (1903) and *Artemia* Leach. *Parartemia*, in the family Branchipodidae, is an endemic genus and is most closely related to the freshwater genus *Branchipodopsis* which is distributed in arid regions of Africa and Asia (Linder, 1941). *Branchinella*, in the family Thamnocephalidae, occurs in Africa, America and Asia, although most species (19 of 26 described) are Australian (Fig. 1). Other genera in the Thamnocephalidae, *Thamnocephalus* and *Dendrocephalus*, occur in central and South America and Linder (1941) suggests that *Branchinella* may also occur in South America. Australian species of *Branchinella* are endemic. The taxonomy of *Artemia*, family Artemiidae, is presently confused, with what was once considered a single cosmopolitan species now recognised as several sibling species separated on biochemical and chromosomal characters (Bowen *et al.*, 1978). The populations in Australia will, therefore, be referred to as *Artemia* sp.

The taxonomy of the Australian Anostraca is relatively well studied. Linder (1941) revised previous work and described seven new species of *Branchinella* and six new species of *Parartemia*, bringing the number of Australian species in the two genera to nineteen and seven respectively. Since then four new species of *Branchinella* have been described, three others put into synonymy and one declared *nomen dubium* (Geddes, 1981), one new species of *Parartemia* has been described (Geddes, 1973a) and the occurrence of *Artemia* in Australia has been documented (Geddes, 1979). However, other aspects of the biology of the Australian Anostraca are poorly known. This paper aims to show the distributions of the various genera and species in Australia and to discuss their biogeography. Some aspects of anostracan ecology will also be considered.

Distribution

The distribution of the various species of *Branchinella* within Australia is shown in Figure 2. Several species are widely distributed (Fig. 2A): *B. lyrifera* and *B. probiscida* in central Australia, *B. occidentalis* in central and western Australia, *B. frondosa* and *B. affinis* in south-eastern and south-western Australia