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Key to and Checklist of the Inland Aquatic Amphipods of Australia

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ABSTRACT. A key to the 74 known species of amphipods inhabiting Australian inland waters is given, as well as a glossary of terms, illustrations, checklist to the species and taxonomic references.

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The amphipods of Australian inland waters have been neglected taxonomically; they are often difficult to collect, frequently cryptic, difficult to identify and have few obvious characters. The result is that amphipods have not been used as environmental indicators by aquatic biologists involved in environmental surveys and the management of water resources, despite their role as significant components of freshwater and other inland aquatic ecosystems and their sensitivity to environmental degradation.

In recent years new foundations for the taxonomy of Australian freshwater amphipods have been published (Williams & Barnard, 1988, Barnard & Williams, 1995). These have promoted subsequent taxonomic works (Bradbury & Williams, 1995, 1996, 1997b; Bradbury *et al*., 1998), and since 1995 the number of described Australian freshwater amphipod taxa has increased to over 70 species. Nevertheless, more species remain to be described.

Available keys are of limited use in that they are now outdated (e.g., Barnard & Barnard, 1983), address only certain parts of the fauna (e.g., Williams & Barnard, 1988), provide information at higher levels only (e.g., Horwitz *et al*., 1995), or relate to marine taxa (e.g., Barnard, 1969). This new key, based on contemporary knowledge, enables the identification to species level of all described Australian inland aquatic amphipods. Figures provided with this key indicate characters of taxonomic importance. A glossary of terms and checklist of all species including author and date and type locality are included.

We have drawn on various sources, particularly original descriptions, as well as available keys, and have re-examined specimens where necessary. Some areas of uncertainty exist: the considerable diversity of Tasmanian species means that many new taxa have yet to be described. Among mainland populations, too, new species have been identified and await description; hypogean specimens from several areas, including Tasmania, South Australia, Queensland and Western Australia, are in the process of analysis. Specimens which do not easily key to a taxon, therefore, are likely to be new to science, unless of marine origin (often found in estuarine waters) or from terrestrial sources (the terrestrial Talitridae inhabit damp areas, often close to shores and streams, and may be found in fresh waters as accidentals). Such taxa are not covered by this key. Efforts should be made to preserve unknown specimens (in 70% ethanol), prevent damage to individuals (by careful handling and packaging), and seek taxonomic guidance. As many details as possible concerning the site (date, exact location, water quality, temperature) and identity of collector should be noted.