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Podoceridae of Tropical Australia (Peracarida: Amphipoda)

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Abstract. Thirteen taxa in the family Podoceridae are reported from tropical Australia, including six new species and four new records. *Podocerus hanapepe* J. L. Barnard, 1970, *P. talegus lawai* J. L. Barnard, 1970, *P. walkeri* Rabindranath, 1972 and *P. zeylanicus* (Walker, 1904) are reported from Australia for the first time. New distribution records are provided for *P. crenulatus* Myers, 1985, *P. lobatus* (Haswell, 1885) and *Laetmatophilus dabberi* Barnard & Drummond, 1981. The six new species *Podocerus clavicarius* sp. nov., *P. ferreus* sp. nov., *P. miscix* sp. nov., *P. orontes* sp. nov., *P. rockingham* sp. nov., and *L. triceratops* sp. nov. are described.

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Podocerids are benthic filter-feeding amphipods common in shallow-water marine systems, occurring on algae, bryozoans, floating debris and are often part of the fouling community associated with artificial structures. In podocerids, morphological variation with growth stages and/or sexual dimorphism, causes difficulty in defining species groups. Tropical podocerids in particular exhibit much larger distribution ranges in comparison to temperate podocerid species. As such, tropical podocerid are the subject of much confusion within the literature, with many early workers recognizing the occurrence of such variation, and documenting their observations and apprehensiveness about defining intra- and inter-specific variation (Pirlot, 1938; Rabindranath, 1972; Ledoyer, 1979a; J. L. Barnard, 1971).

This study has benefited greatly from the high abundance of podocerids in samples examined. The opportunity to observe juvenile, male and female specimens has confirmed intra-specific variation for several species. The presence of dorsal carinae and gnathopod 2 propodus palmar teeth are known to vary with growth stage and gender. Important species level characters which remain consistent with growth stage include: the gnathopod 1 coxal shape; fusion of carpus and propodus; carpus and propodus form; as well as presence of the uropod 1 and 2 ventromedial spine.

Materials and methods

Material examined for this study were amphipod holdings predominantly from shallow-water (0–50 m) samples in various collections of the Australian Museum (AM), Museum and Art Gallery of the Northern Territory (MAGNT), Western Australian Museum (WAM), and Bernice P. Bishop Museum, Hawaii (BPBM). Material was dissected in 80% ethanol. Permanent slides were made using Aquatex™ mounting medium. Specimens were prepared for electron microscopy as follows: preserving solution was sequentially advanced in 5% increments from 80% to 100% ethanol; critical point dried; mounted individually on pins and gold sputter coated. Images were captured using on a Zeiss EVO LS15 Scanning Electron Microscope with Robinson Backscatter Detector (SEM). Abbreviations for parts are as follows: *A*—antenna; *F*—accessory flagellum; *G*—gnathopod; *Md*—mandible;