



A re-evaluation of the Dynomenidae Ortmann, 1892 (Crustacea, Decapoda, Brachyura, Podotremata), with the recognition of four subfamilies

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Abstract

A re-evaluation of the Dynomenidae Ortmann, 1892, on the basis of morphological characters, allows four subfamilies to be recognised, viz. Acanthodromiinae **n. subfam.**, Dynomeninae Ortmann, 1892, Metadynomeninae **n. subfam.**, and Paradynomeninae **n. subfam.** Sequences of character states for each homologous character (morphocline) show a similar polarity. The Acanthodromiinae **n. subfam.** exhibits a plesiomorphic condition, both in body shape and fronto-orbital disposition as well as in the condition of the thoracic sternum, abdominal holding mechanism and gill structure. Both the Metadynomeninae **n. subfam.** and Dynomeninae are more advanced, the latter being more “carcinized” and the most derived. The Paradynomeninae **n. subfam.** evolved a specialised frontal and buccal region, by forming a projecting “face”. The family Dynomenidae, which presently comprises merely five extant genera and 21 species, but with a worldwide distribution, is amongst the most ancestral brachyuran families, with a good fossil record from the Late Jurassic onwards. A few fossil genera such as *Kromtitis* Müller, 1984, and *Kierionopsis* Davidson, 1966, appear to conform to the Paradynomeninae **n. subfam.** A key to the subfamilies of extant Dynomenidae is provided.

Key words: Crustacea, Decapoda, Brachyura, Dynomenidae, podotremes, fossil Brachyura, new subfamilies

Introduction

The family Dynomenidae Ortmann, 1892, has enjoyed a fairly stable existence, with only three extant genera described over the years: the type genus, *Dynomene* Desmarest, 1823, *Acanthodromia* A. Milne-Edwards, 1880, and *Paradynomene* Sakai, 1963. By pointing out that the majority of species had often been assigned often too haphazardly to *Dynomene*, McLay (1999) established two new genera, *Hirsutodynomene* McLay, 1999, and *Metadynomene* McLay, 1999. Our current knowledge of this family owes much to a revision by McLay (1999), in which a number of novel characters were studied. Despite the fact that subsequently two species of *Dynomene* (McLay 2001b), one of *Hirsutodynomene* (McLay & Ng 2005) and five of *Paradynomene* (McLay & Ng 2004) have been named, the Dynomenidae remains a relatively small group, comprising merely five extant genera and 21 species (Table 1), albeit with a worldwide distribution.

The primitive nature of the family Dynomenidae has been recognised ever since its description (Ortmann 1892), having been invariably included in the Dromiacea De Haan, 1833 (Ortmann 1892; Bouvier 1896; Alcock 1900, 1901; Rathbun 1937; Glaessner 1969; Wright & Collins 1972). The Dynomenidae was assigned to the Podotremata Guinot, 1977, in close proximity to the Dromiidae De Haan, 1833, and the Homolodromiidae Alcock, 1900 (Guinot 1978, 1993a; Guinot *et al.* 1994; Scholtz & Richter 1995; Jamieson *et al.* 1993, 1995; McLay 1999; 2001a, 2001b; Guinot & Bouchard 1998; Guinot & Tavares 2001, 2003; Guinot & Quenette 2005; Schweitzer *et al.* 2003; McLay & Ng 2004, 2005; Beschin *et al.* 2007; Ng *et al.* 2008). The Dromiidae and Dynomenidae are generally considered to be sister groups. Based on a cladistic analysis of small