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# ZOOTAXA

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## Contribution to the systematics of the genus *Eurythenes* S.I. Smith in Scudder, 1882 (Crustacea: Amphipoda: Lysianassoidea: Eurytheneidae)

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## Abstract

The genus *Eurythenes* S.I. Smith in Scudder, 1882 was previously considered as consisting of three highly distinctive species: *E. gryllus* (Lichtenstein in Mandt, 1822), *E. thurstoni* Stoddart & Lowry, 2004 and *E. obesus* (Chevreux, 1905). *E. gryllus* has been considered as a common cosmopolitan and eurybathic species recorded down to a depth of 7800 m. However, the analysis of DNA sequences (COI, 16S, 28S) of newly collected specimens combined with GenBank sequences revealed the existence of nine genetic lineages within *E. gryllus* sensu lato. Specimens were recovered by tree-construction methods in distinct, well-supported clades and were separated by genetic divergences in the same range as interspecific values documented for other lysianassoid species. Furthermore, in some cases, different lineages were found at the same sampling locality. Specimens of six of the nine clades were examined directly. With one exception, these clades are separated by small but consistent morphological differences. As a consequence, five morphospecies are recognized herein within the *E. gryllus* complex: *E. andhakarae* **sp. nov.** (West Antarctica, abyssal), *E. gryllus* (bipolar, bathyal), *E. magellanicus* H. Milne Edwards, 1848 (Cape Horn and Brazil Basin, abyssal), *E. maldoror* **sp. nov.** (nearly cosmopolitan, abyssal), *E. sigmiferus* **sp. nov.** (at least West Atlantic, possibly nearly cosmopolitan, abyssal).

**Key words:** Amphipoda, Lysianassoidea, *Eurythenes*, Southern Ocean, Arctic Ocean, Atlantic, bipolar species, bathyal, abyssal, reverse taxonomy, pseudocryptic species, new species

## Introduction

The giant deep-sea lysianassoid amphipod *Eurythenes gryllus* (Lichtenstein in Mandt, 1822) was described in 1822 after a specimen regurgitated by a northern fulmar, *Fulmarus glacialis* (Linnaeus, 1761) caught in the Greenland Sea (Lichtenstein in Mandt, 1822). Since then it has been recorded across the world oceans, with the notable exception of the Mediterranean and the Red seas (Stoddart & Lowry 2004), from 500 m (De Broyer *et al.* 2007) down to 7800 m (Thurston *et al.* 2002). With a maximum size of 154 mm (Baldwin & Smith 1987), it is one of the largest amphipods, and it is considered as a benthopelagic species and an exclusive scavenger (Dauby *et al.* 2001). A second, quite distinctive, *Eurythenes* species, *E. obesus* (Chevreux, 1905), initially named *Katius obesus*, was described from pelagic samples by Chevreux (1905).

While *E. gryllus* has long been considered as a cosmopolitan and eurybathic species, Barnard (1961), Bowman & Manning (1972), Ingram & Hessler (1983) and Thurston *et al.* (2002) observed minute morphological differences between populations. Stoddart & Lowry (2004) carried out a comprehensive and well-illustrated morphological revision of the genus *Eurythenes*. They described *E. thurstoni* Stoddart & Lowry, 2004, which was previously confounded with *E. gryllus*, despite the clear-cut differences between these species. Stoddart & Lowry