



Crustacean classification: on-going controversies and unresolved problems*

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Abstract

The journey from Linnaeus's original treatment to modern crustacean systematics is briefly characterised. Progress in our understanding of phylogenetic relationships within the Crustacea is linked to continuing discoveries of new taxa, to advances in theory and to improvements in methodology. Six themes are discussed that serve to illustrate some of the major on-going controversies and unresolved problems in the field as well as to illustrate changes that have taken place since the time of Linnaeus. These themes are: 1. the treatment of parasitic Crustacea, 2. the affinities of the Remipedia, 3. the validity of the Entomostraca, 4. exopodites and epipodites, 5. using larval characters in estimating phylogenetic relationships, and 6. fossils and the crustacean stem-lineage. It is concluded that the development of the stem lineage concept for the Crustacea has been dominated by consideration of taxa known only from larval or immature stages. This has limited our understanding of key events in the origin of crown group Crustacea.

Key words: Crustacea, Linnaeus, taxonomy, phylogeny, morphology, fossils

Introduction

In the tenth edition of *Systema Naturae*, Linnaeus (1758) included 87 species of crustaceans that he placed in only six genera distributed through two of the classes that he recognised at the time (Table 1). The Linnaean genus *Cancer* was by far the largest of the Crustacea-containing genera, comprising 59 species, and, although dominated by brachyuran crabs, this genus was heterogeneous by modern standards as it incorporated stomatopods, amphipods and anostracan Branchiopoda, as well as representatives of five different infraorders of