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THE COMPOSITION OF THE GENUS *DANIELOPOLINA* KORNICKER & SOHN, 1976 (MYODOCOPA: THAUMATOCYPRIDIDAE)

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INTRODUCTION

Danielopolina Kornicker & Sohn, 1976, a genus of thaumatocypridid Myodocopa, is a member of the core anchialine faunal suite, together with other crustacean taxa such as remipedes, thermosbaenaceans of the genus *Halosbaena* Stock, 1976, and epacteriscid copepods. However, it is not restricted to anchialine habitats, since the type species, *D. carolynae* Kornicker & Sohn, 1976 is a deep-sea benthic form known from the South Atlantic. Currently two subgenera are recognised: *Danielopolina* (*Danielopolina*) Kornicker & Sohn, 1976 comprising four species, and *Danielopolina* (*Humphreysella*) Kornicker & Danielopol, in KORNICKER *et al*., 2006, comprising nine species. Comparison of this generic subdivision with the most recent phylogeny (generated by DANIELOPOL *et al*., 2000) suggests that *Danielopolina* (*Danielopolina*) is a paraphyletic taxon characterised by plesiomorphies, created by the removal of the derived subgenus *Danielopolina* (*Humphreysella*). The mismatch between the existing classification and the phylogeny is addressed here by undertaking a comprehensive analysis using an expanded character set and a wider selection of living taxa from across the family.

MATERIALS AND METHODS

We have tested the validity of *Danielopolina* by including species of the other two extant genera, *Thaumatocypris* Müller, 1906 and *Thaumatoconcha* Kornicker & Sohn, 1976, in a comprehensive phylogenetic analysis using PAUP version 4.0b10. The matrix comprised 44 characters and 23 taxa. *Thaumatocypris* and *Thaumatoconcha* were included to serve as outgroups. Two described species of *Danielopolina* (*D. styx* Kornicker & Iliffe, 1989 and *D. kakuki* Kornicker & Iliffe, 2000) were omitted from the analysis because they are known only from juveniles. A heuristic search was performed and all characters were treated as unordered.

RESULTS AND DISCUSSION

Twelve trees were obtained from the heuristic analysis and both the strict consensus tree and the majority rule tree (Fig. 1) recovered the genera *Thaumatoconcha* and *Thaumatocypris* as monophyletic taxa. The type species of the genus *Danielo-*

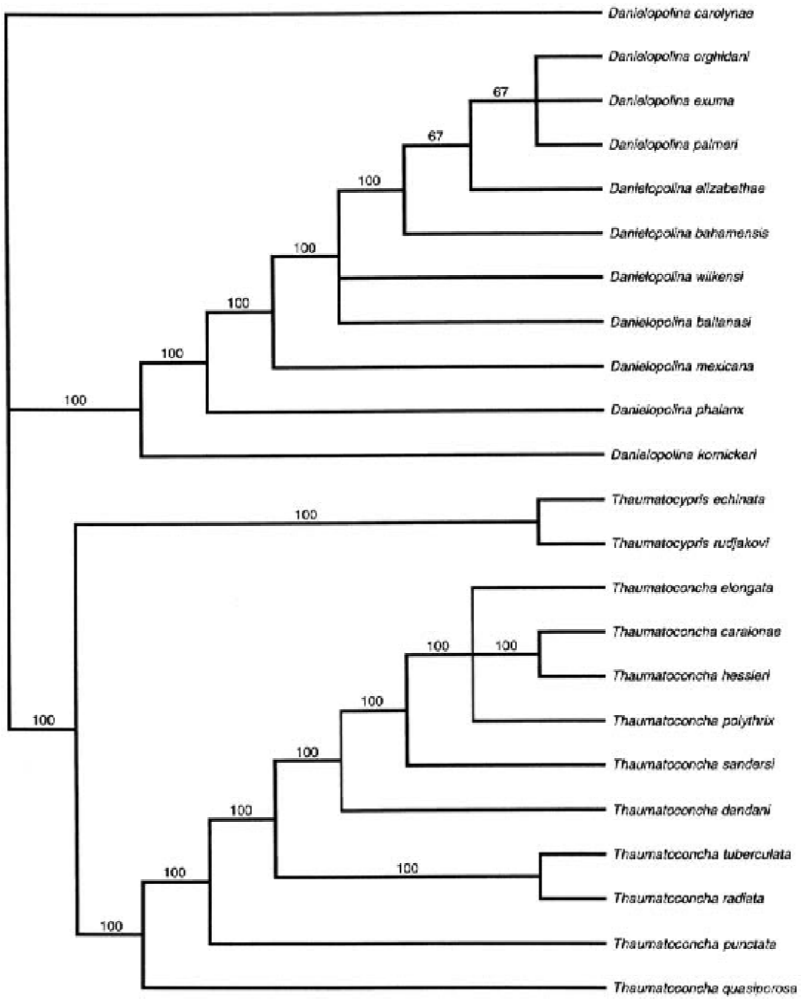

Fig. 1. Phylogenetic relationships between species of *Danielopolina*, *Thaumatocypris* and *Thaumatochoncha* (family Thaumatocyprididae), preliminary tree estimated by majority rule tree (numbers on branches are bootstrap values).

polina, *D. carolynae*, does not cluster together with the other species currently placed in the genus. However, excluding *D. carolynae*, all other species of *Danielopolina* from both subgenera, form a single clade.

A revision of the taxonomy of the living thaumatocyprid genera is proposed that is congruent with the system of phylogenetic relationships recovered in this analysis. It does not necessitate major nomenclatural changes, but does require a change in status of the subgenus *Danielopolina* (*Humphreysella*) and the re-allocation of some species previously placed in the subgenus *Danielopolina* (*Danielopolina*).

The biogeography of the genus is reassessed and the implications of the new phylogeny with regard to the route and timing of colonization of anchialine systems are discussed.

REFERENCES

DANIELOPOL, D. L., BALTANÁS, A. & HUMPHREYS, W. F., 2000: *Danielopolina kornickeri* sp. n. (Ostracoda, Thaumatocypridoidea) from a western Australian anchialine cave: morphology and evolution. *Zoologica Scripta* **29**, 1–16.