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Classification and relationships of *Assiculus* and *Assiculoides* (Teleostei: Pseudochromidae)

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Abstract

The monotypic Australian pseudochromid fish genera *Assiculus* and *Assiculoides* had been previously included in the subfamily Pseudochrominae on the basis of symplesiomorphic characters. Osteological synapomorphies are identified in support of a closer relationship to the remaining pseudochromid subfamilies. Two synapomorphies (five or fewer infraorbital bones, haemal spine of preural vertebra 2 attached to centrum) diagnose a clade consisting of *Assiculoides*, Pseudoplesiopinae, Anisochrominae and Congrogadinae. Two additional synapomorphies (parhypural not separate from hypurals 1+2, total caudal-fin rays modally 27 or fewer) diagnose a more inclusive clade that also includes *Assiculus*. Two new subfamilies are erected to reflect these relationships.

Key words: osteology; Assiculoidinae new subfamily; Assiculinae new subfamily; Australia; systematics

Introduction

The Indo-Pacific reef-fish family Pseudochromidae is currently divided into four subfamilies, three of which are demonstrably monophyletic: Anisochrominae (Gill & Fricke 2001); Congrogadinae (Godkin & Winterbottom 1985); Pseudoplesiopinae (Gill & Edwards 1999). The fourth subfamily, Pseudochrominae, is by far the largest with 10 genera and nearly 100 described species, but is diagnosed only by symplesiomorphic characters (Gill 2004): pelvic-fin rays 1,5 (versus 1,4 or fewer); all segmented pelvic-fin rays branched (vs. at least some rays unbranched); lateral line consisting of two series, one anterodorsal and the other posterolateral (vs. only anterodorsal series present, though additional lateral lines are secondarily present in some derived congrogadines; see Winterbottom 1986). The derived states for each of these characters are synapomorphic for a clade consisting of the remaining three subfamilies (Springer *et al.* 1977, Godkin & Winterbottom 1985, Figure 1). Further synapomorphies support, in turn, a sister relationship between Anisochrominae and Congrogadinae (Godkin & Winterbottom 1985, Figure 1).

In describing the new genus and species *Assiculoides desmonotus*, Gill and Hutchins (1997) presented evidence that the taxon and the pseudochromine genus *Assiculus* Richardson (1846) form successive sister groups to the clade consisting of the Anisochrominae, Congrogadinae and Pseudoplesiopinae. However, Gill and Hutchins tentatively included both genera in the Pseudochrominae. Although the biogeographic area relationships implied by the two genera were discussed by Mooi and Gill (2004: 195, fig. 9b), subsequent publications have retained both genera in the Pseudochrominae (e.g., Gill 2004, Gill *et al.* 2006). As part of my ongoing studies on pseudochromid relationships and classification, I herein reiterate character evidence for the phylogenetic relationships of the two genera, and erect two new subfamilies to reflect those relationships.

Materials and methods

Character information on pseudochromids are based on published information (as noted) and on observations on extensive specimens listed in my other publications (including x-radiographs and specimens prepared by clearing