



## ***Corallimorphus niwa* new species (Cnidaria: Anthozoa), New Zealand members of *Corallimorphus*, and redefinition of Corallimorphidae and its members**

DAPHNE GAIL FAUTIN

*Department of Ecology and Evolutionary Biology and Natural History Museum and Biodiversity Institute, University of Kansas, 1200 Sunnyside Drive, Lawrence, KS 66045 USA. E-mail: fautin@ku.edu*

### **Abstract**

The new species of anthozoan *Corallimorphus niwa* occurs at depths of 926–1773 m in seas around New Zealand. This new species shares with other members of *Corallimorphus* stiff and hyaline mesoglea, short column relative to its broad oral disc, and deep-sea habitat. It differs from other members of *Corallimorphus* in having an equal number of marginal and discal tentacles, the discal tentacles arrayed in multiple circlets. Groups of *Corallimorphus* are defined by tentacle array; *C. niwa* n. sp. characterizes the new *niwa* group. Two of the other five valid species of *Corallimorphus* (*C. profundus* and *C. pilatus*) constitute the *profundus* group, members of which have about four times as many marginal as discal tentacles, the discal tentacles arrayed in a single circlet; the three members of the *rigidus* group (*C. rigidus*, *C. denhartogi*, and *C. ingens*) have about twice as many marginal as discal tentacles, the discal tentacles arrayed in multiple circlets. The definition of genus *Corallimorphus* must be modified to accommodate this species; this also involves synonymizing with one another the other two genera of family Corallimorphidae, *Corynactis* and *Pseudocorynactis*. The formal definitions of order Corallimorpharia and family Corallimorphidae are adjusted to be in parallel and hierarchical format.

**Key words:** sea anemones, deep sea, Coelenterata, *Corynactis*, *Pseudocorynactis*

### **Introduction**

Corallimorpharians, which constitute an order of hexacorallian anthozoans, are animals morphologically intermediate between members of hexacorallian orders Actiniaria (sea anemones) and Scleractinia (stony corals). They share with the former the lack of a calcareous skeleton and with the latter details of internal anatomy and types of nematocysts (summarized by den Hartog 1980; Daly & Fautin 2008). Corallimorpharia has fewer members than the two taxa to which it is most similar (45 valid species, compared with 1636 of Scleractinia and 1087 of Actiniaria as of 17 January 2011; Fautin 2010). Most recent phylogenetic research supports Corallimorpharia being sister to Scleractinia (summarized by Daly & Fautin 2008). The number of corallimorpharian families is debated, ranging between three and five, but all species recorded from New Zealand and surrounding waters belong to Corallimorphidae.

The oral and pedal discs of a member of Corallimorphidae are roughly similar in diameter so the column is more or less cylindrical, and each tentacle typically terminates in a bulbous acrosphere in which nematocysts are dense. Some of the tentacles arise at the edge of the oral disc: alternate marginal tentacles communicate with an endocoel (the space between the two members of a pair of mesenteries) and an exocoel (the space between members of adjacent pairs of mesenteries). Tentacles arising on the oral disc communicate with the endocoels (Carlgrén 1949; den Hartog 1980). Members of Corallimorphidae lack zooxanthellae.

Features of a distinctive new species of Corallimorphidae collected on cruises of the National Institute of Water and Atmospheric Research (NIWA) in and near the EEZ (Exclusive Economic Zone) of New Zealand do not allow it to be placed in any of the genera as now defined. Corallimorphidae has been considered to consist of the genera *Corallimorphus*, *Corynactis*, and *Pseudocorynactis* (summarized by Fautin 2010), the former two having been documented from the EEZ of New Zealand (Cairns *et al.* 2009). I modify the definitions of the genera to accommodate the new species in *Corallimorphus* as *Corallimorphus niwa* n. sp.: although previously unknown for the