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Additions to the Indonesian fauna of the hermit crab genus *Pseudopaguristes* McLaughlin and a further division of the genus *Paguristes* Dana (Crustacea: Decapoda: Paguroidea: Diogenidae)

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Abstract

An in-depth study of the genera *Paguristes* Dana, 1851 and *Pseudopaguristes* McLaughlin, 2002 in Indonesian waters has resulted in refined hypotheses of some of the evolutionary trajectories within the Paguroidea. Not only has the observed reduction in pleurobranch and arthrobranch number in three species, *Paguristes hians* Henderson, 1888, *P. kuekenthali* De Man, 1902 and *P. monoporus* Morgan, 1987 required the transfer of these taxa to *Pseudopaguristes*, they, and two new species, have required an emendation of the genus itself. Additionally, the investigation has also revealed an

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intermediate evolutionary change that heretofore has gone unrecognized. In several, apparently less derived, representatives of *Paguristes*, the characteristic gill number of 13 pairs (ten of arthrobranchs and three pleurobranchs) has been reduced to 12, with the loss of the pleurobranch on the wall of fifth thoracic somite. Only one of these recognized species, *Paguristes tuberculatus* Whitelegge, 1900, occurs in Indonesian waters. The genus *Stratiotes*, Thomson, 1899, erected for *Pagurus setosus* Filhol, 1885, a junior synonym of *Paguristes setosus* (H. Milne Edwards, 1848), is reinstated because its type species has proved to have 12 pairs of gills. Three new species are included in *Stratiotes: S. micheleae* n. sp., *S. breviantennatus* n. sp., and *S. ngochoae* n. sp. The new species assigned to *Pseudopaguristes* are *P. asper* n. sp. and *P. gracilis* n. sp.

Key words: Crustacea, Anomura, Paguroidea, Diogenidae, *Stratiotes*, *Pseudopaguristes*, new species, Indonesia

Introduction

Among members of Paguroidea (sensu Martin & Davis 2001) 14 pairs of gills are considered the plesiomorphic condition (McLaughlin 1983, Martin & Abele 1986), consisting of a pair of well developed arthrobranchs on each third maxilliped and cheliped and each of the pereopods 2–4 with a single pleurobranch on the thoracic wall of somites 5–8 (above pereopods 2–5). As far as is known, only genera of Pylochelidae and several genera of Diogenidae have this condition. Until just recently, all genera of the Diogenidae were thought to have either 14 or 13 pairs of gills. However, when McLaughlin (2002b) found a significant reduction to eight pairs in a species superficially resembling *Paguristes* Dana, 1851, she recommended confirming the gill number of all species of *Paguristes*.

In the present study, most Indonesian species presumably assignable to *Paguristes*, have the expected number of gills: 13 pairs. Four species, however, have only 12 pairs (the pleurobranch on the thoracic wall of somite 5 is absent) and five species have only eight pairs of gills. These findings led the author to examine other described species of the genus *Paguristes* deposited in the Muséum national d'Histoire naturelle, Paris, France, and as a result, all three conditions of gill number were found among species of *Paguristes* sensu lato. Consequently, the gill number in all species assigned to *Paguristes* must be verified. The type material of the type species of *Paguristes*, *P. hirtus* (Dana, 1851), by subsequent selection by Stimpson (1858), is no longer extant. However, *P. weddelii* (H. Milne Edwards, 1848) a species from western South America is in fact a senior synonym of *P. hirtus* (cf. Haig 1956) and an examination of the holotype (MNHN Pg 1699) showed that the species has 13 pairs of biserial branchiae. Accordingly, *Paguristes* is restricted to species with 13 pairs of gills.

One of the described species of *Paguristes* sensu lato with 12 pairs of gills is *P. setosus* (H. Milne Edwards, 1848). Thomson (1899) established *Stratiotes* for *Pagurus setosus* Filhol, 1885, which is in fact synonymous with *Paguristes setosus* (H. Milne Edwards, 1848). The confusion caused by misidentifications of *P. setosus* was discussed and resolved by

