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Revisiting *Pagurus pilosipes* (Stimpson, 1858) (Crustacea: Decapoda: Anomura: Paguridae)

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Abstract

The study of newly collected samples from Okinawa, Ryukyu Islands, revealed that males of *Pagurus pilosipes* (Stimpson, 1858) have a prominent right sexual tube directed posterolaterally. Comparison of specimens previously identified as *Pagurus pilosipes* and newly collected specimens, combined with a molecular genetic analysis using partial sequences of the mitochondrial cytochrome c oxidase I (COI) gene, shows that Stimpson's taxon occurs in the Japanese mainland, the Ogasawara Islands, the Okinawa Islands, and Korea. Stimpson's taxon is transferred to the genus *Boninpagurus* Asakura and Tachikawa, 2004. Based on morphological and molecular evidence, *Boninpagurus acanthocheles* Asakura & Tachikawa, 2004, the type species of *Boninpagurus*, is synonymized with *B. pilosipes* n. comb. Affinity of *Boninpagurus* is briefly discussed.

Key words: Crustacea, Decapoda, Anomura, Paguridae, *Boninpagurus*, new combination, synonym, Japan

Introduction

Komai (2003) redescribed the rarely collected hermit crab species *Pagurus pilosipes* (Stimpson, 1858) on the basis of topotypic specimens from Okinawa, Ryukyu Islands, including one male and three females, of which the largest female was selected as a neotype. The sole male specimen used by Komai (2003) had no sexual tube development, and at the time was considered to fit into the generic diagnosis of *Pagurus* Fabricius, 1775 (cf. McLaughlin & Forest 1999). Asakura & Tachikawa (2004) established a new genus, *Boninpagurus*, to accommodate a single species, *B. acanthocheles* Asakura & Tachikawa, 2004, described from the Ogasawara Islands, Japan. One of the characteristics of *Boninpagurus* is the possession of a right sexual tube of medium length (cf. McLaughlin 2003). Asakura & Tachikawa (2004) considered that *Boninpagurus* was most closely allied to the genus *Anapagrides* de Saint Laurent-Dechancé, 1966, currently represented by three species (Komai 1999b; Osawa & Okuno 2007). Subsequently, however, Komai & Takeda (2006) pointed out that except for the presence of the distinct right sexual tube in males, *B. acanthocheles* is superficially similar to certain species of *Pagurus*, rather than to species of *Anapagrides*.

In recent years, we have accumulated material of shallow-water hermit crabs from various localities in Japan, amongst which we found many specimens referable to *Boninpagurus*. We initially recognized two morphs distinguished by the coloration in life (Fig. 1); one of them has a distinct black transverse band on the distal segment of the antennular peduncle (Fig. 1E), and the second lacks such a band on that segment (Fig. 1D). The former is represented by specimens from the Japanese mainland, and the latter by specimens from Okinawa and Ogasawara Islands. Males of these specimens all have a moderately long right sexual tube that is two or more times the coxal length and is directed posterolaterally. The male specimen used by Komai (2003) had both gonopores developed, but there was no development of sexual tubes, as mentioned above, although it closely agrees with other specimens with right sexual tubes in every diagnostic aspect. The specimen is the smallest male currently available, and the absence of sexual tubes in that specimen is likely due to immaturity. Therefore, in this study, *Pagurus pilosipes* is

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