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A new species of the hermit crab genus *Areopaguriste*s Rahayu & McLaughlin, 2010 (Crustacea: Decapoda: Anomura: Diogenidae) discovered in the Mesoamerican Barrier Reef of Belize, Caribbean Sea

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Abstract

A new species of hermit crab, *Areopaguristes tudgei*, family Diogenidae, is fully described and illustrated, including a color photograph. A dense population of this new species was discovered living intertidally in a concealed habitat under coral boulders covered with calcareous algae, on the crest to fore-reef zone in Carrie Bow Cay, a small island located on the western Caribbean Mesoamerican Barrier Reef of Belize. This new species, the 24rd of *Areopaguristes* Rahayu & McLaughlin, 2010, and fourth known in this genus from the western Atlantic, is superficially similar to those of the *Paguristes tortugae* complex. As in species of that complex, *A. tudgei* n. sp. has dense plumose setation on the chelipeds, and at least in females, a fringe of plumose setae on the dorsolateral margins of the chelae, and on the dorsal margins of the walking legs. The presence in *A. tudgei* n. sp. of this setal arrangement, previously considered the only defining character of the *P. tortugae* complex, can be attributed to convergence. The new species is contrasted with all other western Atlantic congeners, and a key is presented to aid in their identification. A list of all western Atlantic species of *Paguristes* sensu lato and their current generic assignments is included.

Key words: Crustacea, Anomura, Diogenidae, *Areopaguristes*, *Paguristes tortugae* complex, new species, Mesoamerican Barrier Reef, Belize

Introduction

After nearly three decades of field work focused on studying the decapod fauna from habitats around the island of Carrie Bow Cay, on the coral reef barrier off the coast of Belize in the western Caribbean Sea, more than 260 species have been so far identified, including some that have been described as new, rarely reported, or nonindigenous (for a summary of the literature see Felder *et al.* 2009). During recent field work, abundant material of a diminutive species of hermit crab was discovered living intertidally under large dead coral boulders on the reef crest adjacent to Carrie Bow Cay. The specimens superficially appeared to be an undescribed representative of the *Paguristes tortugae* complex, a group of morphologically highly variable species that has been defined exclusively by the presence of dense fringe of plumose setae bordering the walking legs and dorsolateral margins of the chelae (McLaughlin and Provenzano 1974, 1975). However, a detailed study of the specimens revealed that even though they exhibit that same pattern of setation, they do not belong to that complex or even the genus *Paguristes* Dana, 1851 sensu stricto, but instead represent a new species of *Areopaguristes* Rahayu & McLaughlin, 2010. This new diogenid is described and discussed herein.

Paguristes Dana, 1851 sensu lato has long been known to be one of the most speciose and widely distributed hermit crab genera, and has been the subject of many taxonomic studies during the last four decades (e.g., McLaughlin & Provenzano 1974, 1975; Morgan 1987a, 1987b, 1987c, 1989, 1992; Sandberg 1996; Komai 2001, 2009; Rahayu 2005; Ayón-Parente & Hendrickx 2006; McLaughlin 2008a, b; Ayón-Parente & Madrid Vera 2009). The high degree of intraspecific variation and interspecific overlap of morphological characters that has been

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