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First record of the hermit crab genus *Cestopagurus* Bouvier, 1897 (Crustacea: Decapoda: Anomura: Paguridae) from the South Pacific Ocean and description of a new species

TOMOYUKI KOMAI¹, SHINJI TSUCHIDA² & MALCOLM R. CLARK³

¹Natural History Museum and Institute, Chiba, 955-2 Aoba-cho, Chuo-ku, Chiba, 260-8682 Japan. E-mail: komai@chiba-muse.or.jp

²Japan Agency for Marine-Earth Science and Technology, 2-15 Natsushima-cho, Yokosuka, Kanagawa, 237-0061.

E-mail: tsuchidas@jamstec.go.jp

³National Institute of Water and Atmospheric Research, Private Bag 14901, Kilbirnie, Wellington, New Zealand.

E-mail: malcolm.clark@niwa.co.nz

Abstract

A fifth species of the pagurid genus *Cestopagurus* Bouvier, 1897, is described and illustrated on the basis of a single male specimen collected at a depth of 499 m from Hinepuia submarine volcano in the Kermadec Arc, New Zealand. The new species, *C. hinepuia*, appears similar to *C. puniceus* Komai & Takeda, 2005 known from waters off Japan, but the different armature of chelipeds distinguishes the new species. It is the first representative of the genus recorded from the South Pacific Ocean. A key for identification of species of the genus is presented.

Key words: *Cestopagurus hinepuia*, new species, Hinepuia, Kermadec Arc, New Zealand

Introduction

The pagurid (hermit crab) genus *Cestopagurus* Bouvier, 1897 is currently represented by four species in the world (McLaughlin *et al.* 2010): *C. caeruleus* Komai & Poupin, 2012 from Mayotte, western Indian Ocean (Komai & Poupin 2012); *C. coutieri* Bouvier, 1897 from the Red Sea and off Madagascar (Bouvier 1897; de Saint Laurent 1968); *C. puniceus* Komai & Takeda, 2005 from off Japan (Komai & Takeda 2005), and *C. timidus* (Roux, 1830) from the Mediterranean Sea and the eastern Atlantic Ocean, from Scotland to the Canary Islands (de Saint Laurent 1968; Ingle 1993). All but *C. puniceus* occur in intertidal to shallow subtidal zones; *C. puniceus* inhabits upper bathyal depths of 171–300 m. The genus is characterized by 11 pairs of distally divided quadriserial gills, markedly unequal and dissimilar chelipeds, the right sexual tube oriented toward the left across the ventral body surface in the male, and the lack of paired first pleopods in the female (de Saint Laurent 1968; McLaughlin 2003; Komai & Takeda 2005).

During a voyage to the Kermadec Arc and the Louisville Seamount Chain, southwest Pacific Ocean, carried out by RV “Yokosuka” of the Japan Agency for Marine-Earth Science and Technology (JAMSTEC), a submersible dive by DSV “Shinkai 6500” was made on Hinepuia submarine volcano. The dive aimed to find hydrothermal activity, and associated biological communities at depths of 337–499 m. Amongst the biological samples made during the dive was a single specimen of a small pagurid hermit crab. Subsequent examination has revealed that the specimen represents a new species of *Cestopagurus*, which is here described as *C. hinepuia* **n. sp.** The species appears close to *C. puniceus*, but some morphological differences justify the recognition of a new species. It is the first representative of *Cestopagurus* from the South Pacific, as well as the Exclusive Economic Zone of New Zealand (de Saint Laurent & McLaughlin 2000). It increases the number of species of the genus to five.

- *C. timidus* [Northeastern Atlantic Ocean and Mediterranean Sea, intertidal to 37 m]
- Carpus of right cheliped with dorsomesial margin not delimited, though some dorsomesial spines present.
- *C. coutieri* [Red Sea, Madagascar, 20–25 m]
- 4. Carpus of right cheliped with numerous scattered tiny spines or spinulose tubercles on dorsal surface laterally, merus with spines on ventromesial margin. Merus of left cheliped with row of spines on ventromesial margin
- *C. hinepuia* **n. sp.** [Kermadec Arc, South Pacific Ocean, 499 m]
- Carpus of right cheliped without spines or tubercles on dorsal surface laterally, merus unarmed on ventromesial margin. Merus of left cheliped without spines on ventromesial margin
- *C. puniceus* [Sagami Sea, Japan, 171–300 m]

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References

- Bouvier, E.L. (1897) Sur deux paguriens nouveaux trouvés par M. Coutière dans le récif madréporique, Djibouti. *Bulletin du Muséum national d'Histoire naturelle, Paris*, 6, 229–233.
- Ingle, R. (1993) *Hermit crabs of the Northeastern Atlantic Ocean and the Mediterranean Sea. — An illustrated key*. Chapman & Hall, London, Glasgow, New York, Tokyo, Melbourne, Madras, 495 pp.
- Komai, T. (2013a) A new genus and new species of Paguridae (Crustacea: Decapoda: Anomura) from the Bohol Sea, the Philippines. *Species Diversity*, 18, 23–32.
<http://dx.doi.org/10.12782/sd.18.1.023>
- Komai, T. (2013b) Additional records of the pagurid hermit crab genus *Trichopagurus* de Saint Laurent, 1968 (Crustacea: Decapoda: Anomura), with description of a new species from the Philippines. *Zootaxa*, 3670 (2), 274–282.
<http://dx.doi.org/10.11646/zootaxa.3670.2.10>
- Komai, T. & Poupin, J. (2012) Two new species of shallow-water hermit crabs (Crustacea: Decapoda: Paguridae) from Mayotte Island, southwestern Indian Ocean. *Zootaxa*, 3277, 56–68.
- Komai, T. & Rahayu, D.L. (2013a) Species of the pagurid hermit crab genus *Catapaguroides* A. Milne-Edwards & Bouvier, 1892 (Crustacea: Decapoda: Anomura) from the Bohol Sea, the Philippines, with descriptions of eight new species. *Raffles Bulletin of Zoology*, 61, 143–188.
- Komai, T. & Rahayu, D.L. (2013b) Six new species of the hermit crab genus *Decapphyllus* De Saint Laurent, 1968 (Crustacea: Decapoda: Anomura: Paguridae) from the Bohol Sea, the Philippines, and the Ryukyu Islands, Japan. *Raffles Bulletin of Zoology*, 61, 589–620.
- Komai, T. & Takeda, M. (2005) First report of *Cestopagurus* Bouvier (Crustacea: Decapoda: Anomura: Paguridae) from the Pacific Ocean, and the description of a new species. *Bulletin of the National Science Museum*, 31, 93–104. [Series A (Zoology)]
- McLaughlin, P.A. (1997) Crustacea Decapoda: Hermit crabs of the family Paguridae from the KARUBAR cruise in Indonesia. In: Crosnier, A. & Bouchet, P. (Eds.), *Résultats des Campagnes MUSORSTOM. Vol. 16. Mémoires du Muséum national d'Histoire naturelle*, 172, 433–572.
- McLaughlin, P.A. (2003) Illustrated keys to families and genera of the superfamily Paguroidea (Crustacea: Decapoda: Anomura), with diagnoses of genera of Paguridae. *Memoirs of the Museum Victoria*, 60, 111–144.
- McLaughlin, P.A., Rahayu, D.L., Komai, T. & Chan, T.-Y. (2007) *A catalog of the hermit crabs (Paguroidea) of Taiwan*. National Taiwan Ocean University, Keelung, 365 pp.
- McLaughlin, P.A., Komai, T., Lemaitre, R. & Rahayu, D.L. (2010) Annotated checklist of anomuran decapod crustaceans of the world (exclusive of the Kiwaoidea and families Chirostylidae and Galatheidae of the Galatheoidea) Part I. Lithodoidea, Lomisoidea and Paguroidea. *Raffles Bulletin of Zoology, Supplement*, 23, 5–107.
- Saint Laurent, M.de. (1968) Révision des genres *Catapaguroides* et *Cestopagurus* et description de quatre genres nouveaux. II. *Cestopagurus* Bouvier (Crustacés Décapodes Paguridae). *Bulletin du Muséum national d'Histoire naturelle, Paris, Série 2e*, 42, 210–222.
- Saint-Laurent, M.de & McLaughlin, P.A. (2000) Superfamily Paguroidea Family Paguridae. In: Forest, J., de Saint Laurent, M., McLaughlin, P.A. & Lemaitre, R. (Eds.), *Paguridea (Decapoda: Anomura) exclusive of the Lithodidae*. *NIWA Biodiversity Memoir*, 114, 104–209.