



Additions to the decapod crustacean fauna of the Hawaiian Islands, II. First record of the unusual hermit crab genera *Porcellanopagurus* Filhol, 1885, and *Solitariopagurus* Türkay, 1986 (Decapoda, Anomura, Paguridae)

JOEL W. MARTIN¹, ROBERT B. MOFFITT², & PATSY A. MCLAUGHLIN³

¹Research and Collections Branch, Natural History Museum of Los Angeles County, 900 Exposition Boulevard, Los Angeles, CA 90007. E-mail: jmartin@nhm.org

²NOAA, National Marine Fisheries Service, 2570 Dole Street, Honolulu, HI 96822. E-mail: Robert.Moffitt@noaa.gov

³Shannon Point Marine Center, Western Washington University, 1900 Shannon Point Road, Anacortes, WA 98221-4042. E-mail: hermit@fidalgo.net

Abstract

The rare and unusual deep water hermit crab genera *Porcellanopagurus* Filhol and *Solitariopagurus* Türkay are reported for the first time from Hawaiian waters. Each genus is represented by a single specimen collected from Penguin Banks, off the southwest coast of Moloka'i, Hawaii. The specimen of *Porcellanopagurus* is identified as *P. platei*, a species that has not been reported since its original description in 1902 based on specimens from the Juan Fernandez Islands off southern Chile. Therefore, the record is a major range extension for the species. The specimen of *P. platei* from Hawaii is an ovigerous female found inhabiting a fissurellid limpet shell; the species is redescribed based on type material. The specimen of *Solitariopagurus*, *S. tuerkayi*, was found carrying (inhabiting) one half of a bivalve mollusk shell (the lucinid *Ctena bella*), the first confirmation of this habitat for the species. A second specimen, photographed but now missing, was associated with a different species of bivalve (a mytilid). In addition to being new records of these genera for the Hawaiian Islands, the report also marks the first record of the genus *Porcellanopagurus* from the central Pacific and only the second record of the genus *Solitariopagurus* in the northern hemisphere.

Key words: Hawaii, hermit crabs, *Porcellanopagurus*, *Solitariopagurus*

Introduction

The decapod crustacean hermit crab family Paguridae contains an estimated 75 extant genera (McLaughlin *et al.* 2005; R. Lemaitre, pers. comm.). Two of those genera, *Porcellanopagurus* Filhol, 1885, and *Solitariopagurus* Türkay, 1986, are distinctive in having a hardened dorsal carapace that is far more crab-like than in nearly all other pagurid genera (see discussions of anomuran "carcinization" in McLaughlin & Lemaitre 1997; McLaughlin *et al.* 2004, 2007, and references therein). McLaughlin (2000) referred to these unusual genera as being "very interesting and rather specialized." Species of both genera are usually found only in deep waters, from 3 m (apparently the shallowest record of the genus, for *P. haptodactylus* McLaughlin, 2000) to possibly 1430 m (*P. filholi* de Saint Laurent & McLaughlin, 2000) in the genus *Porcellanopagurus*, and from 30 to 380 m in *Solitariopagurus* (McLaughlin 2000). Species of these genera are readily distinguished from other hermit crabs by having "broad, vaulted carapaces, each provided with prominent lateral carapace projections" (McLaughlin 2000), an unusual degree of separation of the telson from the sixth pleonal somite in some species, and an apparently terminal location of the anus (reviewed and discussed by McLaughlin 2000). Species of both genera appear to carry their eggs dorsally, rather than laterally (left side) as in most pagurids. Additionally, *Porcellanopagurus* species are known to inhabit limpet