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## The hermit crab *Calcinus isabellae* Poupin (Crustacea: Decapoda: Anomura: Diogenidae), a new record for the Hawaiian Archipelago, including a review of the genus *Calcinus* Dana in Hawai'i

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The diogenid hermit crabs of the genus *Calcinus* are widespread in tropical and subtropical areas. They are common in littoral zones and shallow coral reef habitats, and can be facultatively associated with some corals (e.g., *Pocillopora* & *Acropora*). Forty-two species are now identified, most of which were described during the last 20 years from the Indo-West Pacific (Haig & McLaughlin, 1984; Wooster, 1984; Morgan, 1991; Gherardi & McLaughlin, 1994; Poupin, 1997; Poupin & McLaughlin, 1998; Asakura & Tachikawa, 2000). This increasing number of species is a result of a better attention paid to color patterns of live and recently preserved specimens. The rapid loss of coloration in preservatives does not allow this characteristic to be used when examining museum material.

A comprehensive examination of the genus *Calcinus* from the main Hawaiian Islands was published by Haig & McLaughlin (1984). This taxonomic treatment of these shallow water hermit crabs provided the description of two new species. One of these new species was *Calcinus hazletti*, which was only known from Hawaii at that time. This species has subsequently been described from the Ogasawara (Bonin) Islands of Japan (Asakura & Tachikawa, 2003). The other *Calcinus* species described was *Calcinus laurentae*, which remains classified as an endemic to the Hawaiian Archipelago. Haig & McLaughlin (1984) recorded another seven species: [*Calcinus laevimanus* Randall, *Calcinus seurati* Forest, *Calcinus gaimardii* (Milne Edwards), *Calcinus elegans* (Milne Edwards), *Calcinus latens* Randall, *Calcinus haigae* Wooster and *Calcinus guamensis* Wooster]. Additionally, *Calcinus argus* Wooster is also present in the Hawaiian Archipelago and was recorded by Titgen (1987).

Unpublished reports have mentioned two new records of *Calcinus* from the Hawaiian Archipelago, *Calcinus isabellae* Poupin and *Calcinus revii* Poupin & McLaughlin. The presence of *C. revii* is tentative but the presence of *C. isabellae* has now been verified from material collected from the Main Hawaiian Islands and the Northwestern Hawaiian Islands.

**Diogenidae*****Calcinus isabellae*** Poupin**New state record**

Hermit crabs from the genus *Calcinus* were collected in support of studies focused on the phylogeography and biodiversity of coral reef macroinvertebrates within the Hawaiian Archipelago. Collections were conducted in both the Northwestern Hawaiian Islands and the Main Hawaiian Islands in 2006 by the Hawaii Institute of Marine Biology (HIMB) and by the National Oceanic and Atmospheric Administration, Pacific Island Fisheries Science Center, Coral Reef Ecosystem Division under the auspices of the Census of Coral Reefs (CReefs), which is a program designated under the Census of Marine Life.

*Calcinus isabellae* was collected during HIMB phylogeographic studies within the Main Hawaiian Islands on the island of Hawaii at Puako in March 2006 and at French Frigate Shoals in the Northwestern Hawaiian Islands in May 2006. A single specimen of *C. isabellae* was collected during the CReefs effort in October 2006.

This new record belongs to the group of *Calcinus* that are differentiated from their congeners by a dense brush of setae located on the dactyls and propodi of the third pereopods (Asakura, 2002). Three other *Calcinus* identified from the Hawaiian Archipelago (*C. elegans*, *C. argus*, and *C. gaimardii*) also possess this trait. *Calcinus isabellae* differs noticeably from the other *Calcinus* species of the Hawaiian Archipelago in the live coloration of the second and third pereopods and morphology of the chelipeds. The proximal one third of the propodi and carpi of the second and third pereopods have a red band that is adjoined to a black band located centrally on both segments. Black bands are also located centrally on the dactyls and meri of the second and third pereopods but with no adjoining red band; while the remaining area of all segments is cream white. The chelipeds are olive brown proximally with scattered white tubercles and spines, and the distal portion and both fingers are white. The outer face of the left cheliped has a large medial groove, and the palm is not convex. This is a definitive character for the left cheliped, as the other *Calcinus* in the Hawaiian Archipelago with the brush of setae have a convex palm and no medial groove. Additionally, there are characteristic conical protuberances associated with the fixed finger, dactyl and palm of the left cheliped.

*Material examined:* **FRENCH FRIGATE SHOALS:** FFS-FR5\_2, forereef rubble CReefs, coll. G. Paulay, Oct 2006, female (BPBM-S13246, Marine Invertebrate Collections). **HAWAII:** Puako, forereef, HIMB Phylogeography, coll. I. Baum, Mar 2006, male (06-2542, HIMB Marine Invertebrate Collections).

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