

Philippine mantis shrimp

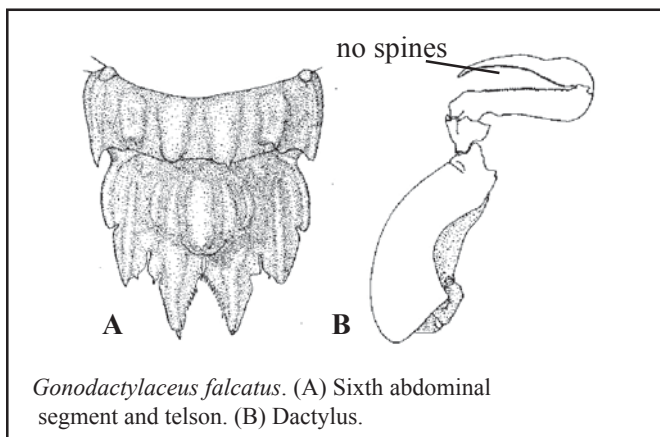
Phylum Arthropoda
Subphylum Crustacea
Class Malacostraca
Order Stomatopoda
Family Gonodactylidae



Photo by J. Hoover

DESCRIPTION

Individuals may grow to about 6 cm in length and are generally dark green (males) or reddish brown (females). This species can be distinguished from other Hawaiian stomatopods by examination of the last (sixth) abdominal segment and telson (pictured below). The sixth abdominal segment has six inflated carinae or lobes. The telson also with inflated carinae and three pairs of marginal teeth and one pair of accessory teeth. Members of the genus *Gonodactylaceus* do not have spines on dactylus. Another smaller species, *G. hendersoni*, is also found in Hawaii and is considered also to be introduced. It is typically a mottled beige with some white spots.



Gonodactylaceus falcatus. (A) Sixth abdominal segment and telson. (B) Dactylus.

HABITAT

Dead branching coral heads, clumps of coralline algae, or crevices and small holes in solid reef substrate.

DISTRIBUTION

HAWAIIAN ISLANDS

Shallow reefs of Oahu, especially Kaneohe Bay and Waikiki

NATIVE RANGE

Indo-Pacific

PRESENT DISTRIBUTION

Indo-Pacific and Hawaiian Islands

MECHANISM OF INTRODUCTION

Unintentional, most likely with fouling on ships' hulls

IMPACT

An aggressive species, *G. falcatus* has been shown to drive out the native stomatopod, *Pseudosquilla ciliata*, from dead coral heads. Since its introduction, *G. falcatus* has almost completely replaced the once common *P. ciliata* in the coral heads on the shallow reefs of Oahu (Kinzie, 1968).

ECOLOGY

Feeding

Stomatopods are generally carnivorous predators, using their powerful raptorial claws to snap up live prey.

Reproduction

Stomatopods have separate sexes. Fertilized eggs are carried by the female until hatching. The free-swimming planktonic larvae undergo several stages of development before settlement in shallow water. *G. falcatus* appears to reproduce twice a year (see Kinzie, 1968)

REMARKS

Kinzie (1968) argued that an Indo-Pacific species of mantis shrimp (which he discussed under the name *Gonodactylus falcatus*) was introduced to the Hawaiian Islands. Manning and Reaka (1981) subsequently described the same Hawaiian population as a new species, *Gonodactylus aloha*, and considered it endemic. Kinzie (1984) examined their arguments in detail and concluded that at the least the species was cryptogenic. Barber and Erdmann (2000) proposed that *G. aloha* is a synonym of *G. mutatus*, but recently Ah Yong (pers. comm.) has synonymized *G. mutatus* back to *G. falcatus*.

The first specimens of *G. falcatus* were observed in 1954 in dead coral heads in Kaneohe Bay. Kinzie (1968) suggested that it was introduced onto Oahu with concrete barges towed back at the end of World War II, particularly from the area of the Philippines and the South China Sea. Kinzie demonstrated experimentally that the more aggressive *G. falcatus* had displaced the native stomatopod *Pseudosquilla ciliata* from coral head habitats in Kaneohe Bay. Its continued presence around Oahu has been reported by a number of authors.

REFERENCES

- Barber, P.H. and M.E. Erdmann. 2000. Molecular systematics of the Gonodactilidae (Stomatopoda) using mitochondrial cytochrome oxidase C (subunit 1) DNA sequence data. *J. Crust. Biol.* 20: 20-36.
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- Manning, R.B. and M.L. Reaka. 1981. *Gonodactylus aloha*, a new stomatopod crustacean from the Hawaiian Islands. *J. Crust. Biol.* 1: 190-200.