

A New Species of Mud-shrimp of the Genus *Upogebia* Leach, 1814 from Taiwan (Decapoda: Thalassinidea: Upogebiidae)

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Feng-Jiau Lin, Nguyen Ngoc-Ho and Tin-Yam Chan (2001) A new species of mud-shrimp of the genus *Upogebia* Leach, 1814 from Taiwan (Decapoda: Thalassinidea: Upogebiidae). *Zoological Studies* 40(3): 199-203. An *Upogebia* specimen collected from deep water off southern Taiwan is described as a new species, *Upogebia edentata* sp. nov.. The new species closely resembles *U. fallax* de Man, 1905; *U. contigua* Bozic and de Saint Laurent, 1972; and *U. gracilis* Ngoc-Ho, 1990, in its long rostrum and the shape of the 6th abdominal somite. However, it differs from these species by having both the rostrum and the lateral ridges of the carapace unarmed. Color figures of the new species are presented. <http://www.sinica.edu.tw/zool/zoolstud/40.3/199.pdf>

Key words: Taxonomy, *Upogebia*, New Taxon, Taiwan, Marine.

Mud shrimps of the family Upogebiidae Borradaile, 1903, were very poorly known from Taiwan until recently. At present, 4 *Upogebia* species have been reported: *U. wuhsienweni* Yu, 1931; *U. narutensis* Sakai, 1986; *U. edulis* Ngoc-Ho and Chan, 1992; and *U. takaoensis* Sakai and Türkay, 1995. The former 3 species are commonly found in intertidal mud flat areas in western Taiwan while the latter is very rare, known only from a single holotype from southern Taiwan (Sakai and Türkay 1995).

A small specimen recently obtained from the by-catch of a deep-sea trawler operating off the coast of southern Taiwan appears to belong to a new species of *Upogebia*. Its description is presented herein. This specimen differs from the aforementioned Taiwanese *Upogebia* species especially by having no large lateral frontal process on the carapace and by its much more slender body. It is compared to its close relatives, *U. fallax* de Man, 1905; *U. contigua* Bozic and de Saint Laurent, 1972; and *U. gracilis* Ngoc-Ho, 1990, whose differentiating characters are summarized in table 1. Color photographs of the newly collected specimen are provided.

The specimen is deposited at the National Tai-

wan Ocean University, Keelung [NTOU]. Carapace length (cl) is measured dorsally from the tip of the rostrum to the posterior margin of the carapace, and total length (tl) is measured dorsally from the tip of the rostrum to the posterior margin of the telson.

TAXONOMY

Family Upogebiidae

Genus *Upogebia* Leach, 1814

Upogebia edentata sp. nov.

(Figs. 1, 2)

Material Examined: Holotype ♀: 7.2 mm cl and 20.7 mm tl (NTOU H-1996-8-6), Taiwan, southern coast, fishing port at Tungkung, Pingtung Co., commercial trawler, from at least 200 m, coll. T. Y. Chan, 6 Aug. 1996.

Description: Rostrum triangular, unarmed but dorsally setose, slightly curved downwards; lateral border weakly convex, 0.16 times as long as carapace and extending to middle of 2nd segment of antennal peduncle; lateral ridge blunt and unarmed.

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Carapace with anterolateral border bearing 1 spinule; cervical groove long and deep; linea thalassinica extending to posterior margin of carapace. Eye peduncle cylindrical; cornea fully pigmented.

Antennular peduncle just overreaching rostrum, but failing to reach distal margin of 2nd antennal peduncle. Third antennal segment with 1 ventrodiscal spine; scale terminating in sharp spine.

Abdomen generally smooth. Sixth abdominal somite longest, about 1.3 times as long as 2nd somite. Telson 1.3 times broader than long; lateral margin convex on proximal 1/3; posterolateral angles rounded; posterior margin medially concave.

Pereiopod I sparsely setose; ischium with 1 ventral spine; merus about 4.2 times as long as broad, bearing 1 strong dorsal subdistal and 8 ventral spines; carpus armed with 4 dorsal (anterior 2 rather

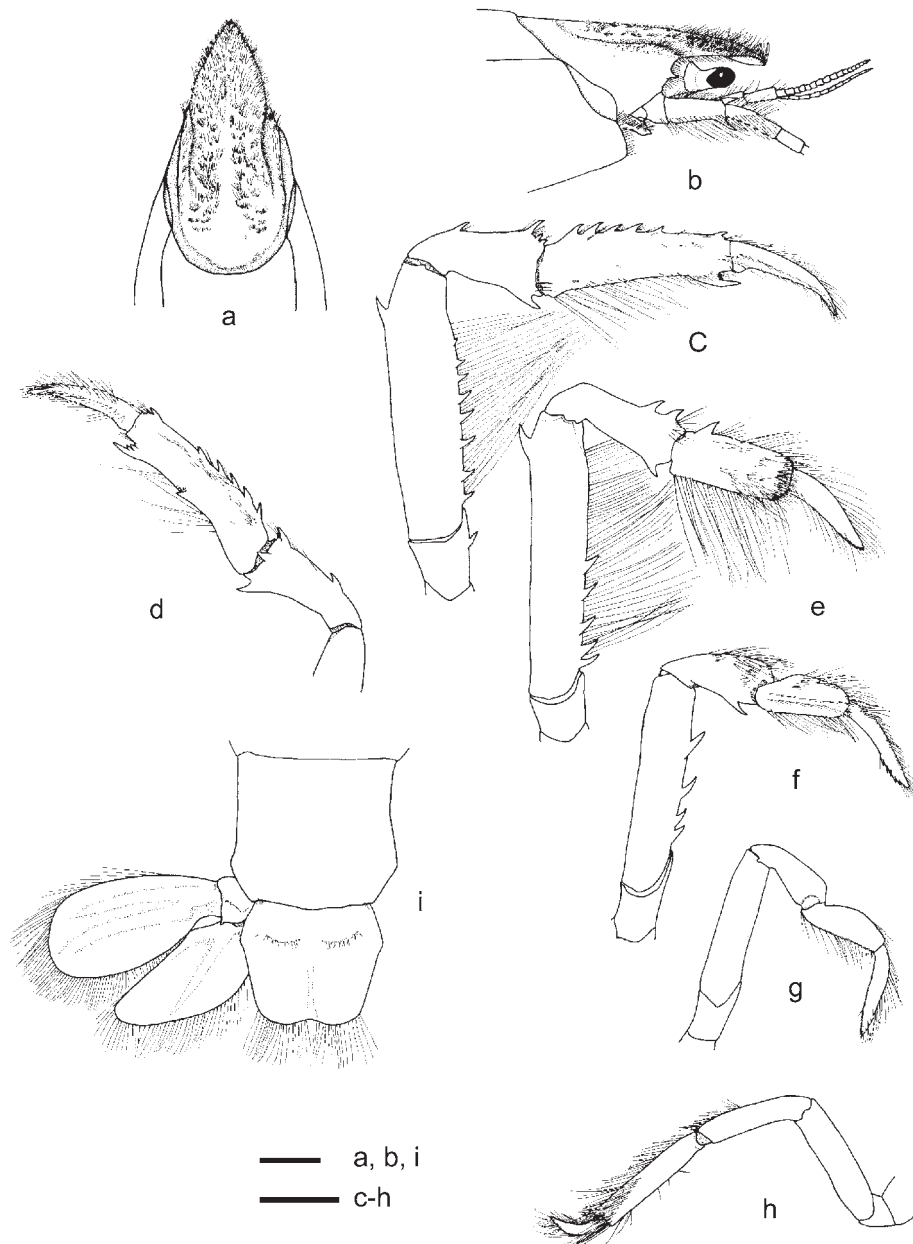


Fig. 1. *Upogebia edentata* sp. nov., female holotype 7.2 mm cl, Taiwan. (a) Anterior carapace, dorsal view; (b) anterior carapace, lateral view; (c) pereiopod I, outer view; (d) pereiopod I, mesial view; (e) pereiopod II, outer view; (f) pereiopod III, outer view; (g) pereiopod IV, outer view; (h) pereiopod V, outer view; (i) abdominal somite VI, telson and left uropod, dorsal view. Scale bar = 1 mm.

small), 1 ventrodistal, and 1 mesodistal spines; propodus 3.8 times as long as broad, with 6 dorsal and 1 mesial ventral spines; cutting edge of fixed finger bearing 2 proximal denticles; dactylus 0.6 times as long as propodus, with corneous tip and low proximal tooth.

Pereiopod II with ischium unarmed; merus with 5 ventral and 1 strong dorsal subdistal spines; carpus armed with 2 dorsal subdistal and 1 ventral subdistal spines; propodus about 2.3 times as long as broad, bearing 1 dorsal proximal spine; dactylus 0.8 times as long as propodus.

Pereiopod III with merus bearing 4 ventral spines; carpus with 1 ventral spine; dactylus elongated and pectinate along lower distal margin.

Pereiopods IV and V unarmed except for dactylus bearing some minute denticles along lower margin.

Genital openings on coxae of left pereiopod III and both pereiopods V.

Both pleopods I present, uniramous.

Pleopods II to V biramous, with exopods larger than endopods.

Uropods unarmed and with posterior margins smooth; exopod 1.6 times and endopod 1.4 times as



Fig. 2. *Upogebia edentata* sp. nov., female holotype 7.2 mm cl, Taiwan. (a) Lateral view; (b) dorsal view.

Table 1. Distinguishing characters among *Upogebia edentata* sp. nov., *U. fallax*, *U. contigua* and *U. gracilis*

	<i>U. edentata</i> sp. nov.	<i>U. fallax</i> ^a	<i>U. contigua</i> ^b	<i>U. gracilis</i> ^a
Rostrum				
Tip	angular	rounded	rounded	pointed
Length/width at base	1.2	1.3	1.4	1.6
Lateral dorsal border	unarmed	with subacute spines	with small tubercles	unarmed
Carapace				
Lateral ridge	unarmed	10-12 small teeth	with small tubercles	7-8 denticles
Abdominal somite VI				
Length/width	1	1.3	1.2	1.1
Pereiopod I				
Merus				
dorsal spines	1	0-1	1	3-4
ventral spines	8	3-7	7	10-11
Propodus				
dorsal spines	6	6-7	1	1
mesio-subdistal spines	absent	0-2	absent	2
Telson				
Length/width	0.8	0.7-0.8	0.7	1
Lateral border	smooth	smooth	smooth	1 subdistal spinule
Uropod				
Exopod length/width	2	2.6-2.7	2.5	2.7
Endopod length/width	2.2	2.9-3	3	3.4

^afrom de Man 1928 and Ngoc-Ho 1992.

^bfrom Bozic and de Saint Laurent 1972.

long as telson; protopod bearing distinct posterolateral spinule.

Coloration: Body generally yellowish orange. Eye pale brown. Pereiopods II to V somewhat whitish. Setae grayish.

Size: The only specimen known is a female of 7.2 mm in cl and 20.7 mm in tl.

Distribution: Taiwan, at depths of 200 m or more.

Remarks: The Taiwanese specimen is in good condition except for the left carapace and left maxilliped III that are slightly damaged, and the left pereopod I, left pereopod IV, and right pereopod V that are missing. Although there are gonopores on the coxae of the left pereopod III and both pereopods V, the presence of both pleopods I suggests that the present specimen is a female. Males of several *Upogebia* species have been reported to bear gonopores on the coxae of both the pereopods III and V but whether they are functional has never been determined. Therefore they must be referred to as "intersex" rather than "hermaphrodite", as hermaphroditism should be defined on a functional basis. In *Upogebia edulis* from Taiwan, Lin (1995) found 4 males (out of 979 males collected between 1992-1994) with the pereopods I enlarged but also with first pleopods. One of these (captured on 23 Mar. 1994) had a very small ovary while there was no trace of it in the other three (collected on 26 Jan. 1992, 25 June 1994 and 20 Nov. 1994), which means at least at that time, they were not functional females.

The long rostrum and 6th abdominal somite of the Taiwanese specimen show a resemblance to those of *U. fallax* (type-locality Indonesia), *U. contigua* (type-locality Gulf of Guinea), and *U. gracilis* (type-locality the Philippines) (see Ngoc-Ho 1990). However, it differs from these 3 species in many features (Table 1), especially in having both the rostrum and the lateral ridges of the carapace completely unarmed. The Taiwanese specimen is a female and some of the differences listed in table 1 may need to be reconsidered in terms of sexual dimorphism (e.g., only a male specimen is so far known for *U. gracilis*), particularly in the shape and spination of the pereiopods. For example, in *U. narutensis* and *U. edulis*, the pereopod I of females is much more slender and less spinose than that of males (Sakai 1986, Ngoc-Ho and Chan 1992). However, some characters such as the spination of the rostrum and the lateral ridge of the carapace and the telson are unlikely to be associated with sex in *Upogebia*. Therefore, this Taiwanese specimen is treated as distinct.

The new taxon also shows some affinities to

Upogebia pugnax de Man, 1905 (type-locality Indonesia) in the shape of the pereiopods (see Sakai 1982, Ngoc-Ho 1990 1991). Nevertheless, the 2 species can be readily separated by the rostrum and lateral ridge of the carapace being heavily spinose in *U. pugnax*.

There are 139 species in the family Upogebiidae known to date, and 98.6% of them inhabit shallow waters less than 200 m deep (Dworschak 2000). In the northwestern Pacific, only 13 upogebiid species have been reported, including the 4 intertidal species reported from Taiwan. *U. edentata* is the 5th *Upogebia* species now known from Taiwan and differs from all the other local species and most *Upogebia* by inhabiting deep waters.

Etymology: The specific name, *edentata*, refers to the unarmed rostrum of this species.

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臺灣一新種螻蛄蝦之記述

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目前全世界已知的螻蛄蝦科約有 139 種，且 98.6% 的種類都是產於淺海並棲息在水深 200 公尺以上的海域。東北亞地區目前共僅記錄有 13 種螻蛄蝦，而臺灣則只知有四種螻蛄蝦分布於潮間帶的沙泥灘，本研究於臺灣東港漁港水深超過 200 公尺的拖網漁獲中發現一新種螻蛄蝦，並命名為 *Upogebia edetata* sp. nov.。這種螻蛄蝦可容易地以額角側突較小和修長的腹部與臺灣其他螻蛄蝦種類分辨出，而其較長的額角和第六腹節之特徵則與其他海域的 *U. fallax*、*U. contigua* 及 *U. gracilis* 的形態較為相近，但其額角與頭胸甲側脊均無刺，則與上述三者明顯區別出。本文除詳細描述此新種的形態特徵外，亦提供其彩色標本照。

關鍵詞：分類，螻蛄蝦，新種，臺灣，海洋生物。

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