

Two Upogebiid Species from the Persian-Arabian Gulf, with the Description of a Related New Species from Taiwan

(Crustacea: Decapoda: Upogebiidae)

With 8 Text-Figures and 1 Table

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Abstract

[SAKAI, K. & TÜRKAY, M. (1995): Two upogebiid species from the Persian-Arabian Gulf, with the description of a related new species from Taiwan (Crustacea: Decapoda: Upogebiidae). — Senckenbergiana marit., 25 (4/6): 197–208, 7 figs., 1 tab.; Frankfurt a. M.]

Two upogebiid species were collected from the Persian-Arabian Gulf on board R. V. "AKADEMIK" in 1991: *Upogebia nobilii* n. sp. and *U. plantae* (SAKAI 1982). Besides the first new species a related one from Taiwan is named as *U. takaoensis* sp. nov.

Kurzfassung

[SAKAI, K. & TÜRKAY, M. (1995): Zwei Upogebiiden-Arten vom Persisch-Arabischen Golf, mit Beschreibung einer neuen verwandten Art aus Taiwan (Crustacea: Decapoda: Upogebiidae). — Senckenbergiana marit., 25 (4/6): 197–208, 7 Abb., 1 Tab.; Frankfurt a. M.]

Zwei Upogebiidae-Arten wurden mit F. S. "AKADEMIK" im Persisch-Arabischen Golf im Jahre 1991 gesammelt: *Upogebia nobilii* n. sp. und *U. plantae* (SAKAI 1982). Außer der ersten neuen Art, wurde eine verwandte Art aus Taiwan mit dem Namen *U. takaoensis* sp. nov. belegt.

Introduction

The upogebiid fauna of the Persian-Arabian Gulf is not well known. For long time, the records of NOBILI (1906) of *U. hexaceras* (ORTMANN 1894) and *U. hirtifrons* (WHITE 1847) remained the only species known. DE MAN (1927) included the latter record in his new species *U. balssi*. SAKAI (1982) suggested upon examination of the original material of NOBILI that both records belong to *U. darwini* (MIERS 1884) rather than to any of the species under which they were listed originally. Later SAKAI (1984) also added a record of *U. savignyi* (STRAHL 1862).

From November 30 – December 20, 1991 a short cruise with R. V. "AKADEMIK" to the Persian-Arabian Gulf was organized by the research centre "GEOMAR"

(Kiel, Germany) (GRAF & MIENERT 1992). During this campaign benthos was collected at 14 stations. The gear used for sampling was a USNEL Spade Corer (KG), and a beam-trawl (Ku) with a 2m-frame equipped with a tickler chain and with a minimum mesh-size of 1 cm x 1 cm in the cod end. The material collected was transferred to the Senckenberg-Museum (Frankfurt a. M.) for further analysis.

Among the decapods were two species of upogebiids, one of them is new to science, the other was previously unrecorded from the Gulf. After this, four upogebiid species are known from the Gulf area. The present material clearly demonstrated that the suggested high variability of *U. spinifrons* (HASWELL 1881) was a misconception. Conse-

quently a new name is also given to a species from Taiwan, up to now included in *U. spinifrons*.

The generic classification of the species treated in this paper was difficult. NGOC-HO (1989) included one of them, *U. plantae* SAKAI 1982 in her new genus *Gebiacantha*. This taxon was defined by a set of characters. However, single features were not exclusive to *Gebiacantha* when used in an isolated way (NGOC-HO 1989). This means that the genus is based on a certain kind of overall similarity rather than on key characters. When we examined our material for the present paper it got clear that all three species treated herein are quite similar and cannot be separated generically. However, they show a broad intergradation of characters between *Gebiacantha* and *Upogebia* proper. This applies especially to the shape of the telson which is slightly convex in *U. plantae* and without any discernible concavity in *U. nobilii* n. sp. Also the Uropods are slightly shorter than the telson in *U. plantae* and slightly overreaching the telson in *U. nobilii*. This

feature in *U. plantae* contrasts the diagnosis of *Gebiacantha* in NGOC-HO (1989), who states that the uropods always clearly overreach the telson. After the examination of the present material and analysis of diagnostic characters we do not believe that *Gebiacantha* can be properly defined and distinguished from *Upogebia*. It remains an assemblage of species which broadly intergrades into *Upogebia*. Therefore we prefer to leave the species treated herein in *Upogebia* s. l. and suppose that *Gebiacantha* should be treated as a synonym of *Upogebia*.

The material studied for the present paper is deposited in the Senckenberg-Museum, Frankfurt a. M. (SMF), the Museum für Naturkunde, Berlin (MNB), the Australian Museum, Sydney (AMS), and the Queensland Museum, Brisbane (QM).

The following abbreviations are used in the descriptions: CL = carapace length; TL = total length; KG = Box-core. ♂ ♀ designates male hermaphrodites. All measurements are given in millimeters.

Descriptive Part

Upogebia nobilii sp. nov.

Figs. 1-3

Holotype: 1 ♂ ♀ [TL 49.0, CL 15.0] (SMF 22169), Stat. PG-14 (28°40.034' N 49°55.226' E), 54 m depth, KG, 11. XII. 1991, R. V. "AKADEMIK".

Material: 3 ♂ ♀ [TL 46.0, CL 14.0; TL 53.0, carapace broken; TL 32.0, CL 11.0], 3 ♀ [TL 37.0, CL 12.0; TL 49.0, CL 15.0; TL 38.0, CL 11.0] (SMF 22170), 1 ♀ [TL 44.0, CL 13.0] (SMF 22171), Stat. PG-21 (29°11.508' N 49°41.040' E), 39 m depth, KG, 13. XII. 1991, R. V. "AKADEMIK". — 1 ♂ ♀ [TL 45.0, CL 13.0] (SMF 22172), Stat. PG-22 (28°56.494' N 49°43.812' E), 45 m depth, KG, 14. XII. 1991, R. V. "AKADEMIK".

Description of male: Anterior region of carapace 1.5 times as long as posterior region. Rostrum (Figs. 1a-b) 1.3-1.5 times as long as wide, its dorsal surface thickly setose, grooved in median line, and with 3-4 conical marginal teeth in proximal half; ventral surface with 4-5 sharp teeth. Gastric region dorsally with short, transverse rows of setae, its anterior part with 8-9 obtuse teeth with a setal row anteriorly, laterally with 1-2 teeth behind eye; lateral ridge setose dorsally, unarmed, and projecting forward to middle of rostrum; ventral margin with two distal teeth. Cervical groove with 7-8 lateral teeth, and linea thalassinica present for whole length of carapace. Anterolateral margin with three strong teeth.

Telson (Fig. 1c) 1.2 times wider than long, and 0.8 times as long as abdominal somite 6, with narrow slit medially in its posterior half.

Epistome with two strong distal teeth.

Antennular peduncle extending to middle of distal segment of antenna; segment 1 as long as segment 3, and with small ventrodistal tooth, segment 2 about 0.25 times as long as segment 1 or 3. Antennal segment 1 with a strong ventrodistal tooth, segment 2 with four ventral teeth; segment 4 with 4-5 ventral teeth; distal segment unarmed, 0.6 times as long as segment 4. Scaphognathite rounded at tip.

Maxilliped 3 (Fig. 1d) with coxa bearing four conspicuous teeth on anterior margin; ischium with a row

of spinules, and four proximal teeth on mesial surface (Fig. 1e); exopod overreaching distal margin of endopod ischium.

Pereopods 1 subchelate, equal, showing sexual dimorphism. Coxa with two curved teeth on posterior margin; basis unarmed; ischium (Fig. 2a) with four sharp teeth on ventral margin. Merus 2.5 times as long as wide, with row of 8-9 teeth on ventral margin, diminishing in size distally, and subterminal tooth on dorsal margin. Carpus 0.4 times as long as merus, with strong distoventral tooth, and 6-8 dorsomesial teeth; mesial surface with one distal tooth. Propodus twice as long as wide, dorsal margin with a row of 9-10 strong teeth; lateral surface setose, with row of denticles below median line, and sharp tooth on distal margin; mesial surface (Fig. 2b) setose, with six transparent oblique carinae in distal part, the 3rd one counted from lower border longest, two small teeth on distal margin. Fixed finger strong, bearing stout proximal tooth on cutting edge. Dactyl 0.75 times as long as propod, dorsolateral region thickly setose, cutting edge proximally with obtuse tooth.

Pereopod 2 (Fig. 3a) with coxa bearing a curved tooth on posterior margin; basis unarmed. Pereopod 3 (Fig. 3b) with coxa unarmed, bearing genital pore; basis unarmed. Pereopod 4 (Fig. 3c) with coxa unarmed; basis unarmed. Pereopod 5 (Fig. 3d) with coxa unarmed, bearing genital pore; basis unarmed.

Pleopod 1 absent; Uropod about as long as telson, endopod with a proximal protuberance on anterior margin; protopod with posterior tooth.

Females: Pereopod 1 (Fig. 2c): Merus 3.5 times as long as wide, with row of eight teeth on ventral margin, and one subterminal tooth on dorsal margin. Carpus 0.4 times as long as merus, with strong ventrodistal tooth and 8 dorsomesial teeth; mesial surface with strong distal tooth. Propod about 3.0-3.8 times as long as wide, with seven strong dorsal teeth; mesial surface (Fig. 2d) with ventral carina in proximal half. Fixed finger simple, projecting forward. Dactyl 0.7 times as long as propod, dorsolateral

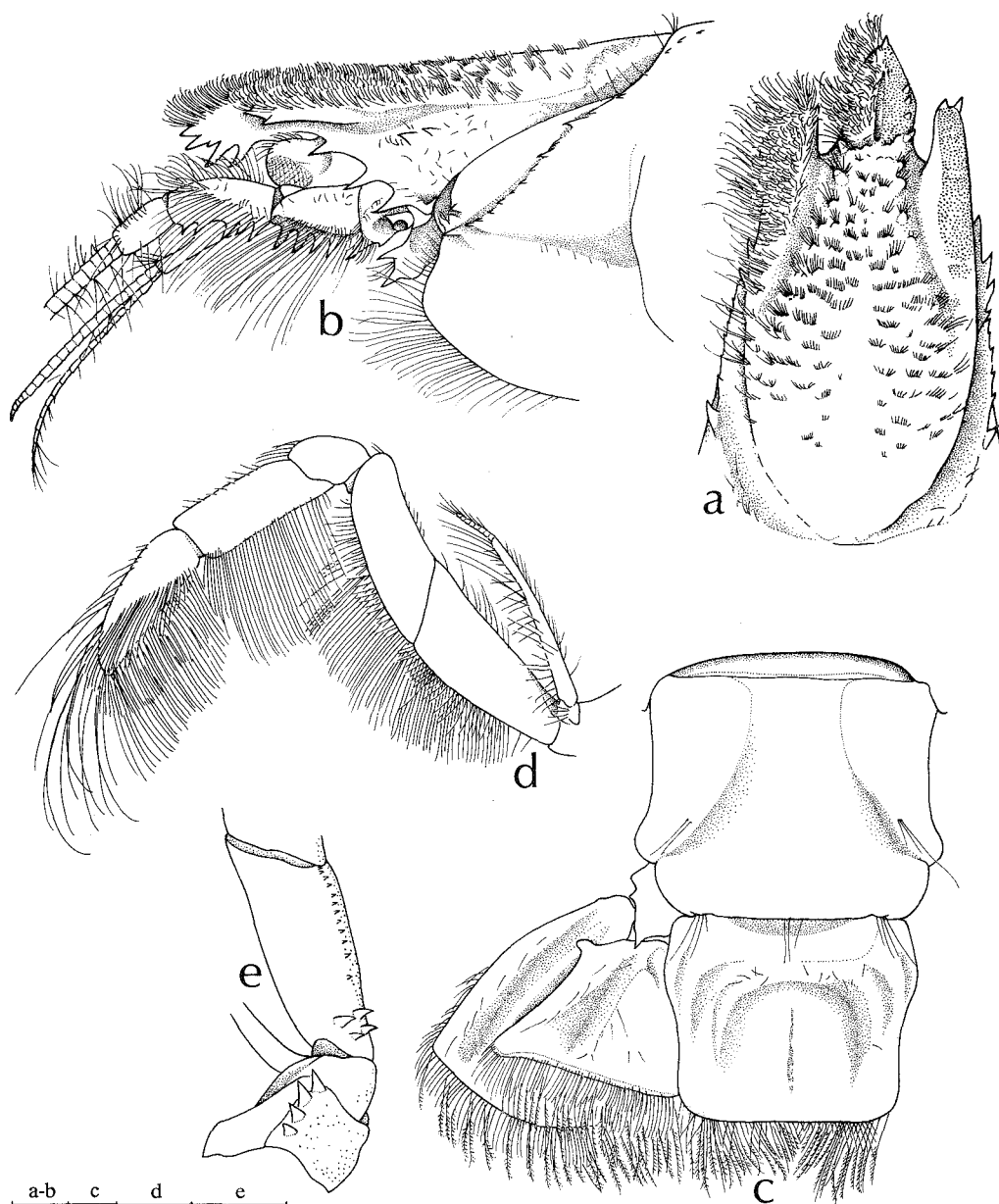


Fig. 1. *Upogebia nobilii*. — male (SMF 22169). — a. Anterior region of carapace, dorsal view. b. Same, lateral view. c. Abdominal somite VI and tail-fan, dorsal view. d. Maxilliped 3, lateral view. e. Coxa, basis and ischium of maxilliped 3, mesial view. — Scales: 1 mm.

Abb. 1. *Upogebia nobilii*. — Männchen (SMF 22169). — a. Vorderteil des Carapax, dorsal. b. id., lateral. c. Abdominalsegment VI und Schwanzfächer, dorsal. d. Maxilliped 3, lateral. e. Coxa, Basis und Ischium des 3. Maxillipeden, mesial. — Maßstäbe: 1 mm.

region thickly setose. Pereopod 3 coxa with genital pore; pereopod 5 coxa without genital pore in large females; a small female has genital pores on the coxae of pereopods 3 and 5. Pleopod 1 simple, biarticulate.

Remarks: *U. nobilii* sp. nov. is gonochoristic, but with hermaphroditic forms in males, and is closely related with *U. spinifrons*, however it clearly differs by the mor-

phologies of the telson, 1st pereopods, rostrum, and 1st pleopods as shown in Tab. 1.

Etymology: This species is dedicated to GIUSEPPE NOBILI, the first scientist having published a comprehensive study on decapods from the Gulf area ("Mission J. BONNIER & CH. PEREZ 1901": NOBILI 1906) and in appreciation for his carcinological work.

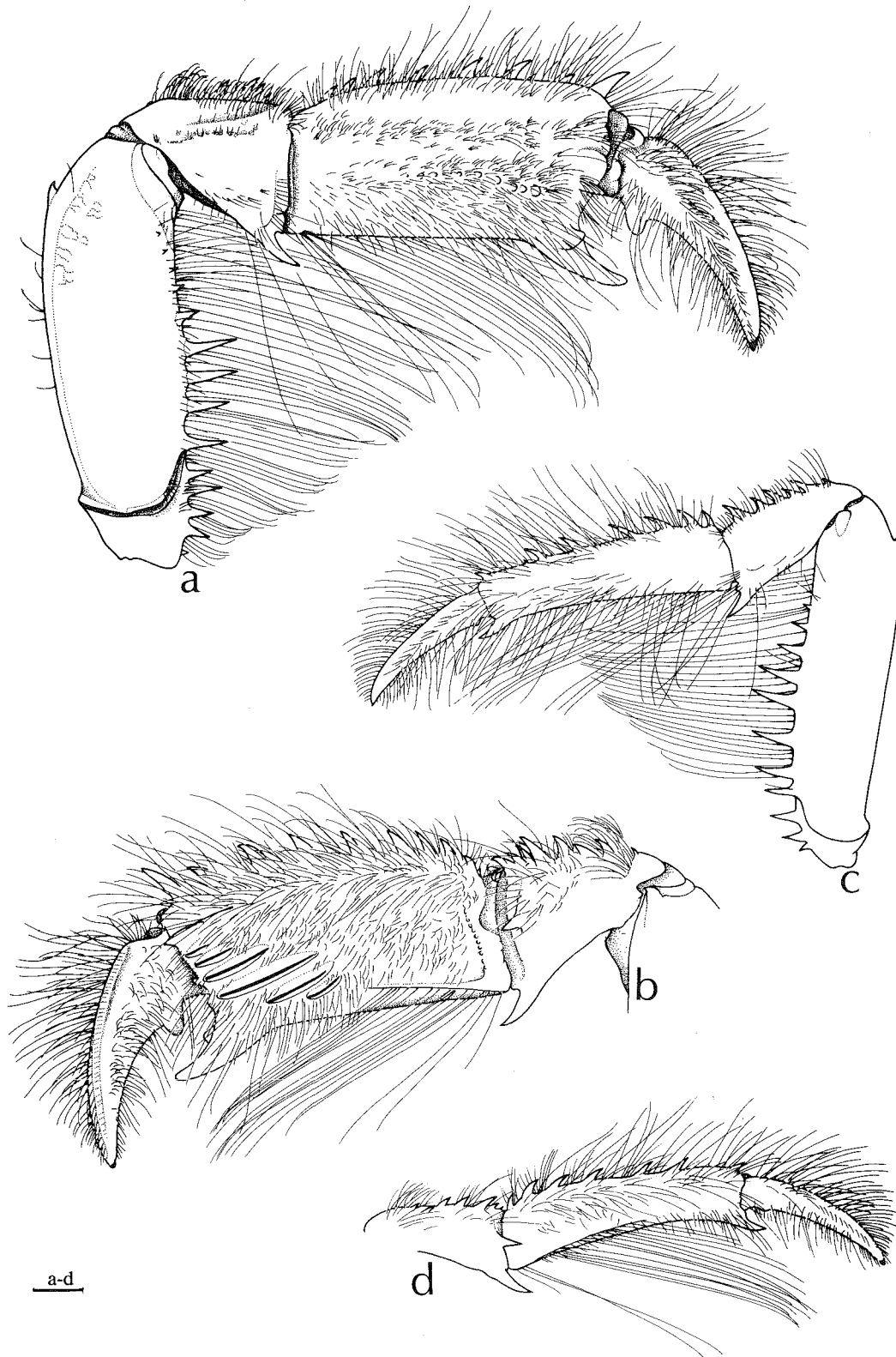


Fig. 2. *Upogebia nobilii*. — a–b: male (SMF 22169), c–d: female (SMF 22170). — a. Pereopod 1 in male, lateral view. b. Carpus, propod and dactyl of pereopod 1, mesial view. c. Pereopod 1 in female, lateral view. d. Carpus, propod and dactyl of pereopod 1, mesial view. — Scales: 1 mm.

Abb. 2. *Upogebia nobilii*. — a–b: Männchen (SMF 22169), c–d: Weibchen (SMF 22170). — a. Pereiopod 1 des Männchens, lateral. b. Carpus, Propodus und Dactylus des 1. Pereiopoden, mesial. c. Pereiopod 1 des Weibchens, lateral. d. Carpus, Propodus und Dactylus des 1. Pereiopoden. — Maßstäbe: 1 mm.

Table 1. Differences between *Upogebia nobilii*, *Upogebia spinifrons*, and *Upogebia takaoensis*.Tabelle 1. Unterschiede zwischen *Upogebia nobilii*, *Upogebia spinifrons* und *Upogebia takaoensis*.

	<i>U. nobilii</i>	<i>U. spinifrons</i>	<i>U. takaoensis</i>
Rostrum	1.3 times as long as wide	1.7 times as long as wide	1.8 times as long as wide
Ratio anterior to posterior length of carapace	1.3 times	1.8 times	1.8 times
Telson	1.2 times as broad as long; lateral margin convergent in posterior half; posterior margin nearly straight.	1.3-1.4 times as broad as long; lateral margin parallel in posterior half; posterior margin slightly convex.	unknown
Pereiopod 1: propod	Male hermaphrodite: 2.0-2.8 times as long as wide; 6 oblique carinae on mesial surface. Female: 3.0-3.8 times as long as wide; no oblique carinae on mesial surface.	Male hermaphrodite: 1.9 times as long as wide; 7 oblique carinae on mesial surface. Female: 2.8-3.0 times as long as wide; usually no oblique carinae on mesial surface*.	Male hermaphrodite: 1.9 times as long as wide; 4 oblique carinae on mesial surface. Female: unknown
Pereiopod 1: dactyl	smooth on dorsal margin.	Smooth on dorsal margin.	with a row of square-shaped granules.
Pleopod 1	Male hermaphrodite: absent. Female: uniramous, biarticulate.	Male hermaphrodite: uniramous, biarticulate, with marginal setae. Female: uniramous, biarticulate, without marginal setae.	unknown.
Position of genital duct.	Male hermaphrodite: genital duct on coxae of both pereopods 3 & 5. Female: genital duct on coxa of pereopods 3. Small female: genital ducts on coxae of both pereopods 3 & 5.	Male hermaphrodite: genital ducts on coxae of both pereopods 3 & 5. Female: genital duct on coxa of pereopods 3.	unknown

* HASWELL's female syntype exceptionally with four oblique carinae on mesial surface.

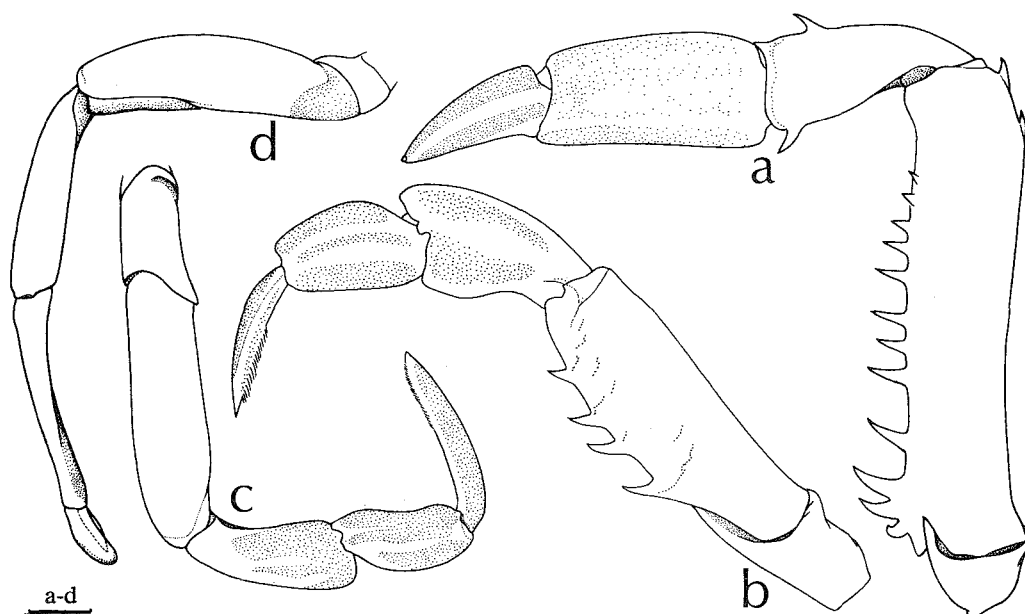


Fig. 3. *Upogebia nobilii*. — male (SMF 22169). — a. Pereopod 2, lateral view. b. Pereopod 3, lateral view. c. Pereopod 4, lateral view. d. Pereopod 5, lateral view. — Scales: 1 mm.

Abb. 3. *Upogebia nobilii*. — Männchen (SMF 22169). — a. Pereiopod 2, lateral. b. Pereiopod 3, lateral. c. Pereiopod 4, lateral. d. Pereiopod 5, lateral. — Maßstäbe: 1 mm.

Upogebia spinifrons (HASWELL, 1881)

Fig. 4

- 1881 *Gebia spinifrons* HASWELL, Proc. linn. Soc. N. S. W., 6: 762.
 1882 *Gebia spinifrons*, — HASWELL, Catal. Austral. Crust.: 165, Pl. 3 fig. 5.
 1927 *Upogebia spinifrons*, — DE MAN, Capita zool., 2 (5): 53–56, Pl. 6 fig. 20.
 1928 *Upogebia spinifrons*, — DE MAN, Siboga Exp., 39a (6): 23, 46.
 1979 *Upogebia spinifrons*, — POORE & GRIFFIN, Rec. austral. Mus., 32 (6): 305, Figs. 53–54.
 1982 *Upogebia spinifrons*, — SAKAI, Res. Crust., Spec. Vol. 1: 58. [part.]

Syntype: 1 ♀ [TL 80.0, CL 22.0] (AMS P.1544), Port Stephens, New South Wales, 8 fath. [= 14.6 m]

Material: 1 ♂ ♀ [TL 56.0, CL 15.0], 3 ♀ [TL 70.0, CL 19.0; TL 64.0, CL 18.0; TL 52.0, CL 14.0] (QM W1535), off Pott's Point, Port Jackson, New South Wales, 30. X. 1942, M. WARD coll. — 1 ♀ [TL 79.0, CL 23.0] (QM W1071), Moreton Bay, Queensland, 7. VII. 1940, leg. V. F. COLLIN; 2 ♂ ♀ [TL 65.0, CL 18.0, TL 76.0, CL 23.0] (QM W1218), 1 ♀ [TL 73.0, CL 20.0] (QM W1234), 1 ♂ ♀ 2 ♀ [TL 80.0, CL 21.0] (QM W1435), Mud Island, Moreton Bay, Qld., leg. V. F. COLLIN; 1 ♂ ♀ [TL 47.0, CL 14.0] (QM W2892), Macleay Island, Moreton Bay, Queensland, 13. X. 1967; 1 spcm. [TL 25.0, CL 7.5] (QM3968), 1 juv. [TL 14.0 CL 4.4] (QM W3969), Moreton Bay, Queensland.

Remarks: *U. spinifrons* is usually gonochoristic, but with hermaphroditic forms in males, and is closely related to *U. nobilii*.

The status of HASWELL's supposed female type specimen (AMS P.1544) is considered to be doubtful (R. T. SPRINGTHORPE in litt.). In fact, upon reexamination of this specimen we found clear differences to the original descrip-

tion (HASWELL 1881: 762) concerning two points: HASWELL stated "three smaller [spines] close together in a longitudinal row on the hepatic region" and "A row of 2–10 others [he means spines] bordering the lateral portions of the cervical groove behind". However in the presumed type there are only two spines on the hepatic region and a row of 8–9 spines on the cervical groove (Fig. 4a).

DE MAN (1927: 54) stated that three specimens of *U. spinifrons* were sent to him by the Australian Museum when he asked for the type material. One of them belonged to another species described by him under the name *U. neglecta*. According to this author the other two were identical with *U. spinifrons*. One of those was figured (DE MAN 1927: Pl. 6 figs. 20a–c, e), but also his figures are different from the supposed type specimen (AMS P.1544). The specimen figured has three spines in a longitudinal row on the hepatic region, and the rostrum has four to five sharp ventral spines of unequal length, while in AMS P.1544 there are only two cervical spines and only three ventral rostral spines.

Herewith it becomes clear that neither HASWELL's description is based on this presumed syntype specimen nor is this the case in DE MAN's description and figures. It seems, therefore, that at least one other syntype is missing.

POORE & GRIFFIN (1979: 305, fig. 53d) claimed to depict a female cheliped showing oblique carinae on the mesial surface of the palm. However, in females of this species there are usually no oblique carinae. For confirma-

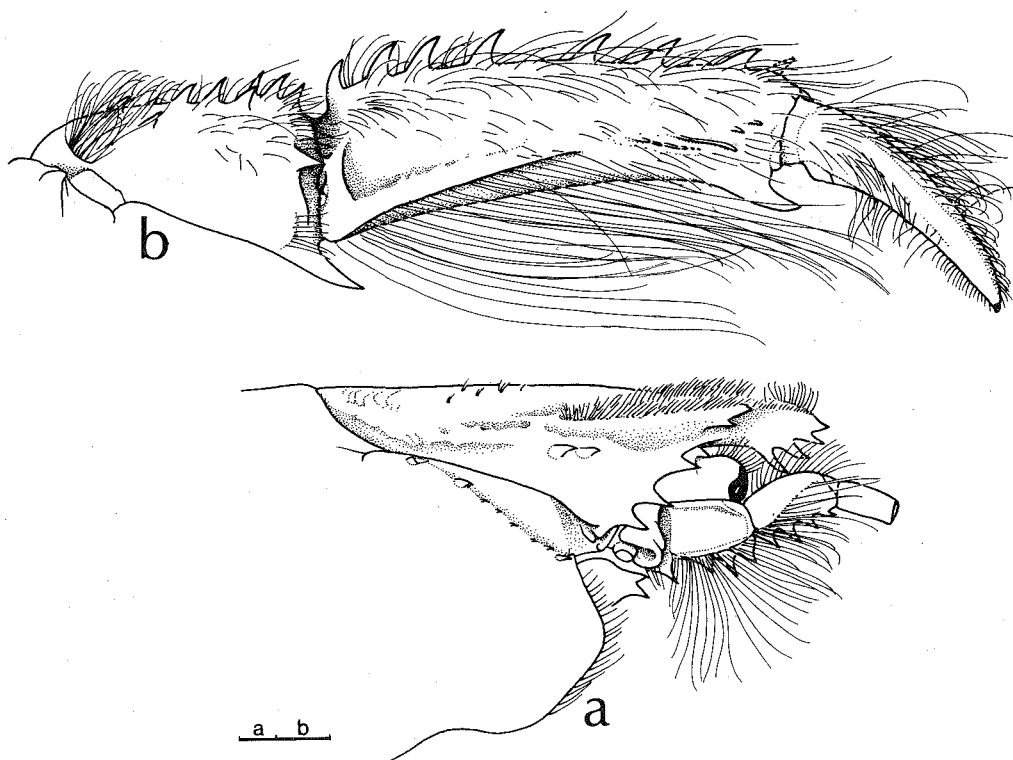


Fig. 4. *Upogebia spinifrons*. — female (AMS P.1544). — a. Carapace, lateral view; b. Pereopod 1, mesial view. — Scales: 1 mm.

Abb. 4. *Upogebia spinifrons*. — Weibchen (AMS P.1544). — a. Carapax, lateral; b. Pereiopod 1, mesial. — Maßstäbe: 1 mm.

tion we reexamined most of the material treated by POORE & GRIFFIN (1979) and found that all females are lacking the oblique cheliped carinae. There is only one exception to this. The Port Stephens female (AMS P.1544) in fact has four oblique carinae on the inner face of the cheliped palm. However, the specimen depicted by POORE & GRIFFIN (1979: Fig. 53d) is a gonochoristic male with clear genital ducts on the coxae of both the third and fifth pereopods. Thus, this species usually shows a sexual dimorphisms.

Upogebia takaoensis sp. nov.

1982 *Upogebia (Upogebia) spinifrons*, — SAKAI, Res. Crust., Spec. Vol. 1: 58 [part.], Figs 11c, 12c,e, 13e–f; Pls. F1, F3.

Holotype: 1 ♂ [TL 69.0] (MNB 12664), Takao, Formosa.
Type locality: Takao, Formosa.

Diagnosis: Anterior region of carapace 1.8 times as long as posterior region; rostrum slender, 2.5 times as long as wide. Pereopod 1 with propod slightly less than twice as long as broad, its dorsal margin with 4–5 short teeth, and one stout distal one; mesial surface distally with four translucent oblique carinae, the second one counted from lower border elongate, the others short; dactyl mesially with a row of distinct square-shaped granules on its dorsal margin.

Remarks: SAKAI (1982: 58) included the present species under *U. spinifrons*. However, after having examin-

ed the male of *U. nobilii* it became obvious, that the male specimen from Takao, Formosa (MNB 12664) also cannot be assigned to *U. spinifrons*, as the characters of pereopod 1 and the rostrum proved to be less variable than thought previously.

Upogebia plantae SAKAI, 1982

Figs. 5–8

1982 *Upogebia plantae* SAKAI, Res. Crust., Spec. Vol. 1: 47, Figs. 9f, 13a–b, Pls. E3, E5.

1989 *Gebiacantha plantae* — NGOC-HO, Bull. Mus. natn. Hist. nat., (11, Sec. A)1: 122, Fig. 3.

Material: 1 ♂ [TL 24.0, CL 7.0] (SMF 22173), Stat. PG-14 (28°40.034' N 49°55.226' E), 54 m depth, KG, 11. XII. 1991, R. V. "AKADEMIK"; 1 ♂ [CL 17, abdomen 3-tail fan lost], 2 ♀ [TL 51.0, CL 16, TL 50.0, CL 16] (SMF 22174), Stat. PG-22 (28°56.494' N 49°43.812' E), 45 m depth, KG, 14. XII. 1991, R. V. "AKADEMIK".

Description: Anterior region of carapace 1.2 times as long as posterior region. Rostrum (Fig. 5a–b) about as long as wide; its dorsal surface thickly setose, grooved medially, bearing 6–7 conical marginal teeth; ventral surface with 2–5 sharp teeth. Gastric region setose, with five longitudinal rows of teeth: pair of lateral rows with 7–9 teeth each, pair of intermediate ones with 9–11 teeth each, and short median row with 3–6 tubercles. Cervical groove

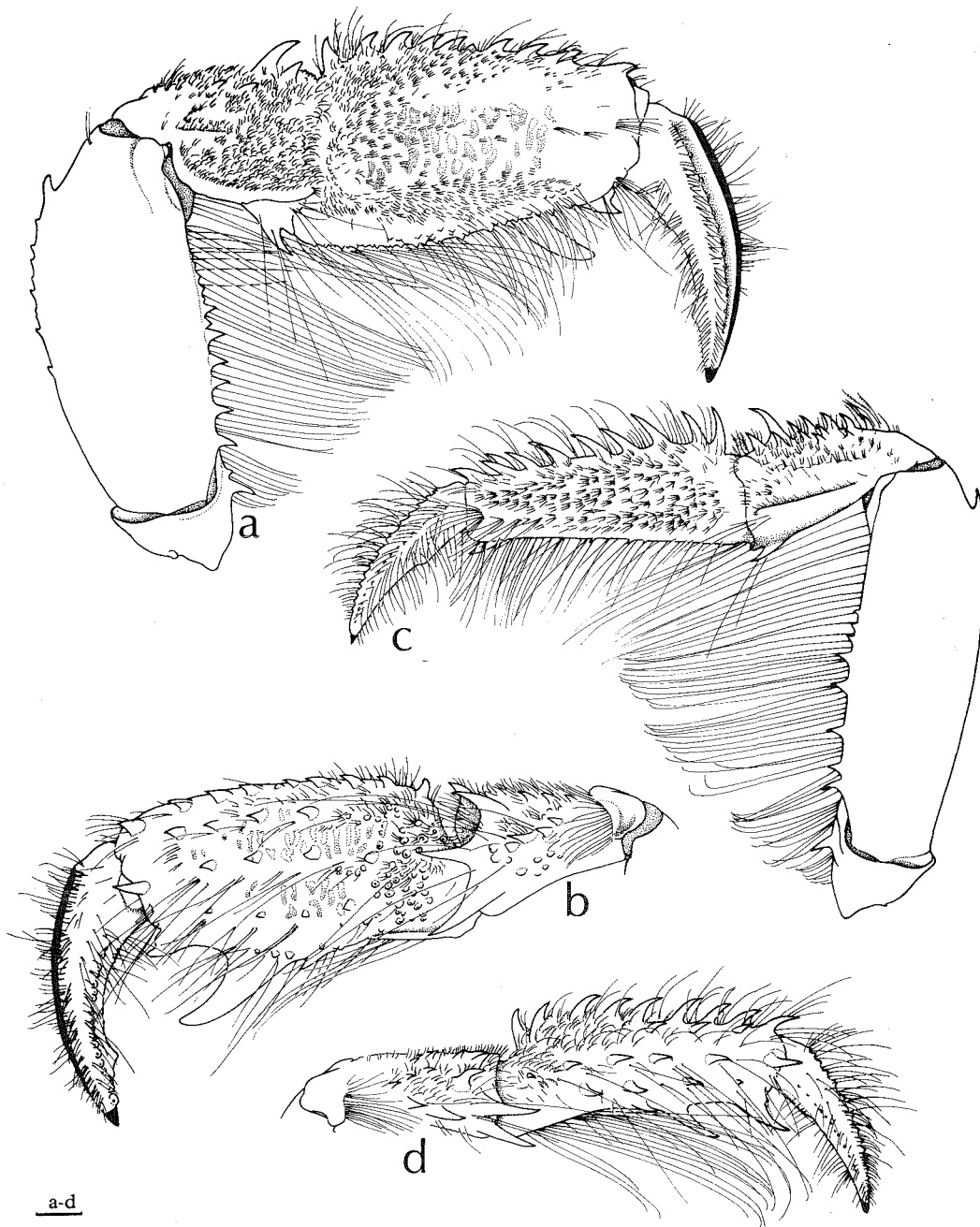


Fig. 7. *Upogebia plantae*. — a-b: male (SMF 22174), c-d: female (SMF 22174). — a. Pereopod 1 in male, lateral view. b. Carpus, propod and dactyl of pereopod 1, mesial view. c. Pereopod 1 in female, lateral view. d. Carpus, propod and dactyl of pereopod 1, mesial view. — Scales: 1 mm.

Abb. 7. *Upogebia plantae*. — a-b: Männchen (SMF 22174), c-d: Weibchen (SMF 22174). — a. Pereiopod 1 des Männchens, lateral. b. Carpus, Propodus und Dactylus des 1. Pereiopoden, mesial. c. Pereiopod 1 des Weibchens, lateral. d. Carpus, Propodus und Dactylus des 1. Pereiopoden, mesial. — Maßstäbe: 1 mm.

stout tooth on distomesial margin. Dactyl slightly shorter than propod, with translucent ridge on dorsal margin; dorsolateral surface concave, and with a row of interspaced tubercles mesially; mesial surface with a row of tubercles on median carina; cutting edge with a triangular protuberance subterminally. In females (Fig. 7c): Merus three

times as long as wide, with 8–9 sharp teeth on ventral margin decreasing in size distally, one sharp subterminal tooth on dorsal margin. Carpus 0.4 times length of merus, with two teeth on dorsal margin, four dorsodistal teeth: three sharp ones on dorsal to mesial margin, one small on lateral margin, one tooth at ventrodistal angle; lateral sur-

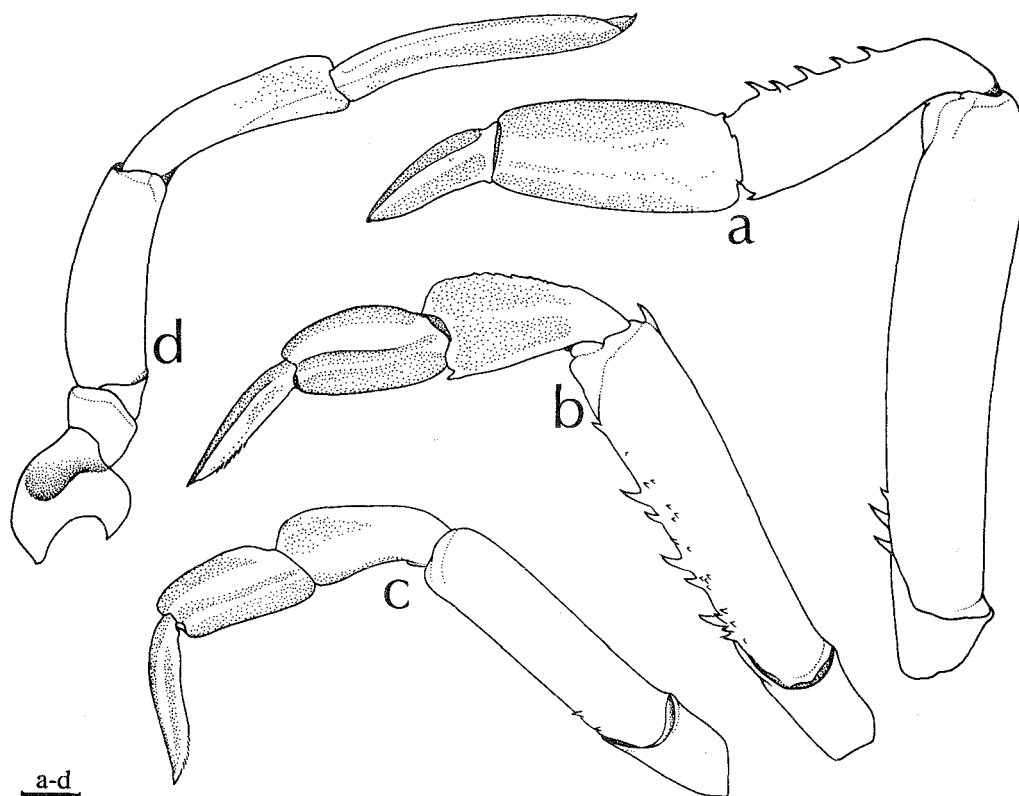


Fig. 8. *Upogebia plantae*. — female (SMF 22174). — a. Pereopod 2, lateral view. b. Pereopod 3, lateral view. c. Pereopod 4, lateral view. d. Pereopod 5, lateral view. — Scales: 1 mm.

Abb. 8. *Upogebia plantae*. — Weibchen (SMF 22174). — a. Pereiopod 2, lateral. b. Pereiopod 3, lateral. c. Pereiopod 4, lateral. d. Pereiopod 5, lateral. — Maßstäbe: 1 mm.

face with ventral carina. Propod three times as long as wide, dorsal margin with nine sharp teeth, lateral surface setose, and with some denticles on its ventral margin; mesial surface (Fig. 7d) with three rows of sharp teeth, dorsal row consisting of three, median of five, ventral of three; ventral margin with three teeth, distal one sharp, bearing two proximal denticles on its cutting edge, second one as large as distal one, located at distal 0.4, and third one small. Dactyl 0.75 times as long as propod, and denticulate on whole length of its dorsal margin; lateral and mesial surfaces each with a row of tubercles mesially, lateral row clearly interspaced.

Pereopod 2 (Fig. 8a) with coxa bearing five denticles on mesial surface, three on anterior margin, two on median carina, and one rather distinct tooth on posterior margin. Basis unarmed and ischium to dactyl as shown in figure. Pereopod 3 (Fig. 8b) with coxa bearing nine denticles and one short tooth on mesial surface. Pereopod 4 (Fig. 8c) with coxa and basis unarmed. Pereopod 5 (Fig. 8d) as shown in figure.

Abdominal somite 6 about 1.2 times longer than telson. Uropods shorter than telson, protopod provided with a tooth.

Distribution: Madagascar (type locality), Seychelles, and Persian-Arabian Gulf.

Remarks: *U. plantae* (SAKAI 1982) shows sexual dimorphism on pereopods 1, and in adult males the cheliped is different from that in young ones. In the adult male the propod of pereopod 1 is beset with some short teeth on the mesial surface, and the dactyl with a translucent ridge on the dorsal margin. In contrast, in the smaller male measuring 24 mm TL (SMF 22173) the propod is beset with three rows of elongate teeth on its mesial surface, and the dactyl is denticulate on the dorsal margin like in females.

U. plantae is very similar to *U. ceratophora* (DE MAN 1905) with reference to the distribution of teeth on the carpus and propodus of pereopod 1. However, there are distinct differences, as in *U. plantae* the rostrum is armed with five sharp ventral teeth; the propod of pereopod 1 bears three ventral teeth (the distal and subterminal ones being distinct), and in adult males the dactyl of pereopod 1 bears a translucent ridge dorsally, although in juvenile males as well as females this structure is denticulate dorsally. In *U. ceratophora*, however, the rostrum is provided with a single ventrodiscal tooth, the propod of pereopod 1 bears one ventrodiscal tooth, and the dorsal margin of the dactyl is smooth in two juvenile female type specimens measuring 8.5 and 10.0 mm in total length (DE SAINT LAURENT & NGOC-HO 1979: 64).

Acknowledgements

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SCHE, a staff member of the Forschungsinstitut Senckenberg, to join the expedition with R. V. "AKADEMIK" and collect fauna samples. The junior author thanks Prof. GRAF for this and other logistic support concerning the study of the Gulf Decapods. Dr. DIANA JONES from the Western Australian Museum, Perth streamlined our English, for which we are thankful. However, we are responsible for any linguistic inaccuracies, as we have altered part of the text after that.

References

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