

ZOOLOGISCHE MEDEDELINGEN

UITGEGEVEN DOOR HET

RIJKSMUSEUM VAN NATUURLIJKE HISTORIE TE LEIDEN
(MINISTERIE VAN WELZIJN, VOLKSGEZONDHEID EN CULTUUR)

Deel 58 no. 10

17 augustus 1984

ISSN 0024-0672

SOME UPOGEBIIDAE (CRUSTACEA, DECAPODA) IN THE COLLECTION OF THE RIJKSMUSEUM VAN NATUURLIJKE HISTORIE, LEIDEN

by

KATSUSHI SAKAI

Sakai, K.: Some Upogebiidae (Crustacea Decapoda) in the collection of the Rijksmuseum van Natuurlijke Historie, Leiden.

Zool. Med. Leiden 58(10), 17-viii-1984: 149-162, figs. 1-3. — ISSN 0024-0672.

Key words: Crustacea Decapoda; Upogebiidae; *Upogebia*.

Unidentified specimens of the genus *Upogebia* in the collection of the Rijksmuseum van Natuurlijke Historie in Leiden were studied. A ♀ from Angola proved to be closely related to *U. subspinosa*; it is indicated here as *U. aff. subspinosa*. *U. savignyi* is reported for the first time from the Persian Gulf. *U. cargadensis*, and *U. ancylodactyla* are recorded for the first time from the Red Sea.

K. Sakai, Laboratory of Crustacea, Shikoku Womens' University, 771-11 Tokushima, Ohjincho-Furukawa, Japan.

Unidentified specimens of the genus *Upogebia* in the collection of the Rijksmuseum van Natuurlijke Historie in Leiden were studied. The material included specimens collected in 1929 and 1930 by the Snellius Expedition in the eastern part of the Malay Archipelago, and an important collection from the Red Sea, partly owned by the Zoology Museum of the University of Tel Aviv, Israel.

A single small ovigerous female from Mossamedes, Angola, proved to be closely related to the South African species *U. subspinosa*; however, as it differs from that species in some features, it is indicated here as *Upogebia aff. subspinosa*.

U. savignyi, so far only known from the Red Sea, is now reported for the first time from the Persian Gulf. *Upogebia cargadensis*, and *U. ancylodactyla* are now recorded for the first time from the Red Sea.

The names of the sponges and corals used in this paper are those found on the field labels of the specimens examined.

The abbreviations RMNH and TAU stand for Rijksmuseum van Natuurlijke Historie and Tel Aviv University, respectively; tl is used for total length, measured from the tip of the rostrum to the posterior margin of the telson.

Acknowledgements. — I am most grateful to the Rijksmuseum van Natuurlijke Historie for financial support to travel to Leiden and for the permission to examine the present collection, and also to dr. L. B. Holthuis (Leiden) for reading the manuscript, providing many useful comments and criticisms, and assisting with all data used in the text.

Upogebia (Upogebia) subspinosa (Stimpson, 1860)

Gebia subspinosa Stimpson, 1860: 91.

Upogebia africana; Hartmann-Schröder & Hartmann, 1974: 49.

Upogebia (Upogebia) subspinosa; Sakai, 1982: 45, text-fig. 9d, pls. B 1, E 1–2.

Knysna, Cape Province, South Africa, 18 September 1938, L. D. Brongersma, 7 ♂, 8 ovigerous ♀, 2 non-ovigerous ♀ (RMNH 3223); January 1957, J. H. O. Day, 3 ♂, 2 ♀ (RMNH 11996); mud flat near railroad bridge, 4 September 1967, G. Hartmann, 1 ♂, 1 ♀ (RMNH 28187).

Zwartkops River estuary, Port Elizabeth, Cape Province, South Africa, 10 January 1961, A. C. van Bruggen, 2 ♂, 2 ovigerous ♀ (RMNH 16170).

Remarks. — The specimens from lot RMNH 28187 from Knysna have been mentioned by Hartmann-Schröder & Hartmann (1974) under the name *Upogebia africana*.

Upogebia (Upogebia) aff. subspinosa (Stimpson, 1860) (figs. 1, 2)

Mossamedes, Angola, beach, don. R. Bott (as *U. capensis*), 1 ovigerous ♀ (RMNH 19890).

Description. — Total length 28 mm. The rostrum is elongate triangular in dorsal view, laterally it is provided with a row of five denticles (fig. 1b). The median furrow is distinct, extending posteriorly from near the rostral tip to the anterior 2/5 of the anterior thoracic region; it is flanked by a row of six or seven denticles in its posterior 2/3. The lateral longitudinal groove of the anterior thoracic region is also conspicuous, it is slightly divergent posteriorly. The lateral frontal process forms a sharp tooth. The lateral longitudinal ridge is provided with a row of 11 to 13 denticles. The cervical groove lies at about the posterior 2/5 of the anterior thoracic region including the rostrum, and laterally bears a row of six tubercles on its posterior margin (fig. 1c). The linea

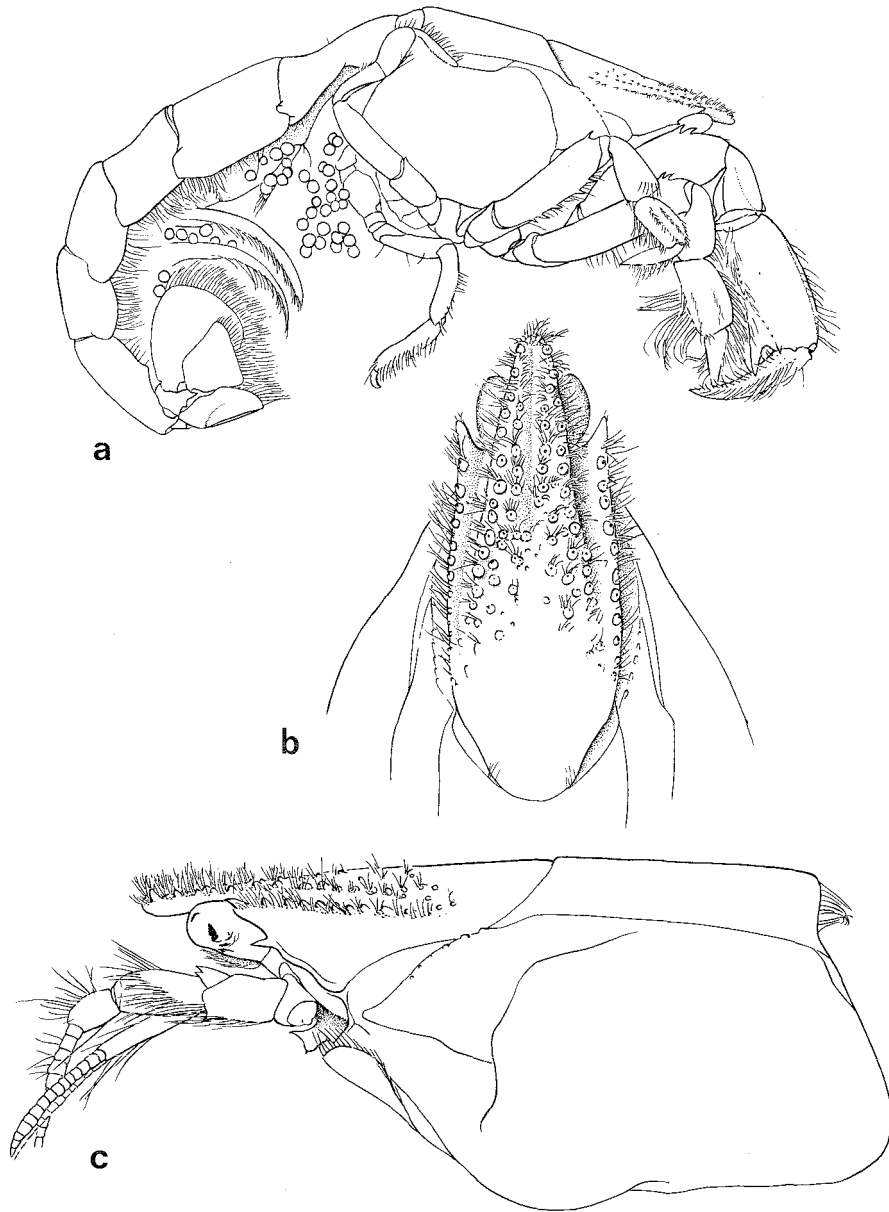


Fig. 1. *Upogebia (Upogebia) aff. subspinosa* (Stimpson, 1860), ovig. ♀, tl 28 mm, RMNH 19890. a. Habitus lateral; b. Anterior thoracic region, dorsal view; c. Carapace, lateral view.

thalassinica is well defined, posteriorly extending to the posterior margin of the carapace. The anterolateral margin is armed with a short tooth.

The telson is broader than long and about 2/3 of the length of the 6th abdominal somite; the posterior margin is slightly concave medially, and the lateral margins are distinctly convergent in the posterior 2/3. The dorsal surface shows a U-shaped carina and bears an obscure median furrow. The uropod is typical in form; the endopod is broad at the posterior margin and reaches to the level of the posterior margin of the telson.

The eye stalks are shorter than the rostrum (fig. 1a). The antennular peduncle is slightly shorter than the antennal peduncle; the third segment is elongate and about as long as the first and second segments combined. The antennal peduncle overreaches the rostrum by about half the penultimate segment; the scaphocerite is bifurcate.

The first pereopods (fig. 2a, b) are subchelate. The coxa is provided with a sharp inner tooth, the basis is unarmed, and the ischium is armed with three inner teeth, the distal two of which are conspicuous. The merus is about 2.5 times as long as broad; the dorsal margin is provided with two or three subterminal teeth, the ventral median margin with a row of four teeth, and the ventral outer margin with a series of denticles. The carpus half as long as the merus; the inner distal margin bears three teeth, the upper of which lies at the dorsal end, and the lower in the middle of the anterior margin. The outer distal margin is provided with two teeth in the upper half. The outer ventral margin is carinate, bearing a sharp terminal tooth. The ventral distal spine is very strong. The palm is about twice as long as broad, and also twice the length of the carpus. The dorsal margin shows a carina with two subterminal spines, flanked by a row of hairs on both inner and outer sides. The outer surface is slightly sulcate along the dorsal margin; the outer distal margin is armed with a sharp spine at the ventral corner; the outer posterior margin is carinate; and the outer ventral margin with a row of denticles extending from the posterior ventral corner to the base of the fixed finger. The inner surface is ornamented with two rows of hairs in the upper half, the upper row is accompanied by a row of denticles, in the middle of which there is a distinct spine; the inner surface furthermore bears two strong teeth just behind the anterior margin; and in its posterior part it is provided with a vertical denticulate ridge in the ventral half just before the posterior margin; the ventral part of the inner surface is armed with a few denticles and hairs around the base of the fixed finger. The fixed finger is sharp, distally reaching the level of the proximal 2/5 of the dactylus; the cutting edge bears a small tubercle in the middle and three denticles in the proximal gap. The dactylus is slender; the upper exterior surface is thick and slightly sulcate medially; the dorsal margin is furnished with

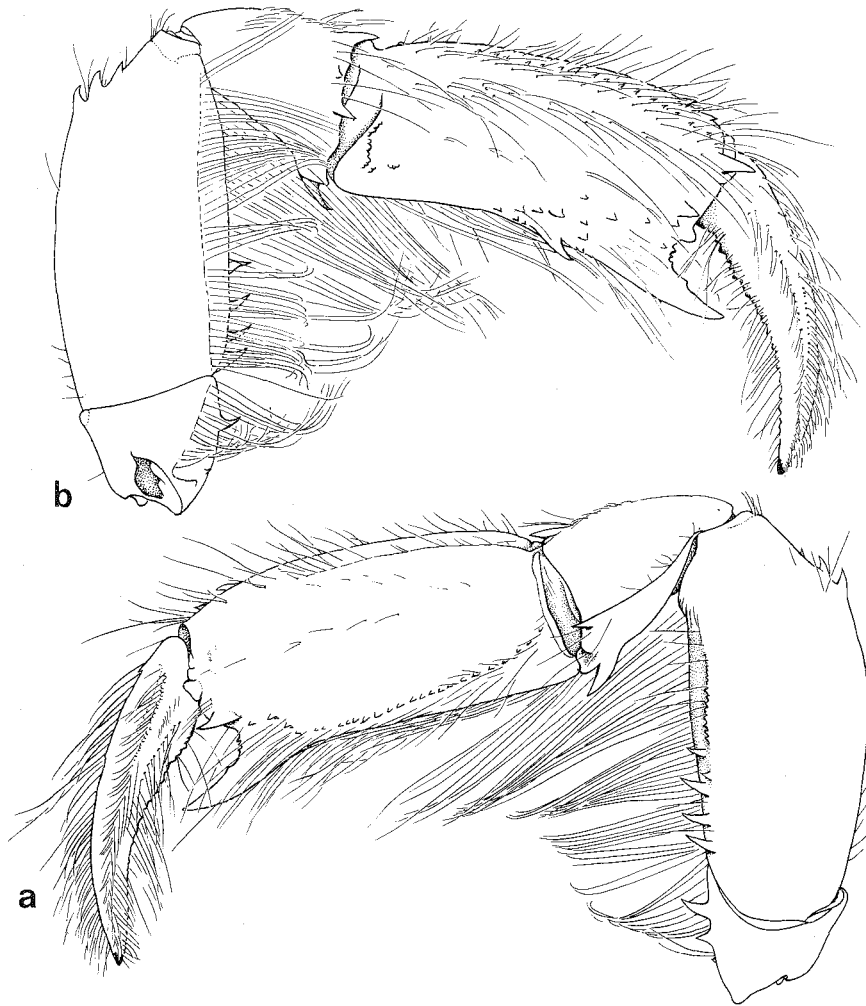


Fig. 2. *Upogebia (Upogebia) aff. subspinosa* (Stimpson, 1860), ovig. ♀, tl 28 mm, RMNH 19890. a. 1st pereopod, outer view; b. Same, inner view.

a row of ten inconspicuous, equidistant denticles, while the ventral margin is unarmed. The upper interior surface is narrow and provided with two rows of hairs, separated by a longitudinal carina; the outer row is thick and broad, while the inner is linear. The inner median carina is obscure. The lower interior surface is submarginally implanted with a row of hairs along the cutting edge. The cutting edge is denticulate, consisting of about 20 small irregular denticles.

Remarks. — This single small ovigerous female is closely related to *U. subspinosa* from South Africa. However, it differs in the following points:

In *U. subspinosa* the rostrum is broadly triangular; the coxae of the first to third pereopods are provided with a sharp spine on the inner surface; the upper exterior plate of the dactylus of the first pereopod shows a denticulate carina on its ventral margin; and the inner median carina of the dactylus is denticulate in the proximal half. In the present specimen the rostrum is elongate triangular, the coxa of the first pereopod is armed with a sharp spine, while those of the second and third pereopods are unarmed; the upper exterior plate of the dactylus is not denticulate on its ventral margin, but smooth; the inner median carina of the dactylus is entirely smooth.

U. subspinosa so far has been recorded only from South Africa; the present specimen originates from Mossamedes, Angola, north of Lüderitz Bay, the known northern limit of distribution of *U. subspinosa*.

Upogebia (Upogebia) cargadensis Borradaile, 1910

Upogebia (Calliadne) cargadensis Borradaile, 1910: 236 (partim), pl. 16 fig. 6.

Upogebia (Upogebia) cargadensis; Sakai, 1982: 12, text-figs. 1b, 2b, pl. C 1, 2.

Museri Island, Dahlak Archipelago, Eritrea, Ethiopia, reef opposite Camping Bay, 2–3 m deep, among rocks, 11 October 1965, Israel South Red Sea Expedition II, 1 ♂, 1 ovigerous ♀, 1 non-ovigerous ♀ (TAU E 65/0269; RMNH 35723).

Remarks. — The species has not been reported from the Red Sea before.

Upogebia (Upogebia) savignyi (Strahl, 1862)

[Without name] Savigny, 1817: pl. 9 fig. 3.

Calliadne Savignii Strahl, 1862: 1064.

Axia sp. Schmeltz, 1881: 15.

Upogebia (Upogebia) savignyi; Sakai, 1982: 14, text-figs. 1c, 2 f-h.

Red Sea, Museum Godeffroy vend., no. 16552, 1 ♀ (RMNH 31736); 1 ♀ (TAU E ?/216; RMNH 35759).

Suez, July 1936, G. Witenberg, 1 ♂, 1 ♀ (TAU E 61/8; RMNH 35769).

El Bilayim lagoon, east coast Gulf of Suez, 23 september 1974, L. Fishelson, 2 ♂ (TAU NS 12434; RMNH 35766).

Gulf of Aqaba near Elat, Israel, 26 August 1965, L. Fishelson, 1 ♀ (RMNH 22302).

Derom Island, N.E. of Dahlak Archipelago, southern Red Sea, 27 December 1957, A. Ben-Tuvia, 2 ♂, 3 ovigerous ♀ (TAU E 57/521; RMNH 35754).

Cundabilu Island, N. of Entedebir, Dahlak Archipelago, Eritrea, Ethiopia, 1–2 m deep, in black sponge, 14 March 1962, Israel South Red Sea Expedition I, 2 ovigerous ♀, 1 juvenile (TAU E 62/1329, E 62/10029; RMNH 35768).

Entedebir Island, Dahlak Archipelago, Landing Bay, 17 March 1962, Israel South Red Sea Expedition I, 11 ♂, 8 ovigerous ♀, 2 non-ovigerous ♀, 1 juvenile (tl 4.5 mm) (TAU E 62/318, E 62/327; RMNH 31745); 2 ovigerous ♀ (TAU E 62/1500). Goliath Bay, 0–1 m deep, on flat, rocky bottom with thin layer of mud, in black sponge, 16 March 1962 (TAU E 62/1343; RMNH 35753); 0.5 m deep, intertidal zone, in black sponge, 30 March 1962, 36 ♂, 26 ovigerous ♀, 15 non-ovigerous ♀ (TAU E 62/1423 + 1472; RMNH 35764).

N.E. coast of Enteraia Island, Dahlak Archipelago, 0–1 m deep, sandy bottom, in black sponge, 24 March 1962, Israel South Red Sea Expedition I, 2 ♂, 1 ovigerous ♀, 2 non-ovigerous ♀ (TAU E 62/1387; RMNH 35762).

Umm, Abak, N. of Nocra Island, Dahlak Archipelago, in sponge *Fasciospongia cavernosa* (O. Schmidt), 5 April 1962, Israel South Red Sea Expedition I, 2 ovigerous ♀ (TAU E 62/4592; RMNH 35755); low tide, 0–2 m deep, in finer black sponge on coral reef, 1 ♂ (TAU E 62/1450; RMNH 35763); low tide, 0–2 m, among and under corals, 5 and 6 April 1962, 1 ♂ (TAU E 62/1447; RMNH 35767); 22 March 1962, 1 ♂ (TAU E 62/4586; RMNH 35756).

Museri Island, Dahlak Archipelago, 11 October 1965, Israel South Red Sea Expedition II, 1 ♀ (TAU 65/0868, E 65/0874; RMNH 35760); Lithothamnion bank off Scopus Ridge, 0–1 m deep, from grey sponge, among *Lithothamnion*, 26 October 1965, 6 ♂, 1 ovigerous ♀, 6 non-ovigerous ♀, 1 fragment (TAU E 65/2032, E 65/2041, E 65/2042; RMNH 35757).

Sheik Said Island (= Isola Verde), Massawa, Eritrea, Ethiopia, from sponges, February 1967, V. Storch no. 10, 1 ♂, 2 ovigerous ♀ (RMNH 31738); among corals, 13 January 1968, leg. I. Golsen, don. H. O. von Hagen, 1 ♂ (RMNH 31737).

Persian Gulf, 25°55'N 50°16'E, depth 7 fathoms (= 13 m), in *Hircinia*-type sponge, 6 September 1956, C. E. Dawson, sta. 4, 6 ♂ (tl 14–19 mm), 9 ♀ (tl 21–23 mm) (RMNH 16181).

Remarks. — The small specimen from Landing Bay, Entedebir Id. (RMNH 31745), measuring 4.5 mm in total length, is identified as the present species because the telson is slightly longer than broad, the posterior margin is rounded, but some other characters differ from those of the adult specimens, e.g., the rostrum is armed with four teeth on each lateral margin; the anterior thoracic region is not provided with tubercles on the dorsal surface; and the eye stalks are broad, longer than the rostrum.

The specimens from Museri Island (TAU E 65/2032) were noted in the field to be of a whitish colour with the distal part of the chelae orange.

The specimen from the Red Sea, obtained from the Museum Godeffroy, has been mentioned by Schmeltz (1881) under the name *Axia* sp.

So far the species had been only reported from the Red Sea; it is now mentioned for the first time from the Persian Gulf.

Upogebia (Upogebia) pseudochelata Tattersall, 1921

Upogebia (Upogebia) pseudochelata Tattersall, 1921: 395, pl. 28 figs. 16–22; Sakai, 1982: 37, text-figs. 6e, 8e–f.

Entedebir Island, Dahlak Archipelago, Eritrea, Ethiopia, Landing Bay, 2–3 m deep, among *Isophyllia* corals, 14 March 1962, Israel South Red Sea Expedition I, 1 ovigerous ♀ (tl 22 mm) (TAU E 62/1337; RMNH 31748).

Museri Island, Dahlak, Archipelago, reef opposite Camping Bay, 2–3 m deep, among rocks, 11 October 1965, Israel South Red Sea Expedition II, 2 ♀ (TAU E 65/0269; RMNH 35725); reef off Scopus Ridge, 0–1.5 m deep, among rocks and corals, 15 October 1965, 1 ♂ (TAU E 65/1076; RMNH 35728); reef off Scopus Ridge, 0–1 m deep, among *Lithothamnion*, 26 October 1965, 2 ovigerous ♀, 2 non-ovigerous ♀ (TAU E 65/2022; RMNH 35727).

Sheik Said Island (= Isola Verde), Massawa, Eritrea, Ethiopia, from among corals, February 1967, V. Storch no. 11, 1 ♀ (tl 16 mm) (RMNH 31758).

Remarks. — The ovigerous female from Landing Bay, Entedebir Id., differs from the other specimens in that the eyestalks extend forward beyond the rostrum and the fixed finger of the first pereopod bears nine denticles in the proximal 3/4 of the cutting edge, being smooth in the distal fourth.

The above specimen from Sheik Said Island (RMNH 31758) collected by V. Storch (not Stock) has been mentioned already by Sakai (1982: 37).

The species so far is only known from the Red Sea.

Upogebia (Upogebia) carinicauda (Stimpson, 1860)

Gebia carinicauda Stimpson, 1860: 23.

Axia sp.? Schmeltz, 1881: 15.

Upogebia (Upogebia) carinicauda; De Man, 1928: 60; Sakai, 1982: 35, text-figs. 6d, 8a, pls. A 5, C 5–6.

Entedebir Island, Dahlak Archipelago, Eritrea, Ethiopia, Landing Bay, 2–3 m deep, in burrow coral, 13 March 1962, Israel South Red Sea Expedition I, 1 ♀ (TAU E 62/1325; RMNH 35737); Goliath Bay, 0–0.5 m deep, muddy bottom, 7 April 1962, 1 ♀ (TAU E 62/1461; RMNH 35736).

Museri Island, Dahlak Archipelago, off Scopus Ridge, 0–1.5 m deep, among rocks and corals, 15 October 1965, Israel South Red Sea Expedition II, 1 ♀ (TAU E 65/1076; RMNH 35735).

Chowpatly, Bombay, India, 12 December 1965, K. N. Sankolli, 1 ovigerous ♀, paratype of *U. kempi* Sankolli (RMNH 29950).

Cuffparade, Bombay, India, K. N. Sankolli, paratypes of *U. kempi* Sankolli, 4 November 1963, 1 ♂ (RMNH 29949); 3 January 1965, 1 ♂ (RMNH 29947); 19 March 1965, 1 ♀ (RMNH 29948).

Ratnagiri, Maharashtra State, south of Bombay, India, opposite marine biological research station, 21 September 1960, K. N. Sankolli, 1 ♂, paratype of *U. kempi* Sankolli (RMNH 16172).

Paleleh, north coast of Celebes, Indonesia, coral reef, 22 August 1929, Snellius Expedition, 1 ♂ (RMNH 31754).

Tidore near Halmahera, northern Moluccas, Indonesia, shore and reef, 24–29 September 1929, Snellius Expedition, 1 ♀ (RMNH 31750).

Off Seba, Sawu Islands, Lesser Sunda Islands, Indonesia, 0–27 m deep, bottom sand, 25 April 1899, Siboga Expedition, Sta. 58, 1 ♂, 1 ♀ (RMNH 1494).

Near Koepang, Timor, Lesser Sunda Islands, Indonesia, reef and shore, 18 November – 9 December 1929, Snellius Expedition, 68 ♂, 48 ovigerous ♀, 71 non-ovigerous ♀ (RMNH 31751–31753).

Kera Island near Koepang, Timor, Indonesia, 15–16 November 1929, Snellius Expedition, 1 ♀ (RMNH 31755).

Kambang Island near Semau, off S. Timor, Indonesia, shore or reef, 26–28 November 1929, Snellius Expedition, 1 ♀ (RMNH 31756).

Samoa, Polynesia, Museum Godeffroy no. 16409, 1 ovigerous ♀ (RMNH 31749).

Colour. — The female from Landing Bay, Entedebir Island, Red Sea (E 62/1325) was observed to be coloured as follows when alive: "Body whitish, orange coloured abdominal muscles shining through the transparent integument."

Remarks. — The above specimen from Samoa has been listed by Schmeltz (1881: 15), that from off Seba, Sawu Islands, by De Man (1928: 60).

Upogebia (Upogebia) baweana Tirmizi & Kazmi, 1979

(fig. 3)

Upogebia baweana Tirmizi & Kazmi, 1979: 108, fig. 2.

Koepang, Timor, Lesser Sunda Islands, Indonesia, reef, 9 December 1929, Snellius Expedition, 1 ♂ (tl 14 mm), 6 ovigerous ♀ (tl 15–22 mm), 5 non-ovigerous ♀ (tl 18–26 mm) (RMNH 31742).

Kambang Island near Semau, off S. Timor, Lesser Sunda Islands, Indonesia, shore and reef, 26–28 November 1929, Snellius Expedition, 1 ovigerous ♀ (tl 25 mm) (RMNH 31743).

Naval Airbase west of Sorido, south coast of Biak Island, Irian Jaya (= Netherlands New Guinea), Indonesia, L. B. Holthuis, nos. 646 and 683, 0–0.5 m deep, 6 December 1954, 3 ♂, 6 ovigerous ♀ (RMNH 31741); 0.5–1.5 m deep, among coral, 24 January 1955, 1 ovigerous ♀ (tl 19 mm) (RMNH 31740).

Description. — The rostrum (fig. 3a) is small, bearing four sharp, upstanding teeth on the distal margin. No linea thalassinica is developed in the posterior thoracic region.

The telson (fig. 3b) shows a U-shaped carina on the dorsal surface, the transverse part of this carina is noticeably elevated. The posterior margin of the telson is almost straight, and the lateral margins are slightly convergent in the posterior two-thirds.

The antennular peduncle reaches to the level of the middle part of the terminal segment of the antennal peduncle. The antennular flagella are short, about as long as the second and third segments of the peduncle combined.

In the first pereopods the carpus is provided with thick, plumose hairs dorsally; this pubescent area extends from the base of the inner surface to the distal part of the outer surface. A sharp distal spine is present on the dorsal margin of the carpus. In males the palm is about 1.7 times as long as broad at the base, in females (fig. 3c) about twice as long as broad. The outer surface is marked with a U-shaped row of hairs, beginning in the upper basal part, ex-

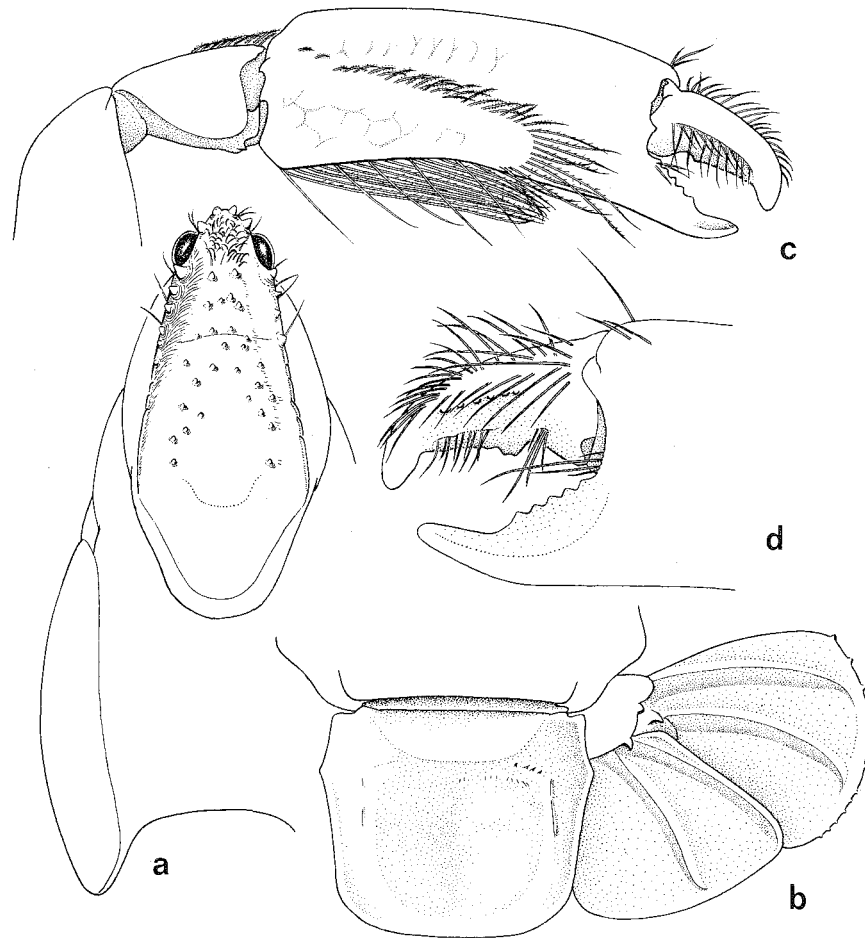


Fig. 3. *Upogebia (Upogebia) baweana* Tirmizi & Kazmi, 1979, ovig. ♀, tl 17.5 mm, RMNH 31741. a. Carapace, dorsal view; b. Tail-fan; c. Cheliped, outer view; d. Chela of 1st pereopod, inner view.

tending distally to the middle of the chela, from where it recurves proximally to an oblique carina developed in the proximal half of the outer ventral surface of the palm. The ventrodistal part of the palm is twisted inward near the fixed finger. The cutting edge of the fixed finger (fig. 3d) is directed downward in the proximal two-thirds, bearing five or six denticles; in the distal third it is again curved upward and is unarmed there. The dactylus is thick in the proximal part; the cutting edge is largely concave in the middle, bearing a basal tubercle; the tip is strongly curved downward. The inner median carina

is provided with a row of about seven denticles.

Remarks. — In the original description of the species (Tirmizi & Kazmi, 1979: fig. 2G) the basal segment of the antennule is indicated with a spinule, and on the outer surface of the palm of the first pereopod no U-shaped line of hairs is shown. However, in the present series of specimens the basal segment of the antennule is unarmed, and the palm of the large cheliped bears a U-shaped row of setae on the outer surface.

Upogebia (Upogebia) barbata (Strahl, 1862)

Gebia barbata Strahl, 1862: 1062 (partim), text-figs. 7–9.
Upogebia (Upogebia) barbata; Sakai, 1982: 34, text-figs. 6c, 8b–c.

Pulu Kuyper, Bay of Djakarta, Java, Indonesia, reef, 18 July 1941, Laboratorium voor Onderzoek der Zee, 4 ♂, 4 non-ovigerous ♀ (RMNH 6686).

Pulu Kelor (= Kerkhof Island), Bay of Djakarta, Java, Indonesia, reef, 22 July 1941, Laboratorium voor Onderzoek der Zee, 1 ♂, 2 non-ovigerous ♀ (RMNH 6684).

Pulu Sakit (= Purmerend Island), Bay of Djakarta, Java, Indonesia, 22 July 1941, Laboratorium voor Onderzoek der Zee, 1 ovigerous ♀, 1 non-ovigerous ♀ (RMNH 6685).

Upogebia (Upogebia) darwini (Miers, 1884)

Axia sp.? Schmeltz, 1881: 15.
Gebiopsis darwini Miers, 1884: 281 (partim), pl. 32 fig. A.
Upogebia (Upogebia) darwini; Sakai, 1982: 17, text-figs. 3a, 4a–c, pls. A 1–3, C 3.

Red Sea, Museum Godeffroy no. 16552, 1 ovigerous ♀ (RMNH 31739).

Entedebir Island, Dahlak Archipelago, Eritrea, Ethiopia, Goliath Bay, 30 March 1962, Israel South Red Sea Expedition I, 1 ♂, 1 ♀ (TAU E 62/3986; RMNH 35748).

Umm Aabak Island, N. of Nocra Island, Dahlak Archipelago, 0–2 m deep, low tide, among and under corals, 5 and 6 April 1962, Israel South Red Sea Expedition I, 1 ovigerous ♀ (TAU E 62/1477; RMNH 31759).

Museri Island, Dahlak Archipelago, 9 October 1965, Israel South Red Sea Expedition II, 3 ♂, 1 ovigerous ♀ (TAU E 65/0010, 0028 and 0031; RMNH 35707); off Scopus Ridge, 0.5–1.5 m deep, among rocks, algae and sponges, 13 October 1965, 1 ♂, 3 ovigerous ♀, 1 non-ovigerous ♀ (TAU E 65/1007 and 1011; RMNH 31747); Mangrove Bay, 29 October 1965, 1 ♂, 1 ovigerous ♀ (TAU E 65/1642; RMNH 35750); mouth of Mangrove Bay, 0.5 m deep, in sponge, 16 October 1965, 1 ♀ (TAU E 65/1212; RMNH 35751).

Southern Red Sea, trawler “Negus Solomon”, Israel South Red Sea Expedition II, Sta. 4, 14°58'N 40°19'E, trawl and dredge, 5–6.5 fathoms, soft mud, 17 October 1965, 1 ovigerous ♀ (TAU E 65/1467; RMNH 35752); Sta. 10, 15°37' N 40°37'–40°43'E, 7 fathoms, bottom rather hard and wavy, 23 October 1965, 5 ♂, 4 ovigerous ♀, 1 non-ovigerous ♀ (TAU E 65/1830; RMNH 35749).

Remarks. — The ovigerous female from the Museum Godeffroy collection differs from the others as follows. The sixth abdominal somite is not denticu-

late but thickly carinate on the posterior margin. The carpus of the first pereopod is furnished with a blunt dorsal tooth on the inner distal margin, and lacks a ventrodorsal tooth. The dorsal margin of the palm on the right first pereopod is armed with a sharp distal tooth, and the inner distal margin with a sharp tooth just below the dorsal angle, while the dorsal margin of the left leg shows no distal tooth and has the inner distal margin with two teeth: the upper of these is sharp, the lower small.

The specimen labelled "Red Sea" from the collection of the Museum Godeffroy, was mentioned by Schmeltz (1881: 5) under the name "*Axia* sp.?"

Of the male from Museri Island (E 65/0010) a colour note was made in the field, as follows: "White, with a dark central spot on either lateral surface of the carapace. Palm of large cheliped very pale orange, with the fingers bright reddish orange".

Upogebia (Upogebia) ancylodactyla De Man, 1905

Upogebia (Gebiopsis) ancylodactyla De Man, 1905: 599.

Upogebia (Upogebia) ancylodactyla; Sakai, 1982: 27, text-figs. 3e, 5c.

Northeastern Nocra Island (near Prison), Dahlak Archipelago, Eritrea, Ethiopia, 2–3 m deep, in tubes of calcareous worm in coral, 18 March 1962, Israel South Red Sea Expedition I, 2 ♂ (tl 9 and 15 mm) (TAU E 62/1352; RMNH 31746).

Kamaran Island, southern Red Sea, 1937, J. Ziesel, 6 ♂ (tl 31–39 mm), 5 ovigerous ♀ (tl 40–41 mm), 1 non-ovigerous ♀ (tl 28 mm) (RMNH 31744).

Remarks. — The adult specimens from Kamaran Island, preserved for a long time in alcohol, are brown, while the much smaller specimens from Nocra Island are white. No colour description of the live animals has been made.

The adult specimens from Kamaran Island are typical in that the merus of the first pereopod is provided with a row of six to ten denticles on the inner ventral margin, and the telson is broader than long. However, the small male specimen from Nocra Island, measuring 9 mm in total length, shows the merus with a row of 8 to 14 denticles on the inner ventral margin, and it has the telson longer than broad.

Upogebia (Upogebia) holthuisi Sakai, 1982

Upogebia amboinensis; Holthuis, 1953: 51 (not *U. amboinensis* De Man, 1888).

Upogebia (Upogebia) holthuisi Sakai, 1982: 33, text-figs. 6d, 7d–f, 8d.

Onotoa, Gilbert Islands, about 13.400 ft. S., 75°W from Aiaki Maneaba in the deep central

part of the lagoon, bottom of low, scattered, dead and living coral patches on intervening lime-mud and lime-sand, about 30–40% sed. 60–70% coral. 25 August 1951, P. E. Cloud, loc. GOC-55, 1 ♂, 1 ovigerous ♀, 1 non-ovigerous ♀ (all paratypes) (RMNH 9242).

Remarks. — The specimens formed part of the material identified by Holt-huis (1953) as *Upogebia amboinensis* De Man. Through the reference to Holt-huis's publication in the original description of *U. holthuisi*, the present speci-mens become paratypes of Sakai's species.

Upogebia (Upogebia) pugnax De Man, 1905

Upogebia (Upogebia) pugnax De Man, 1905: 600; Sakai, 1982: 52, text-fig. 11b, pl. E 4, 6.

Off Miangas, Indonesia, 5°25'N 126°36'E, surface plankton, 16 June 1930, Snellius Expedi-tion, Sta. 295a, 1 juvenile (RMNH 31757).

Upogebia (Upogebia) issaeffi (Balss, 1913)

Gebia (Upogebia) issaeffi Balss, 1913: 239.

Upogebia (Upogebia) issaeffi; Sakai, 1982: 64, text-figs. 14a, 15e–f, pls. B 4, F 5, 7.

Sugashima Island, Mie Prefecture, Honshu, 15 April 1957, S. M. Shiino, 1 ♂, 2 ♀ (RMNH 11999).

LITERATURE

- Balss, H., 1913. Diagnosen neuer ostasiatischer Macruren. — Zool. Anz. 42: 234–239.
- Borradaile, L. A., 1903. Marine Crustaceans. XIII. The Hippidea, Thalassinidea and Scyllaridea. In: Gardiner, S., The Fauna and Geography of the Maldive and Laccadive Archipelagoes 2: 750–754.
- Borradaile, L. A., 1910. Penaeidea, Stenopidea and Reptantia from the western Indian Ocean. — Trans. Linn. Soc. London (2) 13: 257–264, pl. 16.
- Hartmann-Schröder, G. & G. Hartmann, 1974. Beschreibung der Lebensräume, Ökologie und Zoogeographie. Zur Kenntnis des Eulitorals der afrikanischen Westküste zwischen Angola und Kap der Guten Hoffnung und der afrikanischen Ostküste von Südafrika und Moçambique unter besonderer Berücksichtigung der Polychaeten und Ostracoden. Teil I. — Mitt. Hamburgischen Zool. Mus. Inst. 69 (Suppl.): 5–94, figs. 1–7.
- Holthuis, L. B., 1953. Enumeration of the Decapod and Stomatopod Crustacea from Pacific coral islands. — Atoll Research Bull. 24: 1–66, maps 1–2.
- Man, J. G. de, 1905. Diagnoses of new species of Macrurous Decapod Crustacea from the "Siboga-Expedition". I. — Tijdschr. Ned. Dierk. Ver. (2) 9: 587–614.
- Man, J. G. de, 1928. The Decapoda of the Siboga-Expedition. Part 7. The Thalassinidae and Callianassidae collected by the Siboga Expedition with some remarks on the Laomedidae. — Siboga Exp. 39a (6): 1–187, pls. 1–10.

- Miers, E. J., 1884. Crustacea. In: Report on the zoological collections in the Indopacific Ocean during the voyage of H.M.S. "Alert" 1881-82, London: 178-322, pls. 18-32.
- Sakai, K., 1982. Revision of Upogebiidae in the Indo-West Pacific Region. — Res. Crust. Spec. 1: 1-106, 20 text-figs., 7 pls.
- Sankolli, K. N., 1972. The Thalassinidea of Maharashtra. — J. Bombay Nat. Hist. Soc. 68: 671-682, text-figs. 9-10.
- Savigny, J. C., de, 1817, Crustacés. Description de l'Égypte, ou recueil des observations et des recherches qui ont été faites en Égypte pendant l'expédition de l'armée française. — Atlas Crust. pls. 1-13.
- Schmeltz, J. D. E., 1881. Museum Godeffroy, Hamburg, Catalog VIII. — Zool. Anz. 4 (91) (Beilage): 1-18.
- Stimpson, W., 1860. Prodrômus descriptionis animalium evertibratorum, quae in expeditione ad Oceanum Pacificum septentrionalem, a Republica Federata missa, C. Ringgold et J. Rodgers Ducibus, observavit et descripsit. 8. Crustacea Macrura. — Proc. Acad. nat. sci. Philad. 1860: 22-47.
- Strahl, C., 1862. Über einige neue von Hrn. F. Jagor eingesandte Thalassinen und die systematische Stellung dieser Familie. — Mber. Akad. Wiss. Berlin 1861: 1055-1072, text-figs. 7-8.
- Tattersall, W. M., 1921. Report on the Stomatopoda and Macrurous Decapoda collected by Mr. Cyril Crossland in the Sudanese Red Sea. — J. Linn. Soc. London., Zool. 34: 345-398, pls. 27-28.
- Tirmizi, N. M. & Q. B. Kazmi, 1979. Results of the study of the type material of some species of Upogebia (Decapoda, Thalassinidea). — Crustaceana Suppl. 5: 105-114, text-figs. 1-3.