

POMATOGEBIA, A NEW GENUS OF
THALASSINIDEAN SHRIMPS FROM
WESTERN HEMISPHERE TROPICS
(CRUSTACEA: UPOGEBIIDAE)

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Abstract.—A new genus, *Pomatogebia*, is proposed for 3 species of thalassinidean shrimps from the tropical western Atlantic and eastern Pacific that are specialized for burrowing in massive stony corals. The caudal part of the shrimp's abdomen is shaped as an operculum that can be inserted from within the burrow system into its entrance, the exoskeletal surface mimicking that of the coral. *Pomatogebia operculata* (Schmitt, 1924), placed in *Upogebia* until now, becomes the type species of the new genus.

A tropical western Atlantic thalassinidean shrimp, identified until now as *Upogebia operculata* Schmitt, 1924, is specialized for commensal existence in several species of massive stony corals (Kleemann 1984, Scott et al. 1988). The shrimps at an early stage of development commence excavation of burrows in host corals and establish themselves eventually as male-female pairs that grow into maturity while becoming confined in the burrows. The caudal part of the shrimp's abdomen is shaped as an operculum or plug, with a surface mimicking that of the host coral. In this specialization and in morphology of the carapace and appendages, this shrimp and two other species in the tropical eastern Pacific differ from related shrimps in the region. Indeed, there are no other upogebiids in the world known to be specialized in this manner, and we regard this structural novelty as worthy of generic rank.

Pomatogebia, new genus
Fig. 1a-c

Diagnosis.—Carapace anterior to cervical groove more or less flattened dorsally and armed on its gastric $\frac{2}{3}$ with field of spines grading from strong anteriorly to weak or

obsolescent posteriorly; spines irregularly distributed but tending to arrangement in rows that diverge posteriorly, many with tufts of setae emerging anterior to base. Gastric region projected into broadly subtriangular rostrum barely exceeding short eye-stalks and bearing pair of subterminal spines, similar spine at each posterolateral corner where rostrum merges with gastric field. Lateral margin of spine field flanked on each side by poorly developed furrow, and that in turn by imperfectly developed lateral ridge bearing crest of about 8-11 spines grading from strong anteriorly to obsolescence posteriorly. Incomplete orbital margin concave in dorsal portion; postorbital margin spineless.

Abdomen broadly and smoothly arched dorsally on segments 1-4, segment 4 with dense fringe of setae on posterior margin and transverse band across anterior half; pleura of segment 1 narrowly rounded posterolaterally, those of 2-5 broadly rounded, margins unspined; dense fine setae in tracts on pleura of segments 3-4, tuft on posterolateral corner of 2 and anterolateral corner of 5; segment 6 irregularly rectangular, broader than long, its lateral margin scalloped anteriorly and adapted posteriorly for articulation with base of uropod; dorsal sur-

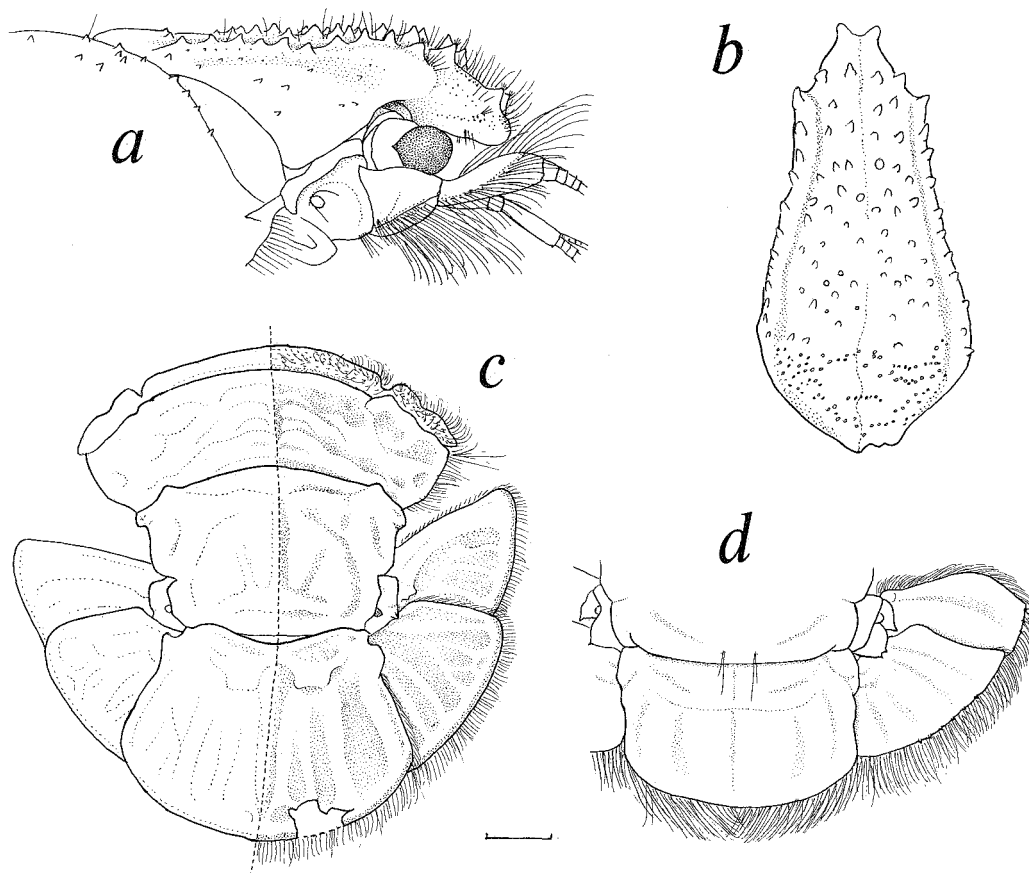


Fig. 1. *Pomatogebia operculata* (Schmitt): *a*, Cephalic region, lateral; *b*, Anterior carapace, dorsal; *c*, Caudal opercular complex, abdominal segments 5-6, telson and uropods; Paratype ♀, USNM 57952, Barbados, Lesser Antilles, West Indies. *Upogebia affinis* (Say): *d*, Telson, left uropods and posterior margin of abdominal segment 6; ♂, USNM 31289, near Bluffton, South Carolina, USA. Scale = 1 mm.

face of segments 5 and 6 ornamented with symmetrical pattern of meandering rugae.

Tail fan with exposed aspect generally concave. Telson with sides diverging posteriorly and posterior margin convex, stiffened with radiating longitudinal ribs; exopod and endopod of uropods bearing similar radiating ribs. Entire tail fan with dense fringe of setae on distal margin, forming together with segments 5 and 6 an almost circular operculum when fully extended.

Maxilliped 1 with an epipod, maxilliped 3 lacking even rudimentary epipod.

Chelipeds equal, rather slender, more slender in females than in males; articles

spineless; fixed finger nearly as long as dactyl, toothed proximally, rather stout and gently curved; dactyl curved, setose, stouter than fixed finger, abruptly tapered to tip and hooking beyond tip of opposed finger. Pereopods 2-5 spineless.

Type species. — *Upogebia operculata* Schmitt, 1924.

Etymology. — From the Greek “pomatos,” operculum, for the operculate caudal complex, and the stem “gebia,” from *Upogebia*, underground digger. The gender is feminine.

Remarks. — The operculate abdomen best distinguishes *Pomatogebia operculata* and

its two sister species in the eastern Pacific, *P. rugosa* (Lockington, 1878) and *P. cocosia* (Williams, 1986), from members of the genus *Upogebia* Leach, 1814, distributed worldwide in shallow temperate and tropical seas and currently containing 78 recognized species. *Pomatogebia* has a multi-ribbed telson with convex posterior margin and divergent lateral margins, and the rami of the uropods are also ribbed. *Upogebia* does not have an operculate abdomen; the telson (Fig. 1*d*) is basically rectangular, with straight or slightly concave posterior margin and lateral margins straight, somewhat sinuous, or slightly convergent distally, never divergent, and although reinforced by a variously developed transverse proximal ridge confluent with low submarginal lateral ridges, never displays multiple longitudinal ribbing (see Williams 1986).

In addition to the two above mentioned genera, three other genera are currently recognized in the family Upogebiidae: *Tuerkayogebia* Sakai, 1982 (Japan, 1 species), *Wolffogebia* Sakai, 1982 (Malay Peninsula-northwestern Australia, 3 species), and *Gebiacantha* Ngoc-Ho, 1989 (Réunion, Indonesia, and New Caledonia, 11 species).

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