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A NEW SPECIES OF THE GENUS *UPOGEBIA* LEACH, 1802 (CRUSTACEA, DECAPODA, UPOGEBIIDAE) FROM THE NORTH COAST OF CUBA

Una nueva especie del género *Upogebia* Leach, 1802 (Crustacea, Decapoda, Upogebiidae) de la costa norte de Cuba

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ABSTRACT

The marine and estuarine invertebrates of Cojímar Beach in East Havana, Northwest Coast of Cuba, have been monitored for more than 40 years, crustaceans being the focus of these activities. In a recent collection of crustacean samples, two upogebiid mud shrimp moults were obtained, preserved, and studied. Only *Pomatogebia operculata* (Schmitt, 1924) and *Upogebia affinis* (Say, 1818) were previously recorded in Cuban waters. The description of a new *Upogebia* is presented here. A table to differentiate the new species from *U. jamaicensis* Thistle, 1973 and *U. toralae* Williams & Hernández Aguilera (1998), the two closest species, is also provided.

Keywords: Caribbean Sea, Gebiidea, mud shrimp, Pleocyemata, Western Atlantic.

RESUMEN

Los invertebrados marinos y estuarinos de la Playa Cojímar en la costa este de La Habana, noroeste de Cuba, son monitoreados desde hace más de 40 años, siendo los crustáceos el foco de estas actividades. En una recolección reciente de muestras de crustáceos, se obtuvieron, preservaron y estudiaron dos mudas de camarones de barro o upogébidos. Sólo *Pomatogebia operculata* (Schmitt, 1924) y *Upogebia affinis* (Say, 1818) fueron registradas anteriormente en aguas cubanas. Aquí se presenta la descripción de una nueva *Upogebia*. También se proporciona una tabla para diferenciar la nueva especie de *U. jamaicensis* Thistle, 1973 y *U. toralae* Williams & Hernández Aguilera (1998), las dos especies más cercanas.

Palabras clave: mar Caribe, Gebiidea, camarón de barro, Pleocyemata, Atlántico occidental.

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INTRODUCTION

The marine and estuarine invertebrates of Cojímar Beach on the north-western coast of Cuba have been monitored from more than 40 years, with Crustaceans being the focus of these activities.

After the description of a new isopod species of *Caecijaera* (Ortiz & Lalana, 1993) and the publication of a checklist of marine and estuarine invertebrates (Ortiz, 2001), three other papers describing new peracarid crustaceans from the same locality have been published (Ortiz et al., 2002; 2012; Ortiz, 2022). Recently, two moults of mud shrimps were obtained in Cojimar, and after being studied, they were found to be a new species, which is described here.

On the other hand, less extensive systematic work has been done on Upogebiids in the Western Hemisphere (Sakai, 2005; Williams, 1986; 1993). In the Western Hemisphere, 26 species were recorded, of which seven had Western Atlantic distributions (Williams, 1986). After that, 22 upogebiid species in the same region were listed (Sakai, 2005). Nevertheless, in the Gulf of Mexico and Caribbean Sea only three genera and 10 species are mentioned (Felder et al., 2009), excluding the valid *Upogebia toralae* described from Veracruz (Williams & Hernández-Aguilera, 1998). Previously, the only upogebiids recorded in Cuba were *Pomatogebia operculata* (Schmitt, 1924) and *Upogebia affinis* (Say, 1818).

OBJECTIVES

- To describe a new species of the genus *Upogebia* from the north coast of Cuba.

MATERIALS AND METHODS

The material was collected with a handbag directly from the bottom when the animal ejected his moult from the opening of its gallery while the senior author was snorkelling in Cojimar Beach, East Havana, Cuba. It was preserved in 70% ethyl alcohol and studied at the Laboratory of Crustaceans, Faculty of Hight Studies Iztacala, UNAM, México.

The holotype was deposited at the Colección Nacional de Crustáceos, Biology Institute, Universidad Nacional Autónoma de México; No. CNCR 37056.

Species validation was done according to Sakai (2005), Williams (1986, 1993) and WoRMS (2023).

Observations were made under a Stereo microscope Motic 102M.

The Measurements were made in millimeters (mm) using a digital camera and software (Omax 14MP USB 3). Using Corel Draw V. 16, illustrations were made.

RESULTS

TAXONOMY

Order Decapoda Latreille, 1802
Suborder Pleocyemata Burkenroad, 1963
Infraorder Gebiidea de Saint Laurent, 1979
Family Upogebiidae Borradaile, 1903
Genus *Upogebia* Leach, 1814

Upogebia cojimarensis sp. nov.
Figures 1–2
LSID: https://zoobank.org/References/20429A38-8542-42E8-B0B5-7BE4813EEB4A

Holotype: male; complete adult moult; gallery at sandy mud bottom; 0.6 m; in front of the deck date in the house Real 127, Cojímar Beach, East Havana, Cuba; 4.2 cm; April 5, 2023.

Diagnosis. Projections on both sides of head (lateral processes) with the tip directed towards the outside; in *U. jamaicensis* and *U. toralae*, the spine is pointed and directed forward; infrarostral spine absent; anterolateral margin of the shell with 5 equal postocular spines, in *U. jamaicensis* it has 4–6, the second largest, in *U. toralae* it has 3–4 spines; shoulder lateral to cervical sulcus with 9 spines below intersection of thalassinian line, 9th largest spine, *U. toralae* has 5 spines decreasing in length; aligned groups of 6 to 8 setae that form two longitudinal lines on each side of head and anterior gastric region, at the end of which an additional line is observed in dorsal view; these groups tend to disappear backward; cheliped merus with a subdistal spine on posterior ventral margin, *U. jamaicensis* and *U. toralae* with 5–6 spines; strong proximal spine on merus of second leg, dactyl of 0.7–0.8 the length of carpus in *U. jamaicensis* and *U. toralae*, merus with same length as carpus in *U. cojimarensis* sp. nov., dorsally smooth abdominal sternites; rectangular telson, posterior margin rounded; non-operculiform tail shape.

Diagnosis. Proyecciones a ambos lados del rostro (procesos laterales) con la punta apuntando hacia afuera; en *U. jamaicensis* y *U. toralae*, la espina aguda está dirigida hacia adelante; espina infrarostral ausente; margen anterolateral del caparazón con cinco espinas postoculares iguales, en *U. jamaicensis* 4–6 segundas las más grandes, en *U. toralae* sólo 3–4 espinas; hombro lateral al surco cervical con nueve espinas debajo de la intersección con la línea talasiniana, la novena espina más grande, en *U. toralae* 5 espinas que disminuyen en longitud; grupos alineados de 6 a 8 setas que forman dos líneas longitudinales a cada lado del restro y la región gástrica anterior, al final de las cuales se observa una línea adicional; estos grupos tienden a desaparecer hacia atrás; merus de quelípedo con espina subdistal posterior, margen ventral 5–6 espinas, en *U. jamaicensis* y *U. toralae*; espina proximal fuerte en el merus de la segunda pata, dáctilo de 0.7–0.8 de longitud del carpo en *U. jamaicensis* y *U. toralae*, la misma longitud que el carpo en *U. cojimarensis*; esternitos abdominales dorsalmente lisos; lateralmente desarmado; telson rectangular; margen posterior redondeado; abanico de cola no operculiforme.

Description. Cephalothorax 0.6 as long as abdomen; ornaments decreasing backward and disappearing; first abdominal segment as long as five; sixth abdominal rectangular; the narrowest; as long as telson (Fig. 1A). Antennule 1/3 the length of antenna; basal article subtriangular; article 2 surpassing article one antenna; article 3 surpassing article 2 antenna 2 (Fig. 1B). Rostrum slightly reaching eye corneas; engrossed distally; triangular in dorsal view; exceeding eyestalks; anterolateral margin of carapace bearing five postocular spines; projections to either side of rostrum (lateral processes) outward pointing tip; shoulder lateral to cervical groove bearing nine spines below intersection with thalassinidian line; pilose-armed field on anterior gastric region of carapace ornamented with rather sparse aligned clusters of 6–10 simple setae forming two longitudinal lines on each side of rostrum and anterior gastric region, at end of which an additional line is presented; these clusters tend to disappear backwards; posterior region of carapace glabrous; infrarostral spine absent (Fig. 1C).

Cheliped merus posterior margin very hairy; merus same length as propodus and dactylus combined; bearing posterior subdistal small spine; propodus posterior margin strongly serrate; fixed dactylus one-third length of the mobile dactylus (Fig. 2A). Second leg chelate; merus and propodus posterior margin very hairy; strong proximal spine on merus; merus 0.8 as length as carpus, propodus and dactylus combined; dactyli equals in length; dactylus same carpus length (Fig. 2B). Third leg merus same carpus length; strong proximal spine absent; propodus palm right angle; tuft long setae distally; dactylus 1/3 propodus length (Fig. 2C). Fifth leg merus half carpus length; merus same length as propodus; propodus posterodistal sharp spine; dactylus long, slender, hairy (Fig. 2D). Abdominal pleonites dorsally smooth; sternites unarmed; pleopods uniramous (Fig. 2E). Uropod with spine on protopod above base of mesial ramus; mesial rib of lateral ramus absent; telson wider than long; posterior margin convex; hairy (Fig. 2F).

Remarks. Previously, there were 23 Western Atlantic *Upogebia* species (Sakai, 2005; Williams, 1993; Williams & Fernández Aguilera, 1998; WoRMS, 2023). However, only *Upogebia affinis* was recorded from Cuban waters (Felder et al., 2009; Lalana et al., 2000).

The most appropriate key for the identification of *Upogebia* species recorded for the Northwest Atlantic is that of Sakai (2005). If used for the case of *U. cojimarensis* sp. nov., as it does not have infrarostral spines and the anterolateral margin of the carapace has more than four postorbital spines, the user would arrive directly at *U. jamaicensis*. Thus, it is necessary to take into count that *U. toralae* Williams and Hernández Aguilera (1998) described from Veracruz, Mexico, was not considered by Sakai (2005), and therefore a comparative table between the three species is needed (Table I).

Etymology. The specific name "cojimarensis" indicates type locality, Cojímar Beach, north coast of Cuba.

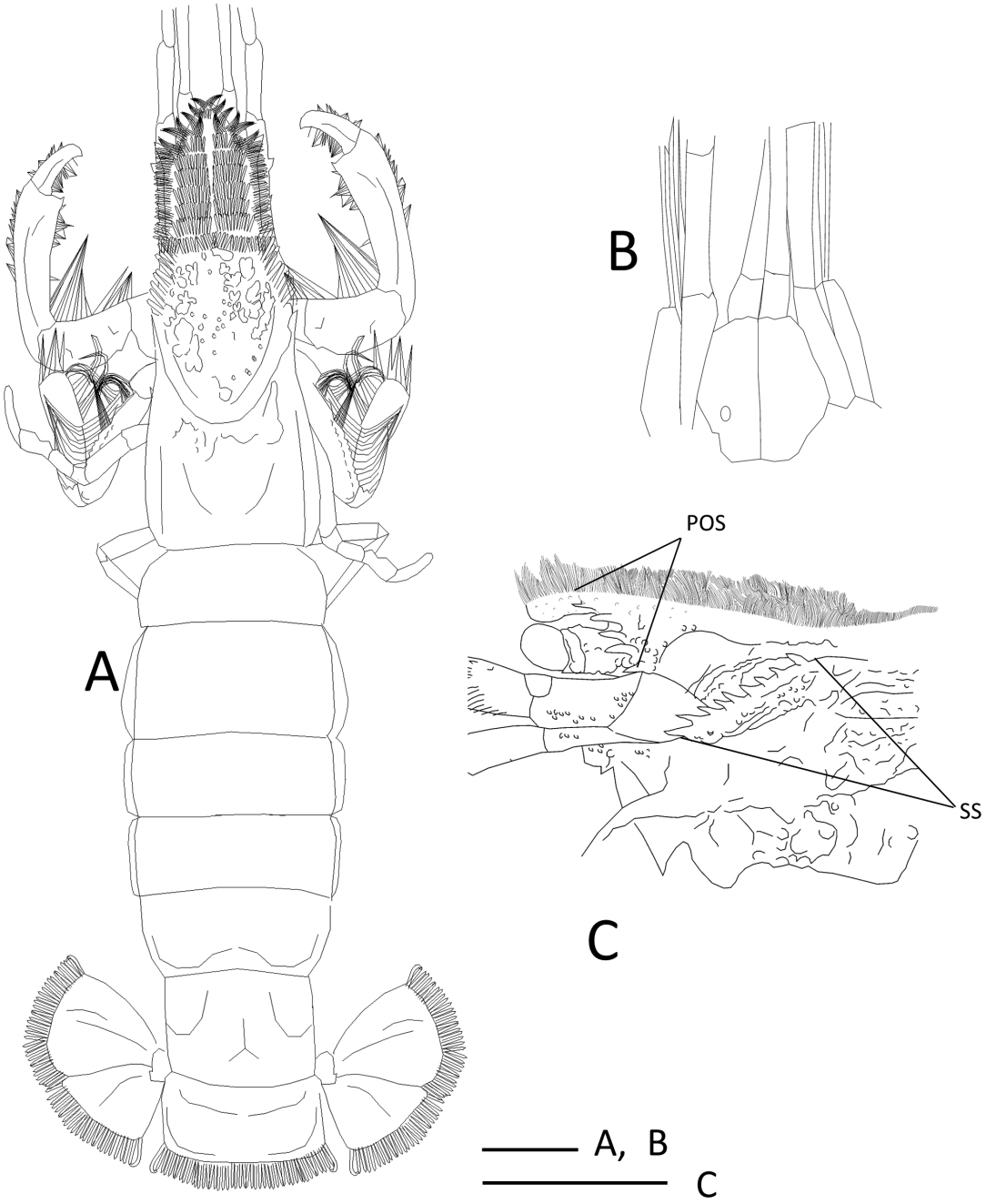

Figure 1. *Upogebia cojimarensis* sp. nov (holotype). **A)** dorsal view of body; **B)** ventral view of antennal peduncles; **C)** lateral view of head. POS, post orbital spines; SS shoulder spines. Scale: 1 mm.

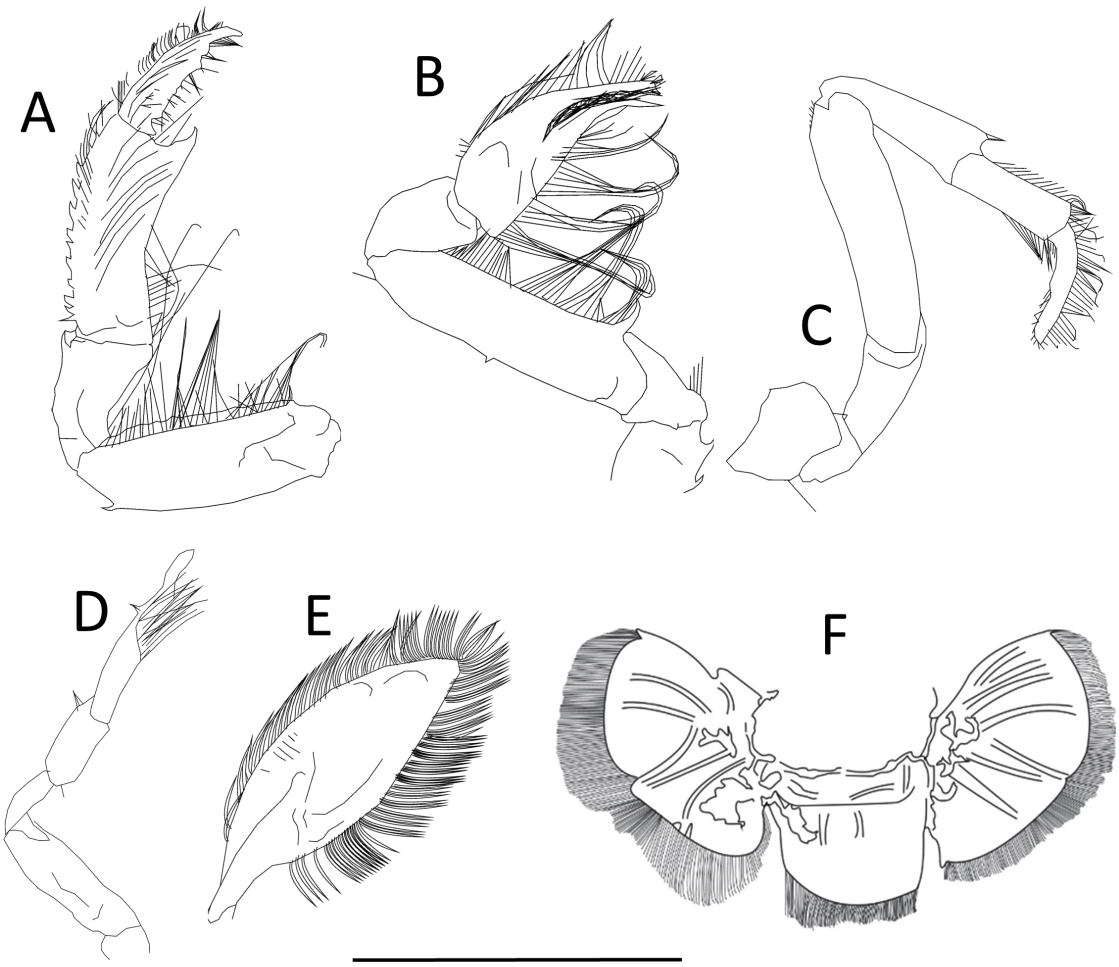

Figure 2. Upogebia cojimarensis sp. nov. (holotype). **A)** cheliped; **B)** second leg; **C)** third leg; **D)** fifth leg; **E)** right pleopod 3; **F)** caudal fan. Scale: 5 mm.

Table I. Comparative table among *Upogebia* species.

Character	*U. jamaicensis*	*U. toralae*	*U. cojimarensis* sp. nov
Antenna 1	Peduncle reaching to about proximal ¼ of terminal article of antenna 2 peduncle, its proximal 2 articles together slightly longer than terminal article	Peduncle reaching to about 2/3 length of terminal article of antennal peduncle; combined length of proximal 2 articles subequals to length of terminal article	Combined length of proximal 2 articles equal to length of terminal article
Antenna 2	Peduncle with only terminal article extending beyond tip of rostrum	Peduncle with distal article and distal half of penultimate article extending beyond tip of rostrum	Peduncle distal article and 1/5 penultimate article extending beyond tip of rostrum

Character	*U. jamaicensis*	*U. toralae*	*U. cojimarensis* sp. nov
Rostrum	Triangular; slightly downturned; long, reaching level of articulation between penultimate and terminal articles of antennal peduncle, not engrossed distally	Triangular; slightly downturned tip exceeding eyes stalks; not engrossed distally	Triangular; short, slightly reaching eyes cornea; engrossed distally
Tip of projections to either side of rostrum	Acute spine; directed forward	Acute spine; directed forward	Acute spine directed outward
Post orbital spine (s)	4–6 on each side; second the largest	3–4 uneven	5, all equals
Spines on shoulder lateral to cervical groove	6–11, almost equals	5, decreasing in length	9; 8 equals; oblique directed; 9 the largest; forward directed
Cheliped	Merus single sub distal dorsal spine; with row of 5-6 strong acuminate spines on ventral margin; propodus dorsal row of 14–18 acuminate spines	Merus subdistal dorsal spine; and row of 5 spines on ventral margin. propodus three dorsoproximal spines	Merus one subdistal dorsal spine; ventral margin naked; propodus 13–15 dorsal spines; ventral margin naked
Leg 2	Merus small subdistal dorsal spine and strong proximal and smaller distal spine posteromesially; dactyl 0.8 carpus length	Merus subdistal dorsal spine; strong proximal ventral spine; dactylus 0.7 carpus length	Merus tiny subdistal dorsal spine; strong sub proximal spine; dactylus same length as carpus
Leg 3	Merus two dorsal spines distally; 6 ventral margin spines	Merus one dorsal spines distally; three midventral spines	Merus dorsal and ventral margins without spines
Leg 5	Cleaning brush well developed on dactylus	Cleaning brush well developed on propodus	Cleaning brush well developed on dactylus
telson	Slightly longer than broad; small point mid posterior margin	Sub rectangular; lateral margin oblique; posterior margin shallowly arcuate	Rectangular longer than broad; posterior margin convex
Distribution	Jamaica, Panama, Colombia	Veracruz, Gulf of Mexico	Cojímar Beach, North Coast, East Havana, Cuba

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