

SHALLOW-WATER CRABS (DECAPODA, BRACHYURA)
COLLECTED IN THE SOUTHERN CARIBBEAN
NEAR CARTAGENA, COLOMBIA

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ABSTRACT

During a 1-year period (1976-77) a total of 96 brachyuran crab species were collected from Bahía de Cartagena and adjacent areas, on the north coast of Colombia, 54 of which are reported for the first time from the Caribbean coast of Colombia. The first known males of the oxystomatous crab *Randallia curacaoensis* Rathbun, 1922 are discussed and illustrated. Significant range extensions are reported for: *Hepatus gronovii* Holthuis, 1959, *Epialtus kingsleyi* Rathbun, 1923, *Libinia ferreirae* Brito Capello, 1871 (a Brazilian species), and *Pilumnus lacteus* Stimpson, 1871; four species were known to occur as far south as the Virgin Islands or Barbados and therefore had not been reported for any section of the South American mainland; these are: *Microphrys interruptus* Rathbun, 1920, *Pelia mutica* (Gibbes, 1850), *Etisus maculatus* (Stimpson, 1860), and *Micropanope barbadensis* (Rathbun, 1921). The zoogeography of the species is discussed.

Brachyuran crab species occurring on the Caribbean coast of Colombia, on the northern coast of South America, are known largely from the monographs by Rathbun (1918, 1925, 1930, 1937). The Colombian material reported by Rathbun originated, for the most part, from the expeditions of the U.S. Fish Commission steamer ALBATROSS in 1884. Since that time, several oceanographic expeditions have been undertaken on the Caribbean coast of Colombia that have collected brachyurans; and include R/V VELERO III from the Allan Hancock Foundation in 1939, M/V OREGON of the National Marine Fisheries Services in 1963-65, and R/V JOHN ELLIOTT PILLSBURY from the University of Miami in 1966-68 (Bullis and Thompson, 1965; Bayer, 1969; Bayer et al., 1970). Collections taken in this area during these expeditions have been primarily from deep water, and as a result the shore species or those inhabiting the intertidal zone to about 10-m depths have remained virtually unknown. Broad revisions of some western Atlantic brachyuran groups published since Rathbun's works have added little to the list of shallow-water species known to occur on the Caribbean coast of Colombia. There are two main reasons for this: (1) the material collected during the cruise of the ALBATROSS has been used time and again because of the lack of comprehensive shallow-water studies on this coast, and (2) most of the material collected from this coast during expeditions other than the ALBATROSS, has remained unreported. A few revisionary studies have been published; however, these have dealt primarily with larger forms such as the genera *Calappa* by Holthuis (1958), *Gecarcinus* by Türkay (1970), *Sesarma* by Abele (1972), *Callinectes* by Williams (1974), and *Uca* by Crane (1975). Most recently the family Parthenopidae has been examined by Gore and Scotto (1979). The smaller, more diverse forms, i.e., Xanthidae, Majidae, have not been discussed recently in any detail. Recent local species reports on the Decapoda from Isla de Salamanca (Henning and Klaassen, 1973) and the Majidae from Santa Marta (Vélez, 1978) have added but a few species to the brachyuran fauna known to exist there.

Geographical Setting

Cartagena is located on the north coast of Colombia, in the southwestern Caribbean. It is situated on the north shore of Bahía de Cartagena, which is approx-

imately 15 km long, 6 km wide, and has a maximum natural depth of about 30 m. The bay is connected to the Caribbean by two openings: a large shallow one on the northwest and a small deep one on the southwest. A large island, Isla de Tierra Bomba, delimits the bay on the west. North of the city the coast is formed by sandy beaches alternating with rocky points, such as Punta Canoas and Punta Piedras. To the south lies a narrow, peninsula-like piece of land called Isla Barú (often simply Barú) and a small coralline archipelago, Islas del Rosario.

The Study Area

The study area presents a wide variety of habitats and ecological conditions ideal for brachyuran crab utilization. In Bahía de Cartagena 22 species have been collected at eight stations. The bay is strongly affected during the rainy season by the freshwater outflow from Canal del Dique, a man-made canal forced to flow into the bay since 1933. Faunistically, the bay is considered by some as an estuary, with surface water temperatures ranging from 27° to 32°C and salinities from 0 (near the mouth of Canal del Dique) to 35‰ (Moncaleano and Niño, 1976). Most of its shoreline is formed by mangroves, and large beds of the seagrass *Thalassia testudinum* König are common on the shallow areas. The most abundant brachyurans found here are mostly estuarine species belonging to the calappid, portunid, and panopeine groups. Collections at 20 stations on the northwest coast of Isla Barú and Islas del Rosario produced 61 species, mostly xanthids and majids. The coral reefs in this area are morphologically typical western Caribbean coral reefs. Surface water temperatures vary from 27° to 31°C and salinities from 30‰ to 35‰; a total of 48 species of scleractinian corals and three species of millepores have been recognized (Pfaff, 1969). At two stations on the west coast of Isla de Tierra Bomba 36 species of crabs were collected (an exceptional number for only two stations). The west coast of this island has a poorly developed coral reef with *Porites* spp. and *Agaricia* spp. abundant; waters here are generally turbid and the bottom is rocky (Palacio, 1974). Eight species of crabs were collected at three stations on the ocean side of the city and at Punta Piedras to the north. The waters along this coast are also generally turbid with strong currents; and the bottom is sandy but may be rocky in some areas. Three species of crabs different from the ones collected elsewhere were captured at station 33 in Bahía de Barbacoas. Finally, two species, *Hepatus gronovii* Holthuis, 1959 and *Calappa sulcata* Rathbun, 1898, collected by a shrimp boat in Golfo de Urabá near the Panamanian border, have also been included.

Sources Of Information

The most recent geographic and bathymetric data have been the studies of Coelho and Araújo Ramos (1972) from eastern South America, Powers (1977) from the Gulf of Mexico, Garth (1978) from the Bahamas, and Gore and Scotto (1979) from the northwestern Atlantic. It has been both impractical and unnecessarily detailed to include every available reference. Therefore, only the most pertinent and/or the most recent descriptions are mentioned. In the cases where there have been drastic nomenclatural changes, such as in the Xanthidae, summarized in Guinot (1971), the new names adopted and the corresponding references are listed, even though the descriptions given are not extensive enough to enable the ecologist to identify the species. The classification and nomenclature adopted here are those used by Powers (1977).

Most of the brachyuran crab collection obtained during the present study has been deposited in the Allan Hancock Foundation (AHF). A single female speci-

men of *Randallia curacaoensis* previously collected at Colón, Panamá by K. Rodman, remains deposited in the Indian River Coastal Zone Study Reference Museum (IRCZSRM).

MATERIALS AND METHODS

During a 1-year period (1976–77) I collected brachyuran crabs mostly from the intertidal zone to a depth of about 3 m at 34 stations over a 60 km area of the Colombian coastline, from Punta Piedras in the north to Islas del Rosario in the south (Fig. 1). Ninety six brachyuran crab species were collected and are reported here. Collecting was done by using a benthic trawl (Zimmerman et al., 1971) with a 1-m opening and a 2-cm mesh bag, towed for 3–5 minutes. Brachyurans were sorted in the field, preserved in 70% alcohol, and identified in the laboratory of Universidad Jorge Tadeo Lozano Seccional del Caribe and/or INDERENA. Most identifications were made by the author and confirmed by Dr. John S. Garth, Allan Hancock Foundation, University of Southern California. The specimens of *Sesarma* were identified by Dr. Lawrence G. Abele, Florida State University.

The information for the species under "material" includes the station (Sta), month and date where collections took place. The symbol ♀♀ refers to ovigerous females. Measurements were made with a dial caliper and an ocular micrometer, read to the nearest 0.1 mm. Carapace length and width were measured according to the definition provided by Garth (1978) and are reported in that sequence, i.e., 12.1 mm length × 10 mm width. The term shallow-water indicates a depth of approximately 0–10 m. The species indicated with an asterisk (*) are reported for the first time from the Caribbean coast of Colombia.

SYSTEMATIC ACCOUNT

Family DROMIIDAE de Haan, 1833

**Dromia erythropus* (G. Edwards, 1771)

Description.—Rathbun, 1937: 31, fig. 11, pl. 6, figs. 1, 2, pl. 8, figs. 1, 2.

Material.—Sta 13(2/77), 1♂.—Sta 16(9/76), 1♂.

Habitat.—Under branches of *Porites* sp., rocks.

Size.—27.4 × 32.5 to 54.5 × 60 mm.

Range.—From Bermuda and Florida to the Gulf of Mexico and São Paulo, Brazil; shallow-water to 360 m, commonly less than 46 m.

**Dromidia antillensis* Stimpson, 1858

Description.—Rathbun, 1937: 33, fig. 12, pl. 7, figs. 1–3.—Williams, 1965: 143, fig. 118.

Material.—Sta 1(9/76), 3♂.

Habitat.—Coral.

Size.—7.1 × 6.6 to 12.1 × 11.9 mm.

Range.—From Bermuda and North Carolina to the Gulf of Mexico and Espirito Santo, Brazil; shore to 300 m.

Family CALAPPIDAE de Haan, 1833

**Calappa cinerea* Holthuis, 1958

Description.—Holthuis, 1958: 166, figs. 41–45.

Material.—Sta 18(9/76), 2♂.

Habitat.—Sand.

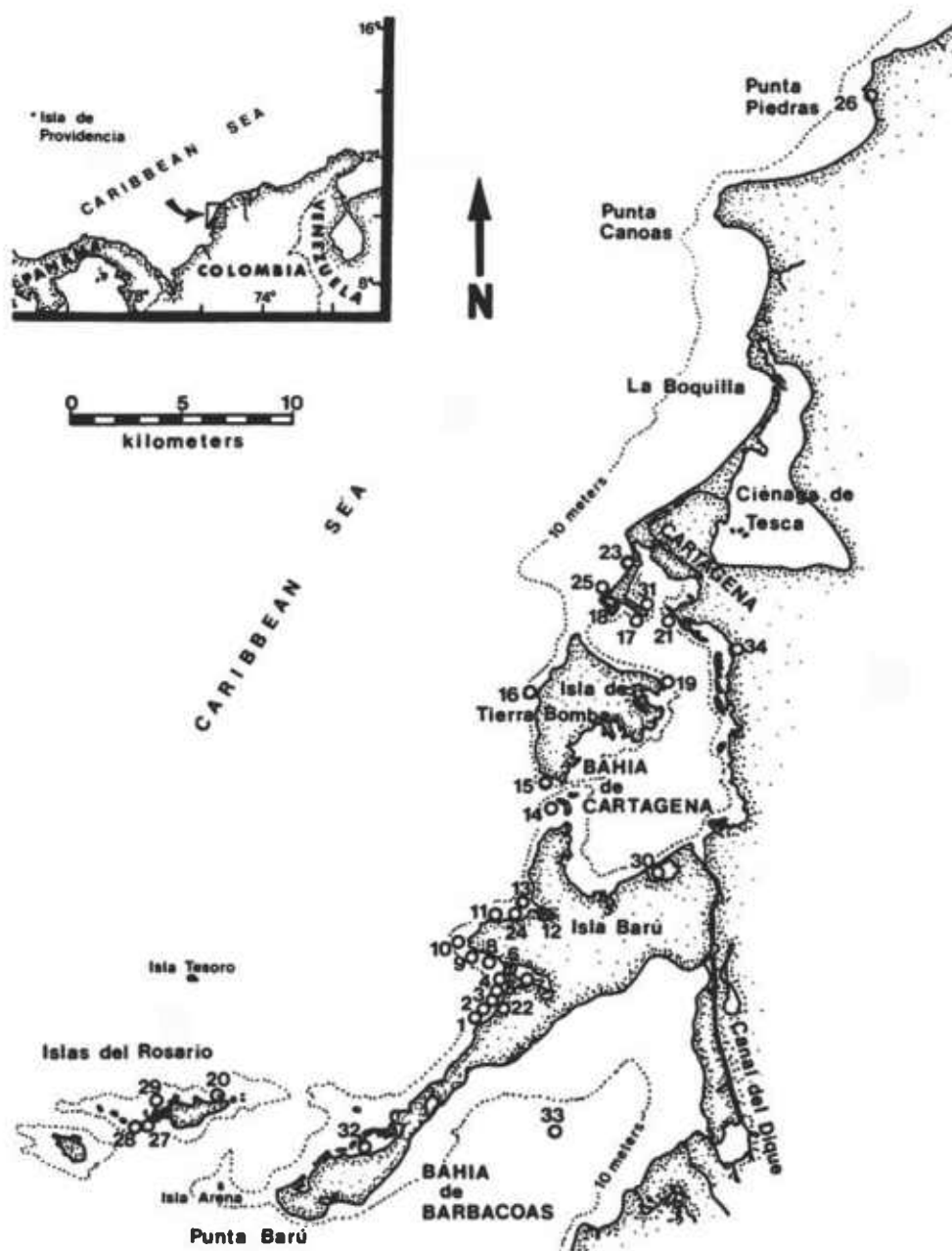


Figure 1. Map of Bahía de Cartagena and adjacent areas showing the location of stations.

Size.— 65.2×102 to 69.6×109.6 mm.

Remarks.—The species is similar to *C. flammea*. Males of the two species can be easily separated by the shape of the second pleopods. In *C. cinerea* the distal part is not recurved as in *C. flammea*; it is only slightly sinuous and directed

forward. The tip in *C. cinerea* has a single, spirally arranged row of about 10–15 spinules (Holthuis, 1958). The species ranges from Puerto Rico to the north coast of South America; intertidal to 10 m.

Calappa ocellata Holthuis, 1958

Description.—Holthuis, 1958: 158, figs. 36–40.

Material.—Sta 14(1/77), 1♀.—Sta 18(9/76), 1♂.

Habitat.—Sand.

Size.—24 × 32.4 to 41.5 × 58 mm.

Remarks.—Also similar to *C. flammea*. In *C. ocellata* the granulation of the carapace is coarser, the granules are larger and more widely spaced; the anterolateral margin of the carapace is more convex; the wing-like expansions are set off from the outline of the carapace; the male telson is more slender, the female telson is distinctly longer than broad; the tip of the second male pleopods has a larger number of spinules, 9–14 on inner row and 14–23 on outer row (Holthuis, 1958). The species ranges from Bermuda and North Carolina to Rio de Janeiro, Brazil; shallow-water to 52 m.

**Calappa sulcata* Rathbun, 1898

Description.—Holthuis, 1958: 179, figs. 51–54.

Material.—Golfo de Urabá (no date, no depth), 2♂.

Habitat.—Mud.

Size.—97.3 × 126 to 100.4 × 136.9 mm.

Remarks.—The posterior margin of the carapace presents two sharp teeth (sharper in males), absent in other West Indian species of the genus (Holthuis, 1958). The meri of the walking legs present granules on the ventral margins, those on the fifth leg forming a sharp, serrated crest. The species ranges from North Carolina and the Gulf of Mexico to Sergipe, Brazil; shore to 183 m.

**Cycloes bairdii* Stimpson, 1860

Description.—Rathbun, 1937: 225, pl. 69, figs. 3, 4.—Fausto-Filho, 1967: 54, fig. 7, pl. 4, figs. 16, 17.

Material.—Sta 11(11/76), 1♂.

Habitat.—Sand and rubble.

Size.—8.3 × 8.5 mm.

Range.—In the western Atlantic from Bermuda and North Carolina to the eastern Gulf of Mexico and Espirito Santo, Brazil; in the eastern Pacific from Cape San Lucas to Ecuador, including the Galápagos; shallow-water to 229 m.

**Hepatus gronovii* Holthuis, 1959

Description.—Holthuis, 1959: 178, figs. 41–43.

Material.—Golfo de Urabá (no date, no depth), 1♂.

Habitat.—Mud.

Size.—51 × 74 mm.

Remarks.—The species was previously known to range from French Guiana to Santa Catarina, Brazil. The present report extends the range of the species nearly 3,000 kilometers northwesterly along the South American coast. It is found from 24 to 56 m.

**Hepatus pudibundus* (Herbst, 1785)

Description.—Holthuis, 1959: 167, figs. 36, 37, 38a–b.

Material.—Sta 18(9/76), 1 ♀.—Sta 30(7/77), 1 ♂.

Habitat.—Sand, mud, rubble.

Size.—9.6 × 12.8 to 29.3 × 40.6 mm.

Range.—In the western Atlantic from Georgia and the Gulf of Mexico to Santa Catarina, Brazil; in the eastern Atlantic from Guinea to the Cape of Good Hope, South Africa; shore to 49 m.

Family LEUCOSIIDAE Samouelle, 1819

**Ebalia cariosa* (Stimpson, 1860)

Description.—Rathbun, 1937: 125, pl. 35, figs. 6, 7.—Williams, 1965: 147, fig. 122.

Material.—Sta 3(10/76), 2 ♀.—Sta 11(11/76), 1 ♂.

Habitat.—*Thalassia*, coral, rocks.

Size.—7.3 × 8.9 to 10.6 × 12.5 mm.

Range.—From North Carolina and the eastern Gulf of Mexico to São Paulo, Brazil; low tide to 131 m.

**Randallia curacaoensis* Rathbun, 1922

Figure 2

Description.—Rathbun, 1937: 182, pl. 51, figs. 1–3.

Material.—Sta 19(10/76), 2 ♂.—Colón, Panamá (4/15/78), 1 ♀, cat. no. 89:3545, IRCZSRM.

Habitat.—*Thalassia*.

Size.—6.9 × 6.3 to 8.5 × 8.4 mm.

Remarks.—The species was previously known only from two females collected at Spanish Water, Curaçao (type locality), as reported by Rathbun (1937). A third female collected at Colón, Panamá by K. Rodman was supplied by Dr. R. H. Gore, Smithsonian Institution, Fort Pierce Bureau. The specimens examined agree with Rathbun's (1937) description. The female carapace is more circular and the frontal lobes are less high. The male abdomen has segments 3–5 fused, and the sixth segment bears a sharp spine which in lateral view is directed downward and posteriorly. Shallow-water.

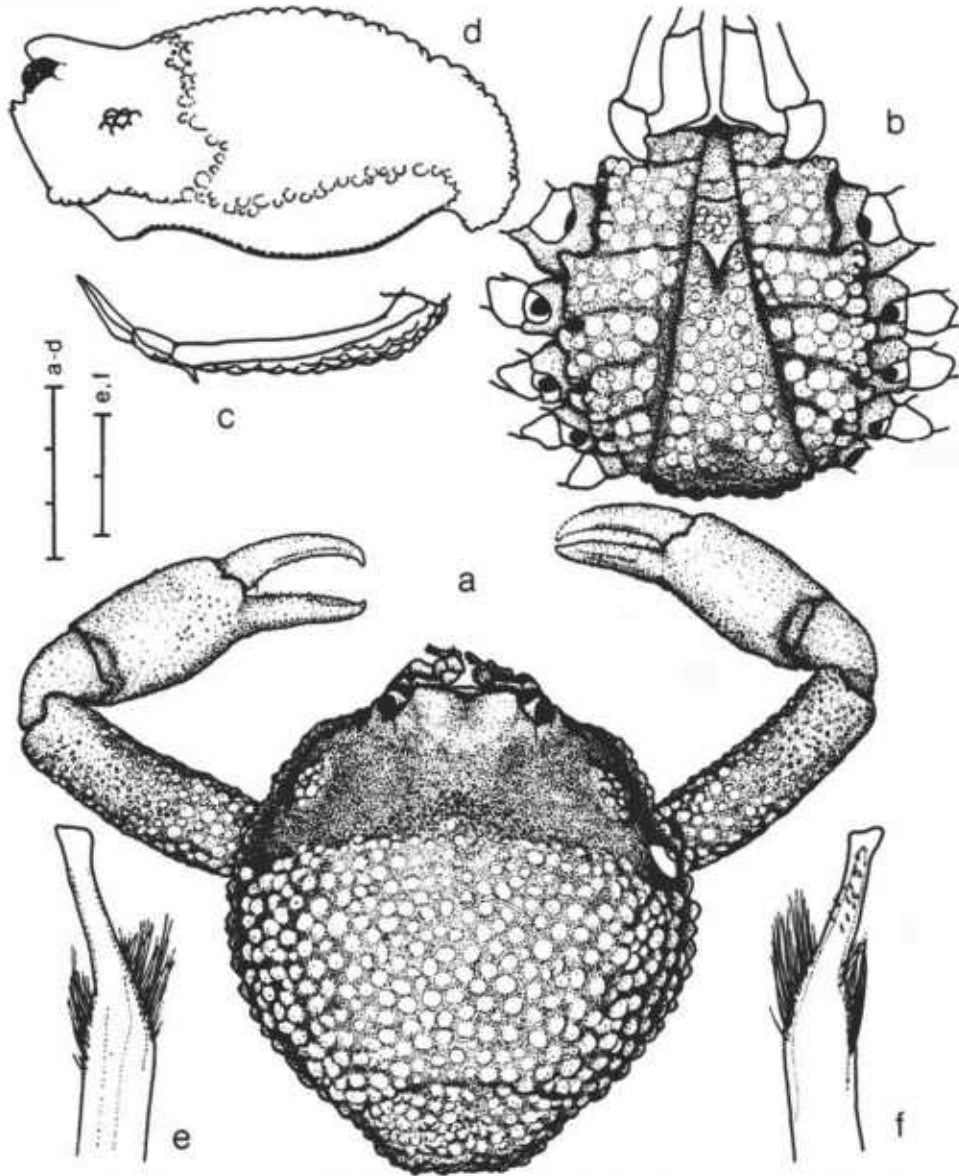


Figure 2. *Randallia curacaoensis* Rathbun, 1922, ♂ (8.5 × 8.4 mm): a, carapace and chelipeds; b, abdomen and sternum (ventral view); c, abdomen (lateral view); d, profile of carapace; e, extremity of left first pleopod (lateral view); f, extremity of left first pleopod (mesial view). Scales equal 3 mm (a-d) and 0.5 mm (e, f).

Family MAJIDAE Samouelle, 1819

Acanthonyx petiverii H. Milne Edwards, 1834

Description.—Rathbun, 1925: 142, fig. 52, pl. 44, pl. 222, figs. 1-6.—Garth, 1958: 225, pl. 0, fig. 3, pl. 25, fig. 2.

Material.—Sta 23(9/76), 1♂.—Sta 26(4/77), 2♂, 1♀.

Habitat.—Intertidal on clumps of algae.

Size.— 4.4×3 to 11.4×8.1 mm.

Range.—In the western Atlantic from southeastern Florida and the Gulf of Mexico to Rio de Janeiro, Brazil; in the eastern Pacific from Baja California to Valparaiso, Chile, including the Galápagos; shore to 29 m.

Epialtus bituberculatus H. Milne Edwards, 1834

Description.—Rathbun, 1925: 148, figs. 53a, 54, pl. 45, figs. 3, 4.

Material.—Sta 23(3/77), 1 juv.—Sta 25(3/77), 1♂, 1♀.—Sta 26(4/77), 9♂, 5♀, 6♀♀.

Habitat.—Intertidal on clumps of algae.

Size.— 2.1×2.8 to 8.6×6.5 mm.

Remarks.—The anterior margins of the hepatic and branchial lobes each have a small tubercle (less evident in larger specimens), bearing a tuft of short thick hairs. Similar tubercles are present on the carapace, one on each protogastric region. The species ranges from Florida to Pernambuco, Brazil; shallow-water.

**Epialtus kingsleyi* Rathbun, 1923

Figure 3

Description.—Rathbun, 1925: 152, pl. 45, fig. 1.

Material.—Sta 15(1/77), 1♂.

Habitat.—Clumps of the calcareous algae *Amphiroa tribulus* (Ellis and Solander).

Size.— 5×4.4 mm.

Remarks.—The species was previously known only from "Florida," the type locality (Rathbun, 1925). The present report extends the range of the species 1,800 km southward. Shallow-water.

**Epialtus longirostris* Stimpson, 1860

Description.—Rathbun, 1925: 151, figs. 53g, 56.

Material.—Sta 15(2/77), 1♂.

Habitat.—(Same as for *E. kingsleyi*)

Size.— 6.6×4.7 mm.

Range.—From the eastern Gulf of Mexico and Key West to northeast Brazil; shallow-water to 54 m.

Stenorhynchus seticornis (Herbst, 1788)

Description.—Rathbun, 1925: 13, fig. 3, pls. 2, 3.—Williams, 1965: 244, figs. 222, 223K.

Material.—Sta 2(10/76), 1♂.—Sta 4(1/77), 1♀.—Sta 15(1/77), 1♀.—Sta 19(9/76), 1♀.—Sta 20(11/76), 1♂.

Habitat.—*Thalassia*, coral, rocks.

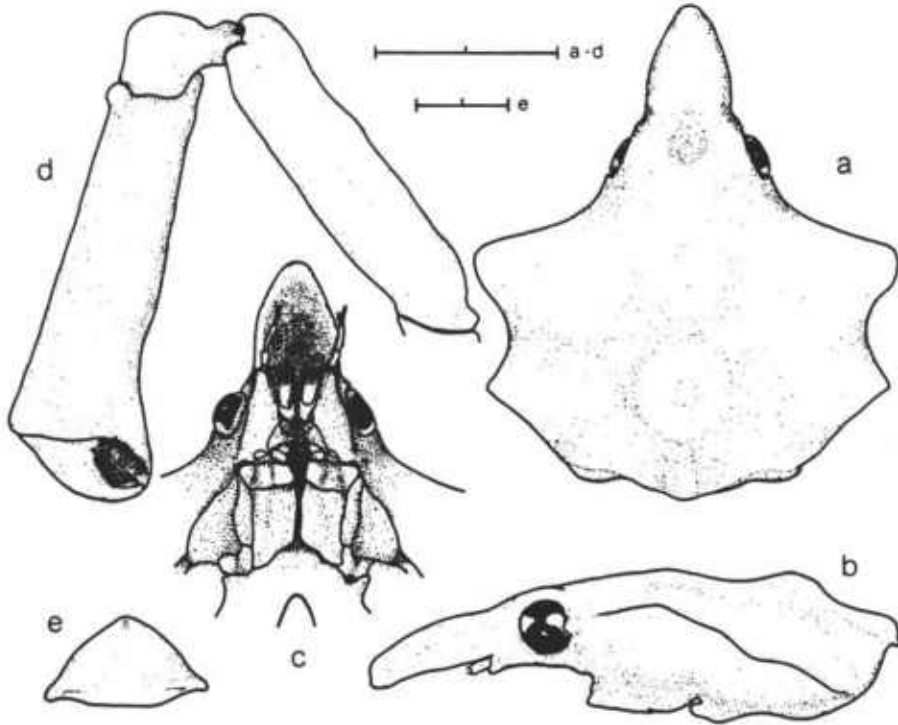


Figure 3. *Epialtus kingsleyi* Rathbun, 1923, ♂ (5 × 4.4 mm): a, carapace (dorsal view); b, carapace (lateral view); c, rostrum (anteroventral view); d, right cheliped (dorsal view); e, rostrum (frontal view). Scales equal 2 mm (a-d) and 0.5 mm (e).

Size.—22.6 × 8.3 to 35.6 × 9.6 mm.

Remarks.—According to Yang (1976), *S. seticornis* may actually consist of two species, one from shallow-water and the other from deep water in the Florida Straits. The species ranges from Bermuda and North Carolina to the Gulf of Mexico and Santa Catarina, Brazil; surface to 1,489 m.

**Macrocoeloma diplacanthum* (Stimpson, 1860)

Description.—Rathbun, 1925: 478, pl. 169, fig. 1, pl. 269, figs. 1-3.

Material.—Sta 1(9/76), 1♀.

Habitat.—Coral.

Size.—23.3 × 15.7 mm.

Range.—From the Bahamas and Key West to the north coast of South America; shallow-water to 24 m.

Macrocoeloma trispinosum (Latreille, 1825)

Description.—Rathbun, 1925: 466, fig. 132, pl. 166, fig. 1, pl. 167.

Material.—Sta 13(3/77), 1♀.

Habitat.—*Thalassia*, rocks.

Size.—13.9 × 11.8 mm.

Remarks.—In the present specimen the carapace is slightly constricted behind the orbits; the blade-like postero-lateral projections form an angle with the margins of the carapace; the rostral horns are close together, slightly divergent, with the inner basal margins V-shaped. The species ranges from Bermuda and North Carolina to the Gulf of Mexico and Bahia, Brazil; low tide to 60 m.

**Microphrys antillensis* Rathbun, 1920

Description.—Rathbun, 1925: 498, fig. 141, pl. 176, figs. 3, 4.—Williams, 1965: 260, figs. 240, 245G.

Material.—Sta 15(2/77), 1 juv.

Habitat.—Rocks.

Size.—4.6 × 3.6 mm.

Range.—From North Carolina and the eastern Gulf of Mexico to Pernambuco, Brazil; shallow-water to 38 m.

Microphrys bicornutus (Latreille, 1825)

Description.—Rathbun, 1925: 489, fig. 139, pl. 175.—Williams, 1965: 259, figs. 239, 245F.

Material.—Sta 6(11/76), 1 ♂, 1 ♀.—Sta 11(11/76; 3/77), 1 ♂, 2 ♀, 2 juvs.—Sta 12(3/77), 1 ♂, 2 ♀ ♀.—Sta 13(3/77), 1 ♂.—Sta 15(11/76; 2/77), 1 ♂, 1 ♀.—Sta 24(3/77), 1 juv.

Habitat.—*Thalassia*, mangrove roots, coral, clumps of algae.

Size.—3.8 × 2.5 to 25.3 × 18.4 mm.

Range.—From Bermuda and North Carolina to the eastern Gulf of Mexico and Santa Catarina, Brazil; shallow-water to 30 m.

**Microphrys interruptus* Rathbun, 1920

Description.—Rathbun, 1925: 504, fig. 144, pl. 174, figs. 1–3.

Material.—Sta 11(2/77; 3/77), 1 ♂, 3 ♀ ♀.—Sta 21(10/76), 1 ♀ ♀.

Habitat.—Intertidal under rocks, *Thalassia*.

Size.—8.2 × 5.7 to 19 × 14 mm.

Remarks.—When compared to *M. bicornutus*, the present species is smaller, the tubercles on the carapace are more rounded, and the ones on the branchial region are more prominent; the spine on the lateral angle of the carapace is wider, triangular, and only slightly curved distally. The species ranges from Cuba to the north coast of South America; shallow-water to 46 m.

Mithrax (Mithraculus) cinctimanus (Stimpson, 1860)

Description.—Rathbun, 1925: 438, pl. 158.—Patton, 1979: 55, fig. 1a–f.

Material.—Sta 3(5/76), 2 juvs.—Sta 13(1/77), 6 juvs.—Sta 20(11/76), 2 juvs.—Sta 28(4/77), 1 juv.

Habitat.—*Thalassia*, coral.

Size.— 3.3×3.2 to 5.5×5.8 mm.

Remarks.—Juveniles of this species are known to associate with the anemones *Stoichactis helianthus* (Ellis) and *Condylactis gigantea* (Weinland), while the adults are free-living (Patton, 1979). The species ranges from southeastern Florida to the north coast of South America; shallow-water.

Mithrax (Mithraculus) coryphe (Herbst, 1801)

Description.—Rathbun, 1925: 426, pl. 153.

Material.—Sta 1(2/77), 1♂.—Sta 2(9/76), 1♂, 1♀♀.—Sta 11(3/77), 2♂, 1♀, 2♀♀.

Habitat.—Coral.

Size.— 7.2×9.4 to 13.5×18.7 mm.

Range.—From southeastern Florida to São Paulo, Brazil; shallow-water to 55 m.

Mithrax (Mithraculus) forceps (A. Milne Edwards, 1875)

Description.—Rathbun, 1925: 431, pl. 156.—Williams, 1965: 258, figs. 238, 245E.

Material.—Sta 3(5/77), 1♀.—Sta 4(11/76), 1♂, 1♀♀.—Sta 11(11/76), 1♀.—Sta 20(11/76), 3♂, 1♀.—Sta 28(4/77), 1♂.

Habitat.—*Thalassia*, coral.

Size.— 5.5×5.8 to 10.8×11.6 mm.

Range.—From Bermuda and North Carolina to the Gulf of Mexico and Rio de Janeiro, Brazil; intertidal to 90 m.

**Mithrax (Mithraculus) ruber* (Stimpson, 1871)

Description.—Rathbun, 1925: 432, pl. 157.

Material.—Sta 3(2/77), 1♂.—Sta 11(11/76; 2/77), 4♂, 1♀.—Sta 13(3/77), 2 juvs.—Sta 15(2/77), 1♂, 12 juvs.—Sta 28(4/77), 2♂.

Habitat.—*Thalassia*, coral, rocks.

Size.— 2.4×2.3 to 9.8×12.6 mm.

Range.—From eastern Florida to the north coast of South America; shallow-water to 46 m.

Mithrax (Mithraculus) sculptus (Lamarck, 1818)

Description.—Rathbun, 1925: 442, figs. 125, 126, pl. 152.

Material.—Sta 1(9/76), 2♂.—Sta 2(10/76), 5♂.—Sta 11(2/75), 3♂, 1♀♀, 1 juv.

Habitat.—Coral.

Size.— 2.9×3.1 to 14.8×17.4 mm.

Range.—From the Bahamas and southeastern Florida to Bahia, Brazil; shallow-water to 55 m.

Mithrax (Mithrax) caribbaeus Rathbun, 1920

Description.—Rathbun, 1925: 409, pls. 148, 149.

Material.—Sta 21(3/77), 2♂, 1♀.

Habitat.—*Thalassia*.

Size.—6.9 × 7.5 to 12 × 12.9 mm.

Range.—From Cuba to Pará, Brazil; shallow-water to 56 m.

**Mithrax (Mithrax) pleuracanthus* Stimpson, 1871

Description.—Rathbun, 1925: 411, pl. 150.—Williams, 1965: 257, figs. 237, 245D.

Material.—Bahía de Cartagena (no date, no depth), 1♂.

Size.—25.4 × 30.2 mm.

Range.—From North Carolina and the Gulf of Mexico to the north coast of South America; shallow-water to 51 m.

**Mithrax (Mithrax) spinosissimus* (Lamarck, 1818)

Description.—Rathbun, 1925: 383, pl. 135.—Williams, 1965: 254, figs. 234, 245A.

Material.—Sta 29(5/77), 2♂.

Habitat.—Coral.

Size.—120 × 124 to 122 × 127 mm.

Remarks.—A large species fished commercially to some extent at Islas del Rosario and Barú. The species ranges from the Carolinas to the north coast of South America; shallow-water to 179 m.

Mithrax (Mithrax) tortugae Rathbun, 1920

Description.—Rathbun, 1925: 417, fig. 2.

Material.—Sta 15(1/77), 1♀.

Habitat.—Rocks.

Size.—23.7 × 29.3 mm.

Range.—From the Bahamas to the north coast of South America; shallow-water to 15 m.

**Mithrax (Mithrax) verrucosus* H. Milne Edwards, 1832

Description.—Rathbun, 1925: 400, pl. 144.—Williams, 1965: 255, figs. 235, 245B.

Material.—Sta 1(11/76), 1♂.—Sta 15(2/77), 6♂, 4♀.—Sta 16(9/76), 1♂.

Habitat.—Coral, rocks.

Size.—8.5 × 9.2 to 43.5 × 55.5 mm.

Remarks.—Immature individuals differ considerably from the adults, having the carapace densely covered with hairs and sharper spines. The carapace in the

adults is covered by closely set, flattened granules, and is nearly devoid of hairs. The species is nocturnal. It ranges from South Carolina to Fernando de Noronha, Brazil; shallow-water.

**Teleophrys ornatus* Rathbun, 1901

Description.—Rathbun, 1925: 444, pl. 129, figs. 3, 4, pl. 262, figs. 8, 9.

Material.—Sta 15(1/77), 2♂.

Habitat.—Coral, rocks.

Size.— 3×3.1 to 4×3.9 mm.

Range.—From the northeastern coast of Yucatán to Fernando de Noronha, Brazil; shallow-water to 44 m.

Thoe puella Stimpson, 1860

Description.—Rathbun, 1925: 348, figs. 111, 112, pl. 125, figs. 1, 2.

Material.—Sta 11(2/77; 3/77; 6/77), 3♂, 1♀, 2♀♀.—Sta 16(2/77), 1♂.—Sta 24(3/77), 4♀.

Habitat.—Coral, rocks.

Size.— 4.2×3.8 to 9.8×8.4 mm.

Range.—From Key West to the north coast of South America; shallow-water.

**Pitho lherminieri* (Schramm, 1867)

Description.—Rathbun, 1925: 362, figs. 116a, 117b, pl. 128, figs. 1, 2, pl. 129, figs. 1, 2, pl. 252, fig. 2.—Williams, 1965: 246, figs. 224, 233A.

Material.—Sta 1(10/76), 1♂.—Sta 11(11/76), 1♀♀, 4 juvs.—Sta 19(10/76), 4♂, 1♀.

Habitat.—*Thalassia*.

Size.— 5.4×4.6 to 24.2×20.9 mm.

Range.—From North Carolina and the Gulf of Mexico to São Paulo, Brazil; shallow-water to 51 m.

**Libinia ferreirae* Brito Capello, 1871

Description.—Rathbun, 1925: 324, pl. 118, pl. 119, pl. 245, figs. 4, 5.

Material.—Sta 33(no date), 1♀.

Habitat.—Mud.

Size.— 28.2×26 mm.

Remarks.—The species was previously known from French Guiana to Santa Catarina, Brazil. The present report extends the range of the species nearly 3,000 km northward along the South American coast; shallow-water to 27 m.

Pelia mutica (Gibbes, 1850)

Description.—Rathbun, 1925: 278, fig. 94, pl. 98, figs. 2, 3.—Williams, 1965: 250, figs. 229, 233E.

Material.—Sta 15(2/77), 1 ♀.

Habitat.—Coral, rocks.

Size.—6.4 × 4.3 mm.

Range.—From Massachusetts and the Gulf of Mexico to the north coast of South America; shallow-water to 51 m.

Family PARTHENOPIDAE Macleay, 1838

**Heterocrypta granulata* (Gibbes, 1850)

Description.—Gore and Scotto, 1979: 15, figs. 5A–D, 6, 7.

Material.—Sta 34(5/77), 1 ♂.

Habitat.—*Thalassia*, rubble.

Size.—6.3 × 10 mm.

Range.—From Massachusetts and the Gulf of Mexico to Bahia, Brazil; shallow-water to 50 m, rarely to 137 m.

**Parthenope serrata* (H. Milne Edwards, 1834)

Description.—Gore and Scotto, 1979: 57, figs. 24E–H, 25B, 26.

Material.—Sta 11(no date), 1 ♀.

Habitat.—*Thalassia*, rubble.

Size.—12 × 16.3 mm.

Remarks.—Similar to *P. granulata*. In the present species the female gonopores are flattened against the plane of the sternum, rounded, exposed, and without the shelf-like projection present in *P. granulata* (Gore and Scotto, 1979). The species ranges from Bermuda and the Gulf of Mexico to eastern Florida and Bahia, Brazil; intertidal to 110 m.

Family PORTUNIDAE Rafinesque, 1815

Arenaeus cribrarius (Lamarck, 1818)

Description.—Rathbun, 1930: 134, pl. 58, figs. 2, 3, pl. 59, pl. 60.—Williams, 1965: 173, fig. 153.

Material.—Sta 18(9/76; 5/77), 5 ♂.

Habitat.—Sand.

Size.—22 × 50.5 to 44.5 × 98.5 mm.

Range.—From Bermuda and Massachusetts to the Gulf of Mexico and Santa Catarina, Brazil; shore to 68 m.

Callinectes bocourti A. Milne Edwards, 1879

Description.—Williams, 1974: 767, figs. 12, 18j, 20m, 22j, 27.

Material.—Sta 18(9/76), 1 ♀.

Habitat.—Sand.

Size.—42.5 × 83.8 mm.

Range.—From the Gulf of Mexico (rare) and eastern Florida to Santa Catarina, Brazil; shallow-water to 20 m.

Callinectes danae Smith, 1869

Description.—Williams, 1974: 746, figs. 7, 18e, 20e–f, 22e, 24.

Material.—Sta 6(9/76), 1♂, 1♀.

Habitat.—Sand.

Size.—25 × 53 to 25 × 53.8 mm.

Range.—From Bermuda and southeastern Florida to the Dry Tortugas and Santa Catarina, Brazil; shore to 75 m.

Callinectes ornatus Ordway, 1863

Description.—Williams, 1974: 739, figs. 6, 18d, 22d, 25.

Material.—Sta 18(5/77), 1♂.

Habitat.—Sand.

Size.—47 × 82 mm.

Range.—From Bermuda and North Carolina to the Gulf of Mexico and Santa Catarina, Brazil; shore to 75 m.

Callinectes sapidus Rathbun, 1896

Description.—Williams, 1974: 778, figs. 1, 16, 17, 19d, 21, 23b–c, 26.

Material.—Sta 18(9/76), 1♂.

Habitat.—Sand.

Size.—56 × 114.3 mm.

Range.—In the western Atlantic from Nova Scotia, Bermuda and the Gulf of Mexico to Argentina; shore to 90 m. It has been introduced in Europe and Japan.

**Cronius ruber* (Lamarck, 1818)

Description.—Rathbun, 1930: 139, pl. 62, pl. 63.—Garth and Stephenson, 1966: 57, pl. 4, fig. D, pl. 8, fig. E, pl. 10, fig. E, pl. 12, fig. C.

Material.—Sta 15(2/77), 1♂.—Sta 17(1/77), 1♂, 1♀.

Habitat.—Sand.

Size.—26.4 × 41.9 to 48.2 × 69.6 mm.

Range.—In the western Atlantic from South Carolina and the Gulf of Mexico to Santa Catarina, Brazil; in the eastern Atlantic from Cape Verde Islands and Senegal to Angola, West Africa; in the eastern Pacific from Baja California to Perú, including Galápagos and Clipperton Islands; shallow-water to 105 m.

**Lupella forceps* (Fabricius, 1793)

Description.—Rathbun, 1930: 133, pl. 157.

Material.—Sta 33(no date), 1 ♀.

Habitat.—Mud.

Size.—26 × 57 mm.

Range.—From Cuba to the north coast of South America; 13 to 15 m.

**Portunus gibbesii* (Stimpson, 1859)

Description.—Rathbun, 1930: 49, pls. 16, 17.—Williams, 1965: 164, fig. 146.

Material.—Sta 33(no date), 1 ♂.

Habitat.—Mud.

Size.—53.5 × 94 mm.

Range.—From Massachusetts and the Gulf of Mexico to the north coast of South America; surface to 88 m.

**Portunus ordwayi* (Stimpson, 1860)

Description.—Rathbun, 1930: 71, pl. 33.—Williams, 1965: 166, fig. 148.

Material.—Sta 8(9/76), 1 ♂.

Habitat.—*Thalassia*.

Size.—22 × 35 mm.

Range.—From Bermuda and Massachusetts to the Gulf of Mexico and Bahia, Brazil; surface to 106 m, rarely deeper.

**Portunus sebae* (H. Milne Edwards, 1834)

Description.—Rathbun, 1930: 79, pl. 34, pl. 35.

Material.—Sta 11(3/77), 1, sex not det.

Habitat.—Coral, under branches of *Acropora cervicornis* (Lamarck).

Remarks.—The species can be identified in the field by the two large round red spots on the carapace, one above each postero-lateral margin. It ranges from Bermuda and the Florida Keys to the north coast of South America; shallow-water to 18 m.

Family XANTHIDAE Macleay, 1838

**Actaea acantha* (H. Milne Edwards, 1834)

Description.—Rathbun, 1930: 261, pl. 105, fig. 5, pl. 106, figs. 1, 2.

Material.—Sta 2(2/77), 1 ♂.—Sta 11(2/77), 2 ♀.—Sta 15(2/77), 1 ♂, 1 ♀ ♀.—Sta 28(4/77), 1 ♂, 1 juv.

Habitat.—Coral, rocks.

Size.—9.8 × 14.5 to 17.8 × 25.4 mm.

Range.—From the Bahamas and the Florida Keys to Fernando de Noronha, Brazil; surface to 22 m.

**Actaea bifrons* Rathbun, 1898

Description.—Rathbun, 1930: 255, fig. 41, pl. 104, figs. 3–6.

Material.—Sta 15(2/77), 1 juv.—Sta 27(4/77), 2 juvs.

Habitat.—Coral, rocks.

Size.—1.7 × 2.5 to 2.7 × 3.5 mm.

Range.—From Key West, Florida to the north coast of South America; shallow-water to 73 m.

**Carpilius corallinus* (Herbst, 1783)

Description.—Rathbun, 1930: 240, pls. 97–99.—Guinot, 1968b: 321, figs. 10, 11.

Material.—Sta 15(2/77), 1 ♀.

Habitat.—Coral.

Size.—96 × 123 mm.

Remarks.—A large species that ranges from Bermuda and the Gulf of Mexico to Pernambuco, Brazil; shallow-water to 46 m.

Cataleptodius floridanus (Gibbes, 1850)

Description.—Rathbun, 1930: 297, pl. 137, figs. 1, 2, pl. 138, fig. 1 (as *Leptodius floridanus*).—Guinot, 1968a: 706, figs. 20, 23, 29.

Material.—Sta 11(2/77), 1 ♂, 1 ♀, 2 ♀ ♀.—Sta 12(10/76), 1 ♀.—Sta 15(2/77), 1 ♀ ♀.

Habitat.—Mangrove roots, rocks.

Size.—5.6 × 8.3 to 13.1 × 20 mm.

Range.—From Bermuda and the Bahamas to the eastern Gulf of Mexico and São Paulo, Brazil; shallow-water to 33 m.

**Chlorodiella longimana* (H. Milne Edwards, 1834)

Description.—Rathbun, 1930: 462, pl. 186.

Material.—Sta 11(2/77), 1 juv.—Sta 13(2/77), 1 ♀, 1 juv.—Sta 20(11/76), 1 ♀.

Habitat.—Coral, clumps of calcareous algae.

Size.—2.4 × 3.6 to 6.9 × 10.6 mm.

Range.—In the western Atlantic from Miami, Florida to the north coast of South America; in the eastern Atlantic it is found in St. Thomas Island, West Africa; shallow-water to 154 m.

**Domecia acanthophora acanthophora* (Desbonne and Schramm, 1867)

Description.—Guinot, 1964: 271, figs. 4, 5, 7, 8, 15.

Material.—Sta 2(2/77), 1 ♂.—Sta 8(9/76), 3 ♀ ♀.—Sta 9(9/76), 1 ♀ ♀.—Sta 27(4/77), 1 ♀ ♀.

Habitat.—Pits on branches of *Acropora palmata* (Lamarck).

Size.—3.4 × 4.4 to 5.9 × 8.4 mm.

Remarks.—All specimens were collected from small pits on the branches of *Acropora palmata*. The species ranges from North Carolina and the Gulf of Mexico to Alagoas, Brazil; low tide to 146 m.

Eriphia gonagra (Fabricius, 1781)

Description.—Rathbun, 1930: 545, fig. 83, pl. 222.—Williams, 1965: 182, figs. 164A–C, 165.

Material.—Sta 1(no date), 1♀.—Sta 11(3/77), 2♂.—Sta 16(9/76), 2♂.

Habitat.—Intertidal under rocks.

Size.—7.9 × 11.4 to 20 × 29 mm.

Range.—From Bermuda and North Carolina to the Gulf of Mexico and Argentina; intertidal to shallow subtidal.

**Etisus maculatus* (Stimpson, 1860)

Description.—Rathbun, 1930: 295, pl. 136 (as *Phymodius maculatus*).—Guinot, 1969: 234.

Material.—Sta 11(2/77), 1♂.

Habitat.—Coral.

Remarks.—According to Guinot (1969), this is the only Atlantic species of the Indo-Pacific genus *Etisus*. The species ranges from the Bahamas and the Florida Keys to the north coast of South America; low tide to shallow subtidal.

Eurypanopeus abbreviatus abbreviatus (Stimpson, 1860)

Description.—Rathbun, 1930: 405, fig. 63, pl. 172, figs. 1, 2.—Williams, 1965: 194, figs. 178, 183K.

Material.—Sta 26(4/77), 1♂.

Habitat.—Intertidal under rocks.

Size.—7.6 × 11.4 mm.

Range.—From South Carolina and the Gulf of Mexico to Santa Catarina, Brazil; intertidal to shallow subtidal.

**Heteractaea ceratopus* (Stimpson, 1860)

Description.—Rathbun, 1930: 530, pl. 212, figs. 5–8, pl. 213.—Guinot, 1968a: 721, figs. 50, 56.

Material.—Sta 15(2/77), 1♂, 2♀♀.

Habitat.—Coral.

Size.—9.8 × 15 to 18.4 × 12.3 mm.

Range.—From eastern Florida to the north coast of South America; shallow-water.

Hexapanopeus caribbaeus (Stimpson, 1871)

Description.—Rathbun, 1930: 399, pl. 171, figs. 3–5.

Material.—Sta 3(2/77), 1 ♂.

Habitat.—Coral.

Size.—5 × 6.6 mm.

Range.—From Jamaica to Santa Catarina, Brazil; shallow-water.

Menippe nodifrons Stimpson, 1859

Description.—Rathbun, 1930: 479, pl. 198, fig. 3, pl. 199.

Material.—Sta 1(10/76), 1 juv.—Sta 3(10/76), 1 juv.—Sta 12(2/77; 3/77), 1 ♀, 1 juv.—Sta 17(1/77), 4 ♂, 4 ♀, 1 juv.—Sta 21(3/77), 2 juvs.

Habitat.—*Thalassia*, mangrove roots, rocks.

Size.—2.4 × 3.5 to 46.5 × 59 mm.

Range.—In the western Atlantic from eastern Florida and questionably the Gulf of Mexico (Felder, 1973) to Santa Catarina, Brazil; in the eastern Atlantic it is found on Gabon, West Africa; shallow-water.

**Microcassiope granulimanus* (Stimpson, 1871)

Description.—Rathbun, 1930: 439, pl. 180, figs. 1, 2 (as *Micropanope granulimanus*).—Guinot, 1971: 1076.

Material.—Sta 28(4/77), 1 ♀.

Habitat.—Coral.

Size.—2.6 × 3.8 mm.

Range.—From eastern Florida to the north coast of South America; shallow-water.

**Micropanope barbadensis* (Rathbun, 1921)

Description.—Rathbun, 1930: 446, fig. 72.

Material.—Sta 4(10/76), 1 ♀.—Sta 27(4/77), 1 ♀.

Habitat.—Coral.

Size.—6.3 × 9.1 to 6.6 × 9.8 mm.

Remarks.—The female from Sta 27 was found infested with a rhizocephalid. The species ranges from the Dry Tortugas to the north coast of South America; shallow-water.

**Micropanope nuttingi* (Rathbun, 1898)

Description.—Rathbun, 1930: 450, fig. 74.—Williams, 1965: 194, figs. 177, 183J.

Material.—Sta 15(2/77), 5 ♂, 3 ♀.—Sta 28(4/77), 3 ♂.

Habitat.—Coral, clumps of calcareous algae.

Size.—1.9 × 2.5 to 2.9 × 3.9 mm.

Range.—From North Carolina and the Gulf of Mexico to Rio Grande do Norte, Brazil; shallow-water to 183 m.

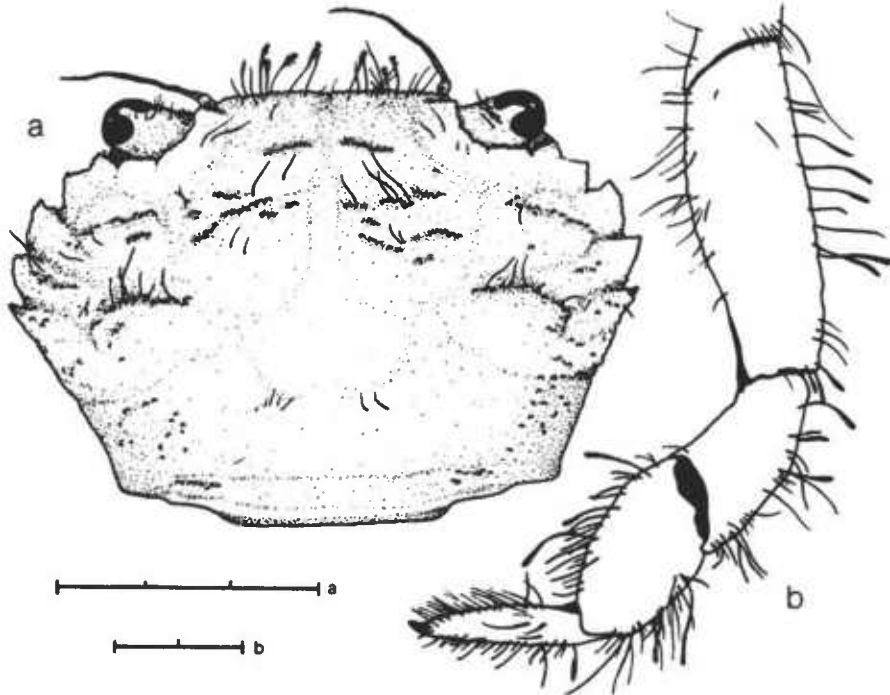


Figure 4. *Micropanope* cf. *truncatifrons* Rathbun, 1898, ♀♀ (5.1 × 7.1 mm): a, carapace; b, fourth walking leg (lateral view). Scales equal 3 mm (a) and 1 mm (b).

**Micropanope* cf. *truncatifrons* Rathbun, 1898

Figure 4

Description.—Rathbun, 1930: 433, fig. 68, pl. 178, figs. 7, 8.

Material.—Sta 12(10/76), 1♀♀.

Habitat.—Mangrove root.

Size.—5.1 × 7.1 mm.

Remarks.—The single specimen examined resembles *M. truncatifrons*, a deep water species previously reported only from off Yucatán at 234 m, and off Havana at 349 m (Rathbun, 1930).

Panopeus bermudensis Benedict and Rathbun, 1891

Figure 5a–c

Description.—Rathbun, 1930: 360, fig. 56, pl. 165.

Material.—Sta 6(10/76), 1♀♀.—Sta 12(3/77), 8♂, 2♀, 1♀♀.—Sta 16(2/77), 1♂.—Sta 17(8/77), 1♂.—Sta 21(10/76), 5♂, 1♀.—Sta 31(7/77), 2♂, 1♀.

Habitat.—Intertidal under rocks, sponges, mangrove roots, *Thalassia*.

Size.—2.6 × 3.8 to 9 × 11.8 mm.

Remarks.—Differences in setation on the walking legs were observed in specimens of this species and *P. occidentalis* of similar size (Fig. 5b–e). The species

ranges in the western Atlantic from Bermuda to eastern Florida and the Gulf of Mexico to Santa Catarina, Brazil; in the eastern Pacific from Baja California to Peru; low tide to 15 m.

Panopeus herbstii H. Milne Edwards, 1834

Description.—Rathbun, 1930: 335, figs. 52, 53, pls. 156, 157.—Chace and Hobbs, 1969: 154, figs. 46c, 47.

Material.—Sta 6(9/76; 10/76), 2♂, 1♀, 1♀♀.—Sta 31(9/76), 1♂.

Habitat.—Intertidal on sponges and mangrove roots.

Size.—16.6 × 22.8 to 23.7 × 16.9 mm.

Range.—From Bermuda and Massachusetts to the Gulf of Mexico and Uruguay; intertidal to 22 m. It has been reported in the Pacific only from Hawaii (Edmondson, 1962).

Panopeus occidentalis Saussure, 1857

Figure 5d-e

Description.—Rathbun, 1930: 348, fig. 55, pl. 161.—Williams, 1965: 198, figs. 181, 183N.

Material.—Sta 6(9/76), 2♂, 2♀.—Sta 11(11/76), 1♀♀.—Sta 12(10/76; 3/77), 7♂, 13♀, 1♀♀.—Sta 19(9/76), 2♂, 2♀.—Sta 31(7/77), 1♀.—Sta 32(7/77), 2♂.

Habitat.—Intertidal on sponges and mangrove roots, *Thalassia*.

Size.—3.1 × 4.4 to 16.8 × 22.5 mm.

Range.—From North Carolina and the Gulf of Mexico to Santa Catarina, Brazil; intertidal to 18 m (see also *P. bermudensis*).

**Paractaea rufopunctata nodosa* (Stimpson, 1860)

Description.—Rathbun, 1930: 257, pl. 105, figs. 1, 2 (as *Actaea rufopunctata nodosa*).—Guinot, 1969: 252, fig. 25.

Material.—Sta 1(9/76), 2♂.

Habitat.—Coral.

Size.—3.9 × 6 to 4.5 × 6.9 mm.

Range.—From North Carolina to Cape Frio, Brazil; the species also occurs at Ascension Island in the South Atlantic; shallow-water to 212 m.

Paraliomera dispar (Stimpson, 1871)

Description.—Rathbun, 1930: 244, fig. 38, pl. 101, figs. 4, 5.

Material.—Sta 1(9/76), 2♂, 1♀♀.—Sta 2(9/76), 5♂, 1♀, 1♀♀.

Habitat.—Coral.

Size.—2 × 2.8 to 3.8 × 5 mm.

Range.—From Bermuda and the Florida Keys to the north coast of South America; shallow-water to 154 m.

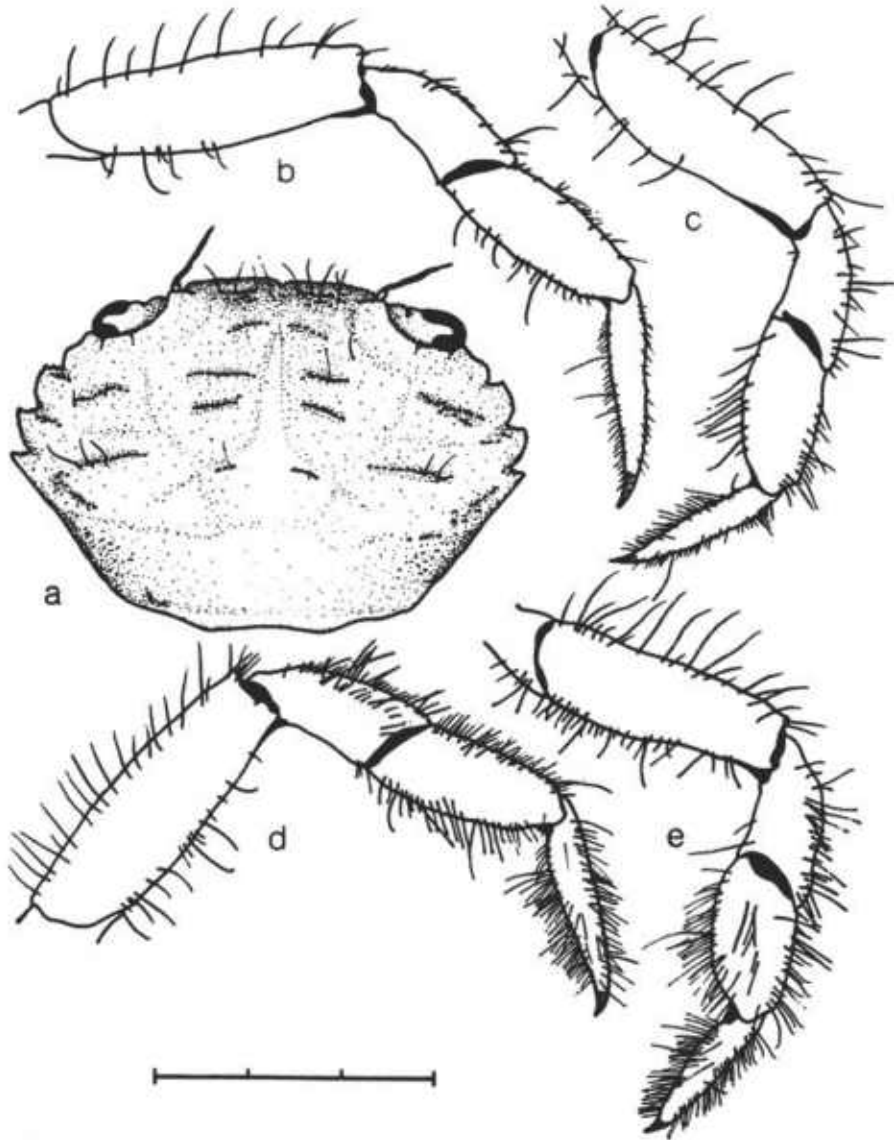


Figure 5. a-c *Panopeus bermudensis* Benedict and Rathbun, 1891: a, ♀♀ (4.2 × 5.6 mm), carapace; b, ♂ (6.3 × 8.6 mm), third walking leg (lateral view); c, same ♂, fourth walking leg (lateral view); d-e, *Panopeus occidentalis* Saussure, 1857, ♂ (5.7 × 7.8 mm); d, third walking leg (lateral view); e, fourth walking leg (lateral view). Scale equals 3 mm.

**Paraliomera longimana* (A. Milne Edwards, 1865)

Description.—Rathbun, 1930: 243, pl. 101, figs. 1-3.

Material.—Sta 1(9/76), 4♂, 3♀.—Sta 3(2/77), 8♂, 8♀.—Sta 11(11/76; 2/77), 9♂, 9♀, 1♀♀.

Habitat.—Coral.

Size.— 2.4×3.4 to 7.3×12.5 mm.

Range.—From the Florida Keys and the southwestern Gulf of Mexico to the north coast of South America; shallow-water to 154 m.

**Pilumnus dasypodus* Kingsley, 1879

Description.—Rathbun, 1930: 493, pl. 200, figs. 5, 6.—Williams, 1965: 178, figs. 157C, 159.

Material.—Sta 1(9/76), 3♂, 1♀.—Sta 13(3/77), 1♀.—Sta 15(9/76; 1/77), 6♂, 5♀, 1♀.

Habitat.—*Thalassia*, coral, rocks.

Size.— 2.4×3.4 to 7.3×10.5 mm.

Range.—From North Carolina and the Gulf of Mexico to Santa Catarina, Brazil; shallow-water to 29 m.

**Pilumnus gemmatus* Stimpson, 1860

Description.—Rathbun, 1930: 513, pl. 207, figs. 1–3.

Material.—Sta 28(4/77), 1♀, 1 juv.

Habitat.—Coral.

Size.— 3.4×4.4 to 5.4×7.1 mm.

Range.—From the Bahamas and Dry Tortugas to the north coast of South America; shallow-water to 42 m.

**Pilumnus holosericus* Rathbun, 1898

Description.—Rathbun, 1930: 519, fig. 81, pl. 207, figs. 8, 9.

Material.—Sta 1(9/76), 1♂.

Habitat.—Coral.

Size.— 5.1×7 mm.

Range.—From the Bahamas and Dry Tortugas to the north coast of South America; shallow-water.

**Pilumnus lacteus* Stimpson, 1871

Description.—Rathbun, 1930: 511, pl. 205, figs. 1, 2.—Williams, 1965: 180, figs. 157E, 161.

Material.—Sta 2(2/77), 2♂.—Sta 11(11/76; 3/77), 1♂, 1♀.—Sta 13(2/77), 1♂, 2♀.—Sta 16(2/77), 1♂, 1♀.

Habitat.—*Thalassia*, coral, rocks, clumps of the calcareous algae *Amphiroa tribulus* (Ellis and Solander).

Size.— 2.5×3.5 to 8.3×11.8 mm.

Remarks.—The species was known to range from North Carolina and the eastern Gulf of Mexico to the north coast of Cuba. The present report extends the range of the species 1,500 km southward to the north coast of South America. It is found from low tide to 15 m.

**Pilumnus cf. limosus* Smith, 1869

Description.—Rathbun, 1930: 518, pl. 208, pl. 209, figs. 1–3.

Material.—Sta 16(2/77), 1 juv.

Habitat.—Rocks.

Size.—2.3 × 2.8 mm.

Remarks.—*P. limosus* is an eastern Pacific species ranging from Panamá to Paita, Perú, and is found as deep as 54 m. The juvenile specimen collected appears to belong to this species or its Atlantic analogue, but more material is needed in order to identify it with certainty.

**Pilumnus reticulatus* Stimpson, 1860

Description.—Rathbun, 1930: 521, pl. 209, figs. 4, 5, pl. 210.

Material.—Sta 12(10/76), 1 ♂.—Sta 15(2/77), 1 ♀ ♀.

Habitat.—Mangrove root, coral.

Size.—4.6 × 6.5 to 6 × 8.4 mm.

Range.—From Jamaica and the Virgin Islands to Patagonia; shallow-water.

Platyactaea setigera (H. Milne Edwards, 1834)

Description.—Rathbun, 1930: 251, pl. 103 (as *Actaea setigera*).—Guinot, 1967: 561, fig. 36.

Material.—Sta 1(9/76; 10/76), 3 ♂, 2 ♀, 1 ♀ ♀, 1 juv.—Sta 13(3/77), 1 juv.—Sta 15(2/77), 1 ♂, 3 ♀, 1 juv.—Sta 16(2/77), 1 juv.

Habitat.—*Thalassia*, coral, rocks.

Size.—2.4 × 3.8 to 15.3 × 22.3 mm.

Range.—From Bermuda and the Bahamas to the Florida Keys and the north coast of South America; intertidal to shallow subtidal.

Ozius reticulatus (Desbonne and Schramm, 1867)

Description.—Rathbun, 1930: 542, pl. 220, figs. 1, 2.

Material.—Sta 24(3/77), 4 ♂, 10 ♀.

Habitat.—Intertidal under rocks.

Size.—5.7 × 8.8 to 15 × 23 mm.

Range.—From the Bahamas to the north coast of South America; intertidal.

**Xantho denticulatus* White, 1848

Description.—Rathbun, 1930: 314, pl. 145, fig. 1, pl. 146 (as *Xanthodius denticulatus*).—Monod, 1956: 280, figs. 335–339.

Material.—Sta 1(9/76), 1 ♀, 1 ♀ ♀.—Sta 2(2/77), 2 ♂, 1 juv.—Sta 11(2/77), 1 ♂.—Sta 15(2/77), 1 ♀.

Habitat.—Coral.

Size.— 6.8×10.1 to 11.9×18.4 mm.

Range.—In the western Atlantic from Bermuda and the eastern Gulf of Mexico to the Bahamas and Abrolhos Islands, Brazil; in the eastern Atlantic the species is found in the Gulf of Guinea; shore to 12 m.

Family PINNOTHERIDAE de Haan, 1833

**Parapinnixa hendersoni* Rathbun, 1918

Description.—Rathbun, 1918: 109, fig. 59, pl. 26, figs. 1–5.

Material.—Sta 15(2/77), 1♂.

Habitat.—Clumps of the calcareous algae *Amphiroa tribulus* (Ellis and Solander).

Size.— 1.9×3.8 mm.

Range.—From the eastern Gulf of Mexico to Bahia, Brazil; shallow-water to 55 m, and has been reported as free-swimming (Rathbun, 1918).

**Pinnotheres ostreum* Say, 1817

Description.—Rathbun, 1918: 66, fig. 30, pl. 15, figs. 3–6.—Williams, 1965: 203, figs. 187–189.

Material.—Isla Barú (no date), 1♀.

Habitat.—In *Crassostrea rhizophorae* Guilding.

Size.— 5.7×5.9 mm.

Remarks.—The species is parasitic on oysters and bivalve molluscs including *Crassostrea virginica*, *C. rhizophorae*, *Anomia simplex*, *Mytilus edulis*, and *Pecten* sp. (Powers, 1977). It ranges from Massachusetts and the Gulf of Mexico to Santa Catarina, Brazil; in shallow bays and other suitable oyster habitats.

**Pinnixa chaetoptera* Stimpson, 1860

Description.—Rathbun, 1918: 151, figs. 93, 94, pl. 33, figs. 3–6.—Williams, 1965: 210, fig. 194.

Material.—Bahía de Cartagena (no date), 1♂.

Range.—From Massachusetts and the Gulf of Mexico to Rio Grande do Sul, Brazil; shore to 16 m.

Family GRAPSIDAE Macleay, 1838

Geogapsus lividus (H. Milne Edwards, 1837)

Description.—Chace and Hobbs, 1969: 157, figs. 48, 52a–c.

Material.—Sta 11(3/77), 2♂.—Sta 16(9/76), 1♀.—Sta 24(3/77), 2♂, 3♀.

Habitat.—Intertidal under rocks.

Size.— 11.8×14 to 22×26 mm.

Range.—In the western Atlantic from Bermuda and the Florida Keys to São Paulo, Brazil; in the eastern Atlantic from Cape Verde Islands and Senegal to Angola, West Africa; in the eastern Pacific from Baja California to northern Chile,

including the Hawaiian, Clipperton and Galápagos Islands; supralittoral to intertidal.

Grapsus grapsus (Linnaeus, 1758)

Description.—Chace and Hobbs, 1969: 163, figs. 50, 52g–i.

Material.—Sta 16(9/76), 1♂, 1♀.

Habitat.—Intertidal under rocks.

Size.—37.8 × 41.8 to 39 × 42.2 mm.

Range.—In the western Atlantic from Bermuda and the Gulf of Mexico to Florida and northern Brazil; in the eastern Atlantic from Portugal to Angola, West Africa, including the Azores and Cape Verde Islands; the species has been found in St. Helena and Ascension in the South Atlantic; in the eastern Pacific from Baja California to central Chile, including Clipperton and the Galápagos; supralittoral to intertidal.

Pachygrapsus gracilis (Saussure, 1858)

Description.—Chace and Hobbs, 1969: 167, figs. 51, 52j.

Material.—Sta 6(9/76), 4♂, 3♀♀.—Sta 12(3/77), 1♂, 1♀.—Sta 18(11/76), 4♂, 3♀♀.

Habitat.—Mangrove roots, rocks.

Size.—3.6 × 4.6 to 8 × 10.6 mm.

Remarks.—As noted by Chace and Hobbs (1969), the gonopods (first pleopods) terminate in a triangular corneous tip; in *P. transversus* they terminate in a corneous, T-shaped end-piece. The present species ranges in the western Atlantic from Bermuda and the Gulf of Mexico to Florida and Bahia, Brazil; in the eastern Atlantic from Senegal to Zaire, West Africa; intertidal to subtidal.

Pachygrapsus transversus (Gibbes, 1850)

Description.—Chace and Hobbs, 1969: 169, fig. 52k.

Material.—Sta 11(3/77), 1♂, 1♀♀.—Sta 24(3/77), 10♂, 2♀, 2♀♀, 1 juv.—Sta 25(3/77), 1♂, 1 juv.

Habitat.—Intertidal under rocks.

Size.—2.3 × 2.9 to 6.5 × 9 mm.

Range.—In the western Atlantic from Bermuda and North Carolina to the Gulf of Mexico and Uruguay; in the eastern Atlantic from the Mediterranean Sea to Angola, West Africa; in the eastern Pacific from Baja California to Perú, including the Galápagos and Easter Island; intertidal (see also *P. gracilis*).

**Percnon gibbesi* (H. Milne Edwards, 1853)

Description.—Rathbun, 1918: 337, pl. 105.—Williams, 1965: 224.

Material.—Sta 1(9/76), 3♂, 2♀.—Sta 11(1/77), 1♀.—Sta 15(2/77), 1 juv.

Habitat.—Coral.

Size.—4.9 × 4.4 to 12.9 × 11.3 mm.

Range.—In the western Atlantic from Bermuda and North Carolina to Brazil; in the eastern Atlantic from the Azores to the Cape of Good Hope, South Africa; in the eastern Pacific from Baja California to Chile; low tide to shallow subtidal.

Plagusia depressa (Fabricius, 1775)

Description.—Chace and Hobbs, 1969: 192, figs. 62r-t, 63.

Material.—Sta 16(9/76), 1♂.—Sta 25(no date), 1♂.—Sta 26(4/77), 3 juvs.

Habitat.—Intertidal under rocks, clumps of algae (juvs.).

Size.—5.5 × 5.8 to 27.4 × 28 mm.

Range.—In the western Atlantic from Bermuda and North Carolina to the Gulf of Mexico and Pernambuco, Brazil; in the eastern Atlantic from the Azores and Madeira to Angola, West Africa; intertidal.

Aratus pisonii (H. Milne Edwards, 1837)

Description.—Chace and Hobbs, 1969: 172, figs. 54, 58a.

Material.—Sta 12(10/76; 3/77), 4♂, 1♀.

Habitat.—Mangrove roots and branches.

Size.—10 × 10.7 to 21.8 × 23.2 mm.

Range.—In the western Atlantic from the Bahamas and southern Florida to São Paulo, Brazil; in the eastern Pacific from Nicaragua to Perú; well above high tide on branches of mangroves to intertidal.

Cyclograpsus integer H. Milne Edwards, 1837

Description.—Chace and Hobbs, 1969: 173, figs. 55, 58b-d.

Material.—Sta 24(3/77), 2♂, 2♀.—Sta 26(4/77), 2♂, 1♀.

Habitat.—Intertidal under rocks.

Size.—3.3 × 4.1 to 7.6 × 8.6 mm.

Range.—In the western Atlantic from Bermuda and the Gulf of Mexico to southern Florida and Pernambuco, Brazil; in the eastern Atlantic from Cape Verde Islands and Senegal to Angola, West Africa; in the Indo-West Pacific from Madagascar to the Tuamotus; not known from the eastern Pacific; intertidal.

**Sesarma (Holometopus) ricordi* H. Milne Edwards, 1853

Description.—Chace and Hobbs, 1969: 183, fig. 62k.—Abele, 1973: 378.

Material.—Sta 6(9/76), 2♂, 4♀.—Sta 16(9/76), 1♂.—Sta 20(11/76), 1♀.—Sta 24(3/77), 1 juv.—Sta 26(2/77), 1♂.

Habitat.—Mangrove swamp, marsh.

Size.—5.3 × 4.5 to 13.8 × 14.3 mm.

Range.—From Bermuda and southeastern Florida to the Gulf of Mexico and Surinam; above high water mark to about 50 m inland.

Family GECARCINIDAE Macleay, 1838

Cardisoma guanhumi Latreille, 1825

Description.—Chace and Hobbs, 1969: 195, figs. 64, 67a–c.—Türkay, 1970: 348, fig. 8a–e.

Material.—Sta 34(6/76), 2♂, 1♀.

Habitat.—Mangrove swamp.

Size.—44 × 53.5 to 71 × 92 mm.

Range.—From Bermuda and the Gulf of Mexico to southern Florida and São Paulo, Brazil; semi-terrestrial.

Gecarcinus lateralis (Fremenville, 1835)

Description.—Chace and Hobbs, 1969: 198, figs. 65, 67e–g.—Türkay, 1970: 337, fig. 2a–c.

Material.—Sta 2(10/76), 1♂, 2♀.—Sta 16(10/76), 4♂, 2♀.

Habitat.—Shaded areas near shore.

Size.—11.7 × 13.7 to 29.7 × 37.3 mm.

Range.—From Bermuda and the Gulf of Mexico to southern Florida and the north coast of South America; semi-terrestrial.

Family OCYPODIDAE Rafinesque, 1815

Ocypode quadrata (Fabricius, 1787)

Description.—Chace and Hobbs, 1969: 204, figs. 68, 69.

Material.—Sta 2(9/76), 5♂.—Sta 16(9/76), 3♀.

Habitat.—Supratidal in burrows.

Size.—14.4 × 18.9 to 27 × 33.7 mm.

Range.—From Bermuda and Rhode Island to the Gulf of Mexico and Santa Catarina, Brazil; supratidal to intertidal.

**Uca burgersi* Holthuis, 1967

Description.—Crane, 1975: 168, figs. 26F, 31H, 54G, 66F, 100, pl. 24E–H, map 12.

Material.—Sta 6(9/76), 2♂.—Sta 22(10/76), 2♂.—Sta 26(4/77), 2♂.

Habitat.—Mangrove swamp.

Size.—4.6 × 8 to 9.9 × 14.5 mm.

Range.—From Florida and the southern Gulf of Mexico to Rio de Janeiro, Brazil; intertidal.

**Uca leptodactyla* Rathbun, 1898

Description.—Crane, 1975: 304, figs. 37M, 56F, 60N–O, 69K–L, 101, pl. 41A–D, map 17.

Material.—Sta 6(9/76), 11♂, 5♀.

Habitat.—Mangrove swamp.

Size.—2.6 × 4.1 to 7.3 × 12.1 mm.

Range.—From the Bahamas and southern Gulf of Mexico to Santa Catarina, Brazil; intertidal.

Uca vocator (Herbst, 1804)

Description.—Crane, 1975: 163, figs. 66D, 100, pl. 23E–G, pl. 24A–D, map 13.

Material.—Sta 16(9/76), 6♂, 2♀, 1♀♀.

Habitat.—Mangrove swamp.

Size.—8.5 × 12.1 to 17.3 × 27 mm.

Remarks.—*U. mordax* discussed by Rathbun (1918), and *U. murificenta* described by Crane (1943), are considered synonyms of the present species (Crane, 1975). It ranges from the western Gulf of Mexico to Brazil; intertidal.

ZOOGEOGRAPHIC CONSIDERATIONS

In general, the shore fauna of the southern Caribbean remains poorly known, particularly the shallow-water fauna. For this reason it is difficult to discuss any zoogeographic characteristics of the region. According to Bayer (1961) the West Indian fauna is depleted wherever it reaches continental coasts. However, the extreme southwestern Caribbean along the coast of Colombia and Panamá has been noted to have a richer fauna than previously believed for the stomatopod and porcellanid crustaceans (Manning, 1961; Gore and Abele, 1976; Werding, 1978), and for the molluscs (Work, 1969). The high number of previously unreported species and the number of range extensions included in this report indicate the existence of a diverse brachyuran crab fauna in this area.

The geographic distribution of the brachyuran crab species obtained show that the shallow-water brachyuran fauna from the Caribbean coast of Colombia is primarily of insular distribution, and that there is a considerable amount of mixing of elements from the Carolinian, West Indian, Caribbean, and Brazilian faunal provinces as defined by Briggs (1974). The strongest affinities are with the West Indian faunal province with 89 shared species (93%). Of the 96 crab species reported in this paper, 36 species (37%) also have been reported from Bermuda; 39 species (40%) from the U.S. east coast (Massachusetts to northeastern Florida); 47 species (49%) from southeastern Florida; 81 species (84%) from the Gulf of Mexico (but only 59 species excluding the Florida Keys and Dry Tortugas); 49 species (51%) from the Bahamas; 89 species (93%) from the Greater, Lesser Antilles and Barbados; 41 species (43%) from the Caribbean coast of Central America and offshore islands; and 38 species (40%) from southern Brazil (south of Bahía).

A number of species reported have widespread distribution. Ten species occur on both sides of the American continent (Amphi-American), of which five also occur in the eastern Atlantic, and one: *Panopeus herbstii* has been reported in the Pacific only from Hawaii but may have been introduced there (Edmondson, 1962). Finally there are three species that occur only in the eastern and western Atlantic, these are: *Hepatus pudibundus*, *Menippe nodifrons* and *Xantho denticulatus*.

Zoogeographically, the southern Caribbean is difficult to study because of insufficient marine collections from the area. Along the Colombian Caribbean several important coral reef formations remain to be thoroughly investigated before a precise evaluation of the faunal characteristics of the region can be made. The geographic distribution of the crab species obtained indicate strong affinities with the West Indian faunal province with 89 shared species (93%). In addition, considerable amount of mixing of elements from Carolinian, West Indian, Caribbean, and Brazilian provinces are observed. Forty-nine Colombian crab species (51%) are related to the eastern Pacific brachyuran crab fauna. Of these, 39 have eastern Pacific analogues, and 10 are of Amphi-American distribution.

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