

NOTES ON THE SHALLOW-WATER MARINE CRUSTACEA OF THE CARIBBEAN COAST OF QUINTANA ROO, MEXICO

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ABSTRACT

Collections of Crustacea were made over two years by hand, with traps, grabs, corers and dredges and while diving along the tropical Mexican Caribbean coast, from Cancun to Chetumal (ca. 22° to 19° N) and on the islands of Mujeres and Cozumel, from the shore to 30 m deep. We supplemented our findings, with other small collections and published accounts of species to 45 m from the same region, one that has not been well studied. Taxa considered, the corresponding number of species now known in each from that coast (and the number newly recorded from Quintana Roo as a result of this study) are: Remipedia 1 (1); Cephalocarida 1 (1); Stomatopoda 5 (3); Mysidacea 7 (0); Cumacea 16 (5); Tanaidacea 5 (5); Isopoda 41 (21); and Decapoda 233 (96).

The total number of species in these taxa now recorded from the shallow Caribbean coast of Quintana Roo is 309, of which 132 are new records.

Observations are made on the ecology of the species studied, their known western Atlantic distribution summarized and, for all malacostracan except Tanaidacea, remarks are made on zoogeography and comparisons with the fauna of other regions.

Key words: Crustacea, Caribe, Quintana Roo, Mexico.

RESUMEN

Como resultado de dos años de muestreos en la costa tropical del Caribe mexicano, desde Cancún hasta Chetumal (ca. 22° 19' N) así como en las islas Mujeres y Cozumel, se presenta este estudio sobre los crustáceos colectados en forma manual, con trampas, dragas, nucleadores, redes de arrastre y buceo libre y autónomo, desde los 0 hasta los 30 m de profundidad. El trabajo incluye información recopilada en otras colecciones menores, así como de publicaciones que aportan datos sobre especies de la región, que se distribuyen a profundidades de 45 m.

Los taxa considerados, el número de especies ahora conocidas en cada uno de ellos, para esta costa (y como resultado de este estudio, el número de nuevos registros para la

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costa de Quintana Roo) son: Remipedia 1 (1); Cephalocarida 1 (1); Stomatopoda 5 (3); Mysidacea 7 (0); Cumacea 16 (5); Tanaidacea 5 (5); Isopoda 41 (21) y Decapoda 233 (96).

El total de especies de estos taxa conocidos ahora para las aguas someras de la costa de Quintana Roo es de 309, de las cuales 132 son nuevos registros para la zona de estudio.

El tratamiento de las especies estudiadas incluye algunas observaciones ecológicas, su distribución en el Atlántico occidental y para todos los malacostráceos, con excepción de los Tanaidáceos, anotaciones sobre su zoogeografía y comparaciones con la fauna de otras regiones.

Palabras clave: Crustáceos, Caribe, Quintana Roo, México.

INTRODUCTION

Collections of Crustacea along the Caribbean coast of Mexico in the state of Quintana Roo, as part of a larger survey of the marine biota of that coast, in 1986 and 1987 under the auspices of the Centro de Investigaciones de Quintana Roo (CIQRO) and as part of a more widespread survey of Crustacea along the coast of the Yucatán Peninsula of the Laboratorio de Carcinología del Instituto de Biología, Universidad Nacional Autónoma de México (IB/UNAM), has revealed the presence of about 300 species. Some of these represent new geographical records and possibly even undescribed species, but most of the finds were members of species previously known and fully expected to occur there. Because most of the collections provide useful information on the microdistribution of the species concerned, the notes presented with the species should be of interest. Sampling was limited in the time and the localities, so it is probable that more species will be found in nearly all of the supraspecific taxa mentioned.

Few studies of Crustacea have dealt with material collected along the coast of Quintana Roo. Classical monographs by Rathbun (1918, 1925, 1930, 1937) on the Brachyura and Richardson (1905) on the Isopoda included material collected in Quintana Roo, mainly of Cabo Catoche. The fourth of the Smithsonian-Bredin Expeditions conducted by the Smithsonian Institution concentrated on the coast of Quintana Roo in the spring of 1960 (Chace, 1972), for the purpose of collecting study material for the national collections of the United States. Although the scope of that collection was very broad, so far the only accounts of the animals published dealt with the mysids (Brattegard, 1970), some amphipods (McKinney, 1979), shrimps (Chace, 1972) and crabs of the genus *Callinectes* (Williams, 1974). Gómez-Hernández and Martínez-Iglesias (1986) present an updated checklist of the paguroid *Anomura* of nearby Cuba, while Martínez-Iglesias and Gómez-Hernández (1986) review the Brachyura of Golfo de Batabanó in southwestern Cuba. Donath-Hernández (1988) reported new records of cumaceans in Quintana Roo. In the order Isopoda, Markham (1985, 1988) reported species of bopyrids known from this coast, and Kensley (1982, 1984a and b, 1987) and Kensley and Schotte (1987) covered several free-living species, especially in the suborder Anthuridea, from the immediately adjacent coast of Belize. Other published records of Quintanaroense Crustacea are scattered, so we have probably overlooked some. In the following list, we mention all species we have found recorded along the coast of Quintana Roo between Cabo Catoche and Belize to a depth of 45m, the practical limit of collection by scuba diving.

METHODS

Sampling methods included hand collections, grabs, corers and dredges, snorkeling and scuba diving.

Collections of CIQRO were made primarily by personnel of the Proyecto de Bentos, and funded by that institution. The first sampling made specifically for this study was a general survey of the marine biota of the Biosphere Reserve of Sian Ka'an on the central coast of Quintana Roo in 1986. That survey concentrated on Bahía de la Ascensión, with supplements from Boca Paila and other localities along the road to Punta Allen. In early 1987, a survey of the biota attached to roots of mangrove trees in Bahía de la Ascensión began and provided much additional crustacean material. Examination records at the Smithsonian Institution turned up numerous specimens from Quintana Roo which were housed in that collection; many of these already have been mentioned in the published literature and are so cited; those specimens not previously reported are designated (**USNM**) in our list. Supplemental collections resulted from incidental acquisitions made in field studies by others (see acknowledgments). Outside of Sian Ka'an, the most intensive collections were made at Puerto Morelos: along the sandy and rocky shores; among the pilings supporting the old town pier; on the nearshore patch reef; on offshore barrier reef; in 15 artificial reefs built of concrete blocks (each reef consisting of 9 blocks of 28 × 28 × 50 cm penetrated lengthwise by 1, 2 or 6 holes) placed 6-7 m of water inshore from the natural reef; and in empty shells of *Strombus gigas* L., collected near shore and assembled into "reefs" and later recollected for analysis. Incidental collections and observations were made at Laguna Nichupté and Punta Nizuc near Cancún, Isla Mujeres, Isla Cozumel, Caleta Xpuha, Caleta Yalkú and other places along the coast. A comprehensive report on the marine invertebrates of Quintana Roo, of which this is only a part, will be prepared later.

During less than two years, in a still-continuing study, personnel of the Laboratorio de Carcinología (**IB/UNAM**) made collections at several locations in Quintana Roo; to date those collections have produced 8,500 specimens of Crustacea, mostly from Puerto Morelos. Samples came from rocky headland and nearby coasts, in the intertidal zone, and sublittorally to 3 meters depth. A subsequent report on carcinological material from entire Yucatán Peninsula still being collected and identified will be published later.

Arrangement and coverage of taxa. The systematic sequence and taxonomic levels used are those of Parker (1982) down to the level of family, with some updates of higher levels advocated by Schram (1986). Genera are alphabetical within families or subfamilies, and species within genera and subgenera.

Because of the literature available and the particular backgrounds of the authors, there is much more detailed coverage of the Cumacea, Isopoda and Decapoda than of any other taxa. The Copepoda and Amphipoda, very important taxa in this as in all shallow-water environments, as well as Cirripedia and some other smaller groups, are omitted because we could not obtain identifications considered reliable for more than very few species.

Species treatment. The information for each species include some observations

on their habits, previous records on the Quintana Roo coast and their distribution on the western Atlantic.

Quintana Roo records of species from published literature are enclosed in braces, {}. An asterisk (*) indicates that the species is a new record for the Caribbean coast of Quintana Roo.

STUDY AREA

The area covered extends along the eastern or Caribbean coast of Yucatán Peninsula from Isla Mujeres at about 21° 15'N and 86° 45'W south-southwest through Playa Cocos, Chetumal, at about 18° 30' and 88° 27'W (See map, Figure 1). This well within the Caribbean Province of the Neotropical Region (Espejel-Montes, 1983b), a condition accentuated by the fact that surface currents along the shore are northward at all seasons (Gordon, 1967; Molinari and Cochrane, 1972; Secretaría de Marina, 1974) at speeds often above 1 knot, and water temperatures year-round are 27° to 30° (personal observation). Geologically, the entire Yucatán Peninsula is very young (Wilson, 1980; López-Ornat, 1983), the east coastal region consisting of mostly Pleistocene limestones with outcrops of Upper Pliocene rocks on the south side of Bahía de la Ascensión and the other portions of incompletely cemented friable calcareous sediment called "saskab" (López-Ornat, 1983). The two major bays, Bahía de la Ascensión and Bahía del Espíritu Santo, were evidently formed by movement along fault lines (Wilson, 1980; López-Ornat, 1983). There are no surface rivers in the region, but the fresh water of underground origins flows into the Caribbean Sea in several underwater springs called "ojos de agua" (Wilson, 1980) or mixes downward from springs on land in inlets called "caletas". The coast is classified into the Caribbean Reef District containing the barrier and fringing reefs and coral heads and the Coastal Zone including the "low cliffs, large and small embayments and swamps" (Wilson, 1980). The northern portion of the coast studied is undergoing rapid development and human population growth, especially around the new resort of Cancún; the southern portion is only sparsely inhabited, and, between 19° 05'N and 20° 06'W it lies in the Biosphere Reserve of Sian Ka'an, an environmentally protected region of 450,000 hectares, of which 120,000 hectares are marine (López-Ornat, 1983).

LIST OF SPECIES*

Class REMIPEDIA
Order NECTIOPODA

Speleonectes tulumensis Yager. In brackish water below halocline leading into cenote from ocean, central coast of Quintana Roo. Distribution: Known only from type-series collected in Cenotes Najaron and Catedral, Quintana Roo (Yager, 1987).

* Abbreviations of sampling localities. *Puerto Morelos*: AR-Artificial reefs; BR-Barrier reef; CQ-Playa del CQRO; MC-Muel'e la Ceiba Hotel; OA-Ojo de Agua Hotel; OP-Old Pier; PC-Playa del CRIP (Centro

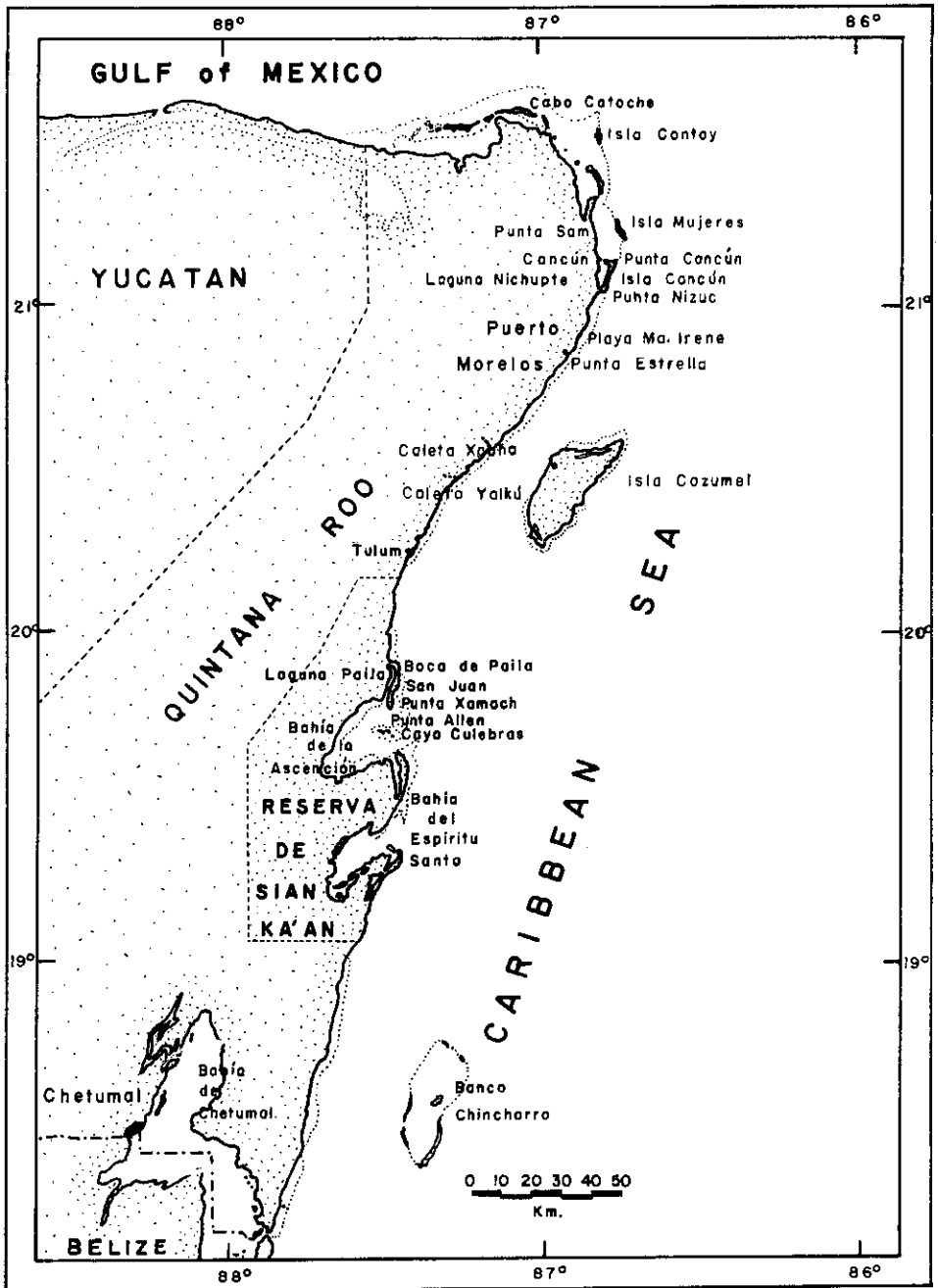


Figure 1. Map of northeastern Yucatan Peninsula showing Caribbean coast of state of Quintana Roo, Mexico, and most localities where collections of marine Crustacea were made for this report.

Class PHYLLOPODA
Order BRACHYPODA [=subclass CEPHALOCARIDA]

* *Lightiella* sp. In *Thalassia*; LN.

Class MALACOSTRACA
Order STOMATOPODA
Family GONODACTYLIDAE

Gonodactylus bredini Manning. In coral rubble; PC, PE. In corals and *Thalassia*; CC, PX, XQ. Distribution: Bermuda; North and South Carolina through Florida to Gulf of Mexico and Caribbean to Puerto Rico and Grenadines (Camp, 1973).

G. oerstedii Hansen. In coral rubble; PC, PE. {IM, BA, IC, Santa Bredin, Banco Chinchorro (Manning, 1969)}. Distribution in W Atlantic: Bermuda; North Carolina through S Florida and Bahamas; Quintana Roo; Netherlands Antilles; Panama; Colombia; Venezuela; Trinidad; Tobago; Brazil (Manning, 1961a, 1969).

**G. spinulosus* Schmitt. In coral rubble; PE. In algae; PX. Previous distribution: Bermuda; Puerto Rico; Virgin Islands?; Panama?; Barbados; Trinidad; Curaçao; Brazil (Manning, 1961a, 1985).

**Pseudosquilla ciliata* (Fabricius). In *Strombus*-shell "reef"; OP. Previous distribution in Atlantic: Bermuda; Bahamas through Panama and Colombia to Brazil (Manning, 1961a).

Family LYSIOSQUILLIDAE

**Lysiosquilla scabricauda* (Lamarck). In sand; BA. Previous distribution: Bermuda; E Florida; Gulf of Mexico from S Florida to Tamaulipas; Panama; Brazil (Camp, 1983).

Order MYSIDACEA

Note. Brattegard (1970) worked up the mysids collected by the Smithsonian-Bredin Expedition of 1960 to Quintana Roo; otherwise they are unreported from the state.

Family MYSIDAE

{*Heteromysis actiniae* Clarke. IC (Brattegard, 1970)}. Distribution: Bahamas; Quintana Roo; Belize; Lesser Antilles; Panama (Brattegard, 1970; Modlin, 1987).

{*H. disrupta* Brattegard. IM (Brattegard, 1970)}. Distribution: Known only from type-locality, Isla Mujeres (Brattegard, 1970).

Regional de Investigación Pesquera); PE-Punta Estrella; PI-Playa María Irene; PM-Puerto Morelos, no specific locality. *Bahía de la Ascensión*: BA-Bahía de la Ascensión, no specific locality; CC-Cayo Culebras; CV-Cayo Valencia; PA-Punta Allen; PH-Punta Hualapich; VC-Vigía Chico; VG-Vigía Grande. *Other localities*: BE-Bahía del Espíritu Santo; BP-Boca de la Laguna Paila; CH-Chetumal (Playa Cocos); CX-Caleta Xpuha; CY-Caleta Yalku; IC-Isla Cozumel; IM-Isla Mujeres; LN-Laguna Nichupté; LP-Laguna Paila; PN-Punta Nizuc; PS-Punta Sam; PX-Punta Xamach; SJ-San Juan; XQ-Xoquen.

- {*H. mayana* Brattegard. IM, IC, BA, BE (Brattegard, 1970)}. Distribution: Quintana Roo [type-locality], Belize; Colombia; Lesser Antilles? (Brattegard, 1970; Modlin, 1987).
- {*Mysidium columbiae* (Zimmer). IC (Brattegard, 1970)}. Distribution: Florida Keys; Bahamas; Jamaica; Virgin Islands; S Gulf of Mexico; Quintana Roo; Belize; Colombia; Venezuela (Brattegard, 1970; Modlin, 1987).
- {*Siriella chierchiae* Coifman. IC (Brattegard, 1970)}. Distribution: Coastal waters and islands of Gulf of Mexico and Caribbean Sea from Florida to Brazil (Brattegard, 1970; Modlin, 1987; Escobar-Briones & Soto, 1988).
- {*S. mexicana* Brattegard. IC. (Brattegard, 1970)}. Distribution: Quintana Roo [type-locality, Cozumel]; Belize (Brattegard, 1970; Modlin, 1987).
- Siriella* sp. Swarming over coral heads; OA. Probably one of the species reported above.

Order CUMACEA

Note. No cumacean species have been reported from Quintana Roo or anywhere else on the Atlantic-Gulf coast of Mexico until very recently (Donath-Hernandez, 1988), so all of these species were new records until then.

Family BODOTRIIDAE Subfamily BODOTRIINAE

- {*Cyclaspis bacescui* Omholt & Heard. Night zooplankton tow; off PA. (Donath-Hernández, 1988)}. Distribution: NE Gulf of Mexico; Cuba; Quintana Roo (Donath-Hernández, 1988).
- {*C. dentifrons* Zimmer. Night zooplankton tow; off PA (Donath-Hernández, 1988)}. Distribution: Quintana Roo; Brazil (Donath-Hernández, 1988).
- {*C. oxyura* Roccatagliatta & Soares-Moreira. Night zooplankton tow; Faro Punta Allen, BA (Donath-Hernández, 1988)}. Distribution: Quintana Roo; Brazil (Donath-Hernández, 1988).
- {*C. unicornis* Calman. Playa Aventuras (Donath-Hernández, 1988)}. Distribution: Quintana Roo; St. John, Virgin Islands; Cuba (Donath-Hernández, 1988).
- **Cyclaspis* n. sp. Night zooplankton tow; off PA.

Subfamily VAUNTHOMPSONIINAE

- {*Vaunthompsonia floridana* Bacescu. Night zooplankton tow; off PA and Cayo Valencia (Donath-Hernandez, 1988)}. Distribution: S Florida; Quintana Roo (Bacescu, 1971; Donath-Hernández, 1988).
- {*V. minor* Zimmer. Night zooplankton tow; off PA. Among mangrove roots; La Caleta, BA (Donath-Hernández, 1988)}. Distribution: Florida; Cuba; Quintana Roo (Donath-Hernández, 1988).

Family NANNASTACIDAE

- {*Campylaspis (Bacescua) heardi* Muradian-Ciamician. Night zooplankton tow; off PA

- (Donath-Hernández, 1988)}. Distribution: NE Gulf of Mexico; Veracruz; Quintana Roo (Muradian-Ciamician, 1980; Donath-Hernández, 1988).
- **Campylaspis* n. sp. Night zooplankton tow; off PA.
- {*Cumella clavicauda* Calman. On sand, close to reef, night zooplankton tow; off PA (Donath-Hernandez, 1988)}. Distribution: SW Florida; Cuba; St. John; Venezuela (Zimmer, 1944; Donath-Hernández, 1988).
- {*C. garrityi* Bacescu & Muradian. Night zooplankton tow; La Caleta, BA. (Donath-Hernandez, 1988). Distribution: W Florida; Quintana Roo (Bacescu & Muradian, 1977; Donath-Hernández, 1988).
- {*C. vicina* Zimmer. On sand, night zooplankton tow; off PA (Donath-Hernandez, 1988)}. Distribution: SW Florida; Cuba; Quintana Roo; Curaçao (Zimmer, 1944; Bacescu & Muradian, 1977; Donath-Hernández, 1988).
- **Cumella (Cumewingia)* n. sp. On sand, close to reef, night zooplankton tow; PA Distribution: Known only from type-locality, Punta Allen, Quintana Roo.
- {*Cumella* sp. aff. *C. garrityi*. Night zooplankton tow; La Caleta, BA (Donath-Hernández, 1988)}. Distribution: Quintana Roo; Venezuela (Donath-Hernández, 1988).
- **Cumella* n. sp. Night zooplankton tow; La Caleta, BA.

Family DIASTYLIDAE

- **Oxyurostylis* sp. [n. sp.?] Night zooplankton tow; La Caleta, Ba.

Order TANAIIDACEA

Note. Jürgen Sieg (personal communication) states that no tanaidacean has been previously recorded from Quintana Roo, so all of the species herein recorded constitute new geographical records. Unfortunately, we have not been able to learn the previously known records of these species.

Suborder MONOKONOPHORA

Family APSEUDIDAE

- **Apseudes propinquus* Richardson. On mangrove roots; BA.

Suborder DIKONOPHORA

Family PARATANAIDAE

- **Hargeria rapax* (Harger). Common on mangrove roots; PA.
- **Heterotanais "limicola* (Harger)". On mangrove roots; BA. In fouling on majid crab; PA.
- **Leptochelia forresti* (Stebbing). On mangrove roots; PA.

Family TANAIIDAE

- ***Tanais* sp." [possibly = *Sinelobus stanfordi* (Richardson)]. In chitinous tube; CC. In algae; PX.

Order ISOPODA

Notes. From the marine waters of Quintana Roo, Richardson (1905) reports 5 isopod species, Bruce & Bowman (1982) report *Cirolana parva*, and Markham (1985, 1988) reports 5 species of bopyrids. Wilkens (1983) lists one isopod species from fresh-water caves, and we have found another, both beyond the scope of this report. Because this list contains but 41 species (of which 21 are new records) from Quintana Roo, and most of the species known from other nearby regions have not been reported from the state, it is probable that the number of species actually occurring there is much larger.

Suborder GNATHIIDEA
Family GNATHIIDAE

**Gnathia* sp., juvenile. On mangrove roots; BA. In night zooplankton tow, PA.

Suborder ANTHURIDEA
Family ANTHURIDAE

**Apanthura cracenta* Kensley. In beds of alga *Acetabularia*; LN. Previous distribution: Belize (Kensley, 1984a).

**Mesanthura fasciata* Kensley. On mangrove roots; PX. BA. Previous distribution: Belize (Kensley, 1982).

**M. paucidens* Menzies & Glynn. On mangrove roots; BA. Previous distribution: Puerto Rico; Belize; Barbados (Menzies & Glynn, 1968; Kensley, 1982; Kensley & Snelgrove, 1987).

**M. pulchra* Barnard. In sponge on mangroves; Faro Punta Allen, BA. Previous distribution: Florida; Puerto Rico; Virgin Islands; Belize; Barbados (Kensley, 1982; Kensley & Snelgrove, 1987).

Family PARANTHURIDAE

Accalathura crenulata (Richardson). On mangrove roots; BA. In coral rubble; BA, PC, PE. (Off Cabo Catoche (Richardson, 1905)). Distribution in W Atlantic: W Florida; Bahamas; Puerto Rico; Cuba; Quintana Roo; Belize; Brazil; (Menzies & Glynn, 1968; Kensley, 1982; Menzies & Kruczynski, 1983; Ortiz et al., 1987).

**Paranthura caribbiensis* Kensley. On mangrove roots; PH. PX. Previous distribution: Belize (Kensley, 1982).

**P. infundibulata* Richardson. In algae; Punta Xochem, BA. Previous distribution: Bermuda; Florida; Belize (Kensley, 1982).

Suborder FLABELLIFERA
Family AEGIDAE

Rocinela signata Schioedte & Meinert. In coral rubble; PE. Clinging to collector's skin; LN. Unspecified substrate; LN (USNM). In empty snail shell on sand; CQ.

Clinging to hogfish *Lachrolaimus maximus* (Walbaum); BR. [Only males collected.] Distribution in W Atlantic: NE Gulf of Mexico; S Florida; Central America; West Indies, including Puerto Rico and Cuba (Richardson, 1905; Menzies & Glynn, 1968; Schultz, 1969; Ortiz et al., 1987).

Family CIROLANIDAE

{*Bahalana mayana* Bowman. In marine waters of caves, IC and inland from Tulum (Bowman, 1987)}. Distribution: Known only from Quintana Roo (Bowman, 1987).

Cirolana parva Hansen. In coral rubble; PE. In baited trap; AR. {ES (Bruce & Bowman, 1982)}. Distribution: NW and S Florida; Cuba; Puerto Rico; Virgin Islands; Quintana Roo (Bruce & Bowman, 1982).

**Cirolana* sp. [aff. *C. obtruncata* Richardson]. Regurgitated in nest by heron *Hydranassa tricolor* (P.L.S. Müller); SJ.

Exciorolana mayana (Ives). On mangrove roots; CV. On *Pinna*; CC. Distribution in W Atlantic: Yucatán; Puerto Rico; Barbados (Richardson, 1905; Menzies & Glynn, 1968).

Family CORALLANIDAE

Alcirona krebsii Hansen. On *Pinna*; CC. {Off Cabo Catoche (Richardson, 1905)}. Distribution in W Atlantic: Bermuda; through Gulf of Mexico; Quintana Roo; Puerto Rico; St. Thomas; most of Caribbean [as *A. hirsuta* Moore, *A. krebsii* and *A. insularis* Hansen] (Richardson, 1905; Menzies & Glynn, 1968; Schultz, 1969; Menzies & Kruczynski, 1983).

{*Excorallana tricornis tricornis* (Hansen). Cabo Catoche (Richardson, 1905)}. Distribution: W Florida to Louisiana; Jamaica; Puerto Rico; Virgin Islands; Quintana Roo; Belize; Nicaragua (Richardson, 1905; Menzies & Kruczynski, 1983; Kensley, 1984b).

{*E. warmingii* (Hansen). Off Cabo Catoche (Richardson, 1905)}. Distribution: Quintana Roo; SW Atlantic (Richardson, 1905).

Family CYMOTHOIDAE

{*Anilocra laticauda* H. Milne Edwards. IC (Richardson, 1905)}. Distribution: Maryland; S Florida; Quintana Roo; Cuba; Puerto Rico; Virgin Islands; Venezuela; Brazil; Straits of Magellan (Richardson, 1905).

**Cymothoa excisa* Perty. IC (USNM). Previous distribution: Massachusetts; South Carolina; Bahamas; Mississippi; S Florida; Cuba; Brazil (Richardson, 1905; Schultz, 1969; Ortiz et al., 1987).

Family LIMNORIIDAE

**Limnoria platycauda* Menzies. On mangrove root; PA. Previous distribution: Cuba; Puerto Rico; Curaçao (Menzies & Glynn, 1968; Ortiz et al., 1987).

- **L. pfefferi* Stebbing. On mangrove root; BA. Previous distribution in Atlantic: Florida; Belize; Puerto Rico; Panama (Kensley & Schotte, 1987).

Family SPHAEROMATIDAE

- **Cassidinidea ovalis* (Say). Punta Hok, BA. Previous distribution: South Carolina to Florida (Richardson, 1905; Schultz, 1969).

{*Discerceis linguicauda* (Richardson). Cabo Catoche [type-locality; as *Cilicæa linguicauda* Richardson] (Richardson, 1905)}. Distribution: known only from type-locality (Richardson, 1905; Schultz, 1969).

- Dynamenella perforata* (Moore). BA. Distribution: Bermuda; Quintana Roo; Puerto Rico (Schultz, 1969).

Paracerceis caudata (Say). In calcareous algae; PC. In various algae; PX, Xochem, Tulum. On mangrove roots; CV, PH. {Off Cabo Catoche [as *P. caudata*, *Cilicæa caudata* (Say) and *Exosphaeroma yucatanum* (Richardson)] (Richardson, 1905)}. Distribution: Bermuda; New Jersey to S and W Florida; Bahamas; Yucatán; Quintana Roo; Cuba; Puerto Rico (Richardson, 1905; Menzies & Glynn, 1968; Schultz, 1969; Menzies & Kruczynski, 1983; Ortiz et al., 1987).

- **Paracerceis* sp. [similar to but distinct from *P. caudata*]. On base of dead alcyonarian; AR.

Suborder VALIVIFERA

Family ARCTURIDAE

- **Astacilla cymodocea* Menzies & Glynn. Night plankton tow; PA. Previous distribution: Puerto Rico.

Family IDOTEIDAE

- **Erichsonella filiformis* (Say). In algae; PX. In *Acetabularia*; LN. Previous distribution: Massachusetts through Florida to Texas; Bahamas (Schultz, 1969).

**Erichsonella* sp. [aff. *E. crenulata* Menzies]. On mangrove root; PH.

- **Cleantis planicauda* Benedict. Night Plankton tow; PA. Previous distribution: Georgia; W Florida; Puerto Rico (Richardson, 1905; Schultz, 1969).

Suborder ASELLOTA

Family JANIRIDAE

- **Carpías algicola* (Miller). In algae; PX. Numerous specimens from *Thalassia*; LN; and many mangrove root collections; BA. Clearly the most abundant species of isopod in the mangrove root collections, this species is nearly always represented only by females. Previous distribution: S Florida; Yucatán; Belize; Venezuela (B. Kensley, personal communication).

Family MUNNIDAE

- **Munna* sp. [aff. *M. reynoldsi* Frankenberg & Menzies]. On mangrove roots; 3 localities, BA.

Suborder EPICARIDEA
 Family BOPYRIDAE
 Subfamily PSEUDIONINAE

**Bopyrissa wolffi* Markham. Infesting hermit crab *Clibanarius tricolor* (Gibbes), 1.4% rate; CY. Previous distribution SE United States and Bahamas; nearly always infesting *C. tricolor* (Markham, 1978).

Subfamily BOPYRINAE

Bopyrella harmopleon Bowman. Infesting shrimp *Synalpheus fritzmuelleri* Coutière; PE. {On same host; in sponge in mangroves; PA. (Markham, 1988)}. Distribution: Quintana Roo; Venezuela; Brazil; infesting *Synalpheus* spp. (Markham, 1985, 1988).

{*Bopyrinella thorii* (Richardson). Infesting shrimp *Thor floridanus* Kingsley; north end, BA (Markham, 1985)}. Distribution: S Florida; Quintana Roo; Curaçao; infesting *Thor* spp. (Markham, 1985).

{*Bopyrione synalphe* Bourdon & Markham. Infesting shrimp *Synalpheus townsendii* Coutière. BA (Markham, 1985)}. Distribution: E and W Florida; Quintana Roo; E Gulf of Mexico; Hispaniola; Jamaica; Tobago; Curaçao; infesting *Synalpheus* spp. (Markham, 1985).

**Probopyrinella latreuticola* (Gissler). Infesting shrimp *Latreutes fucorum* (Fabricius). PE. Previous distribution in W Atlantic: North Carolina and Bermuda through Sargasso Sea and Gulf of Mexico; Florida; Bahamas; Tortola; Jamaica; Virgin Islands; Haiti; always infesting *L. fucorum* (Markham, 1985).

{*Probopyrus pandalicola* (Packard). Infesting shrimp *Palaemon (Paleander) northropi* (Rankin); near Faro Nicchehabin, BA (Markham, 1985)}. Distribution: Fresh to nearshore marine waters along all continental coasts from New Hampshire to Uruguay; Cuba; Virgin Islands; infesting *Macrobrachium* spp., *Palaemon* spp., *Palaemonetes* spp. and *Perclimenes* spp. (Markham, 1985).

Subfamily ATHELGINAE

**Parathelges occidentalis* Markham. Infesting *Clibanarius tricolor* (Gibbes), 9.4% rate; CY. Previous distribution: North Carolina; Florida; Bahamas; Venezuela; usually infesting *C. tricolor* (Markham, 1978).

Subfamily HEMIARTHRIINAE

**Azygopleon schmitti* (Pearse). Infesting shrimp *Synalpheus longicarpus* (Herrick) in sponge near lighthouse; PA. Previous distribution: North Carolina; W and S Florida; Hispaniola; Jamaica; Belize; Netherlands Antilles; infesting 5 *Synalpheus* spp. including *S. longicarpus* (Markham, 1985).

{*Diplophryxus siankaanensis* Markham. Infesting shrimp *Alpheus formosus* Gibbes; BA [type-locality] (Markham, 1985, 1988)}. Distribution: Georgia; E Florida; Quintana Roo (Markham, 1988).

Eophrixus subcaudalis (Hay). Infesting shrimp *Synalpheus bousfieldi* Chace in sponge *Spherospongia vesparia* (Lamarck); OP. (Infesting *S. brooksi* Coutière; IC, IM (Markham, 1985)). Distribution: North Carolina; Florida; Hispaniola; Quintana Roo; Belize; Netherlands Antilles; infesting at least 7 other species of *Synalpheus* (Markham, 1985, 1988).

Order DECAPODA

Notes. Chace (1972) lists 58 species of shrimps belonging to the Penaeoidea, Stenopodidea and Caridea from Isla Mujeres, Isla Cozumel, Bahía de la Ascensión and Bahía del Espíritu Santo along the coast of Quintana Roo. Our collections have turned up 43 species in those taxa, of which 25 were also reported by Chace, the other 18 species being either incompletely identified or new records for Quintana Roo. Kensley (1988) has reported two caridean species, one new, from a marine cave on Cozumel. Hobbs & Hobbs (1976), Hobbs et al. (1977) and Wilkens (1983) report 3 atyids and 1 palaemonid shrimp from fresh-water cenotes of Yucatán State but none at all from Quintana Roo, despite the large number of cenotes also found there. Although we are not here considering such strictly fresh-water species, it is clear that there are unrecorded decapods in that habitat of Quintana Roo. Mary K. Wicksten (personal communication) collected several species of Decapoda in Quintana Roo in 1981 and 1984, primarily on and near Isla Cozumel. Her collections are included in our listing with her initials (MKW) indicating that the collections and identifications cited are hers, not ours.

Suborder DENDROBRANCHIATA Superfamily PENAEOIDEA Family PENAEIDAE

- {*Metapenaeopsis goodei* (Smith). IM (Chace, 1972)}. Distribution: Bermuda; North Carolina through Florida to E Gulf of Mexico; Veracruz; West Indies; Quintana Roo along Caribbean and Atlantic coasts to Brazil (Huff & Cobb, 1979; Williams, 1984).
- {*M. martinella* Pérez-Farfante IM (USNM)}. Distribution: Cuba and W Caribbean to Brazil (Chace, 1972).
- {*M. smithi* (Schmitt). IC, BA (Chace, 1972)}. Distribution: Bermuda; SE Florida through Caribbean to Curaçao and Venezuela (Chace, 1972; Rodríguez, 1980).
- Penaeus* (*Farfantepenaeus*) *brasiliensis* Latreille. VG. {BA, BE (Chace, 1972); North of Isla Contoy, IC (USNM)}. Distribution: Bermuda; North Carolina through Campeche, Caribbean coast of Central and South America, Venezuela and Guianas to Brazil (Creaser, 1936; Holthuis, 1959; Chace, 1972; Rodríguez, 1980; Pérez-Farfante, 1988).
- P. (F.) duorarum* Burkenroad. LP. CC, including one from nest of boat-billed heron *Cochlearius cochlearius* (L.). {BA (Chace, 1972); IM (Pérez-Farfante, 1988)}. Distribution: Bermuda; Chesapeake Bay through Florida and Gulf of Mexico to Quintana Roo; Venezuela; Surinam (Holthuis, 1959; Huff & Cobb, 1979; Rodríguez, 1980; Markham & McDermott, 1981; Williams, 1984; Pérez-Farfante, 1988).

{*P. (F.) notialis* Pérez-Farfante. BA (Pérez-Farfante, 1988)}. Distribution in W Atlantic: Cuba; Virgin Islands; along coast from Quintana Roo to Brazil (Pérez-Farfante, 1988).

**Trachypenaeus constrictus* (Stimpson). *Strombus*-shell reefs; PM. Previous distribution: Nova Scotia; Bermuda; Virginia through Texas to Veracruz; Cuba; Puerto Rico through Caribbean to Venezuela and Surinam; Brazil (Holthuis, 1959; Huff & Cobb, 1979; Rodríguez, 1980; Williams, 1984).

Family SICYONIIDAE

{*Sicyonia brevirostris* Stimpson. Near Isla Contoy (Arreguín-Sánchez, 1981)}. Distribution: Virginia to Florida; Bahamas; around Gulf of Mexico; Cuba (Cobb et al., 1973; Williams, 1984; Abele & Kim, 1986; Pérez-Farfante, 1988). [Cited as of considerable commercial value at Isla Contoy, its farthest south documented occurrence (Allen & Jones, 1975; Arreguín-Sánchez, 1981).

{*S. laevigata* Stimpson. IM (Pérez-Farfante, 1985). BA (Chace, 1972)}. Distribution in W Atlantic: North Carolina to NW Florida; Yucatán and Quintana Roo; Cuba to Virgin Islands; Nicaragua to Venezuela; Brazil (Chace, 1972; Huff & Cobb, 1979; Rodríguez, 1980; Pérez-Farfante, 1985).

Suborder PLEOCYEMATA Infraorder STENOPODIDEA Family STENOPODIDAE

Stenopus hispidus (Olivier). On roofs of tunnels in reefs; PC. AR. On several reefs, 6-25m; IC (MKW). CC. On coral; BA. {BA (Chace, 1972)}. Most common and conspicuous colonizer of artificial reefs. In tunnels where morays also occur, probably parasite-pickers. In pairs as adults, in larger groups as juveniles. Present in most shallow-water habitats along coast of Quintana Roo. Atlantic distribution: Bermuda; Florida to French Guiana (Chace, 1972).

S. scutellatus Rankin. AR. {BA (Chace, 1972)}. Distribution: Bermuda; Gulf of Mexico to Brazil (Chace, 1972).

Microprosthema semilaeve (Von Martens). In empty *Strombus* shells, CQ. {BA (Chace, 1972)}. Mated pair, both with white central regions, sides of bodies and all appendages bright red. Essentially same color pattern reported by Manning (1961a). Distribution: Bahamas; Florida and Yucatán to Brazil (Chace, 1972).

**M. manningi* Goy & Felder. On corals, OA. Previous distribution: Florida; Mexico; Belize; Old Providence Island (Goy & Felder, 1988).

Infraorder CARIDEA Superfamily PASIPHAEOIDEA Family PASIPHAEIDAE

**Leptochela serratorbita* Bate. *Strombus* shell reef; OP. Previous distribution: North and South Carolina; W Gulf of Mexico; S Florida; Campeche; Puerto Rico; Virgin Islands; through West Indies to Leeward Islands; Venezuela (Chace, 1976; Rodríguez, 1980; Williams, 1984).

Superfamily RHYNCHOCINETOIDEA
Family AGOSTOCARIDIDAE

{*Agostocaris bozanici* Kensley. In marine caves, IC (Kensley, 1988)}. Distribution: Known only from type-locality, Cozumel (Kensley, 1988).

Superfamily PALAEMONOIDEA
Family PALAEMONIDAE
Subfamily PALAEMONINAE

Brachycarpus biunguiculatus (Lucas). Coral; BR, PE, PC. Very abundant in pier pilings; MC. {BA, BE (Chace, 1972)}. Distribution in W Atlantic: Bermuda; North Carolina through Gulf of Mexico and West Indies to Curaçao (Williams, 1984).

Leander tenuicornis (Say). VG. Regurgitated by snowy egret *Egretta thula* (Molina); Cayo Cedro, BA. {BA, BE (Chace, 1972)}. Distribution: Canada to Falkland Islands (Williams, 1984).

**Macrobrachium acanthurus* (Wiegmann). Between mangrove roots; LP. Previous distribution: North Carolina to Brazil, including Gulf of Mexico, Cuba, Puerto Rico and Belize to Venezuela (Holthuis, 1952; Williams, 1984).

Palaemonetes octaviae Chace. VG. {BA (Chace, 1972)}. Distribution: Quintana Roo; Guadeloupe (Chace, 1972).

**P. vulgaris* (Say). In empty *Strombus* shells; CQ. PH. Previous distribution: Cape Breton Island through Florida and Bahamas to Texas; Cuba?; Campeche and Yucatán (Creaser, 1936; Holthuis, 1952; Williams, 1984).

Subfamily PONTONIINAE

{*Anchistioides antiguensis* (Schmitt). Off Cabo Catoche (Holthuis, 1951)}. Distribution: Bermuda; S Florida; Bahamas; Quintana Roo; St. Thomas; Antigua (Holthuis, 1951).

**Neopontonides beaufortensis* (Borradaile). Commensal on gorgonian *Plexaurella dichotoma* (Esper); near AR. Previous distribution: North Carolina to Louisiana; Panama; Antigua; Curaçao (Criales, 1980; Williams, 1984).

{*Periclimenaeus atlanticus* (Rathbun). IC, BA (Chace, 1972)}. Distribution: St. Thomas; Quintana Roo (Chace, 1972).

{*P. bredini* Chace. IM (Chace, 1972)}. Distribution: Known only from type-locality, Isla Mujeres (Chace, 1972).

{*P. caraibicus* Holthuis. BA (Chace, 1972)}. Distribution: Quintana Roo; Barbuda; Antigua; Dominica; St. Lucia; Tobago (Chace, 1972).

Periclimenes americanus (Kingsley). *Strombus*-shell reefs; OP. CC. In sponge on mangrove; PA. On mangrove root; PH. {Off Cabo Catoche (Rathbun, 1902; Holthuis, 1951). IM, IC, BA, BE (Chace, 1972)}. Distribution: Bermuda; North Carolina; S Florida; W Gulf of Mexico; Cuba; Jamaica; Puerto Rico; Virgin Islands; Quintana Roo; Colombia; Venezuela; Trinidad; Aruba; Brazil (Holthuis, 1951; Rodríguez, 1980; Williams, 1984; Abele & Kim, 1986).

- **P. pedersoni* Chace. On anemones on sand and dead shells; near AR. With anemone, 6-8 m; El Avi3n reef, IC (MKW). On sponge; PA [Some specimens very similar to *P. anthophilus* Holthuis & Eibl-Eibesfeld, a Bermuda endemic]. Previous distribution: North Carolina; NW Florida; Bahamas; Belize; through West Indies to Bonaire (Williams, 1984; Abele & Kim, 1986).
- {*P. rathbunae* Schmitt. BA (Chace, 1972)}. Distribution: S Florida?; Quintana Roo; Antigua; Guadeloupe; St. Lucia; Curaçao; Venezuela (Chace, 1972; Rodríguez, 1980).
- P. yucatanicus* (Ives). With anemone, 6-8 m; El Avi3n Reef, IC (MKW). {IC (Chace, 1972)}. Distribution: Virgin Islands; Virgin Gorda; Barbuda; Antigua; Yucatán; Quintana Roo; Venezuela (Chace, 1972; Rodríguez, 1980).
- {*Pontonia mexicana* Guérin-Méneville. IC (Chace, 1972). Distribution: West Indies; Quintana Roo; Venezuela (Chace, 1972; Rodríguez, 1980).
- **Tuleariocaris neglecta* Chace. Among spines of urchin *Diadema antillarum* (Phillipi); BA. [Color uniformly purple to match host.] Previous distribution in W Atlantic: Bermuda; Florida Keys; Dominica; Barbados; Curaçao (Chace, 1972; Markham & McDermott, 1981).

Family GNATHOPHYLLIDAE

- {*Gnathophylloides mineri* Schmitt. BA (Chace, 1972)}. Distribution: SE Florida; Quintana Roo; Puerto Rico; Antigua; St. Lucia; Tobago; Venezuela (Rodríguez, 1980; Chace, 1972).
- Gnathophyllum americanum* Guérin-Méneville. In coral rubble; PE. On pier pilings; MC. {IC, BA (Chace, 1972)}. Distribution in W Atlantic: Bermuda; Florida; Gulf of Mexico and Caribbean, including Cuba, Puerto Rico, Antigua, Guadeloupe and Venezuela (Manning, 1963; Chace, 1972; Rodríguez, 1980; Bauer, 1985b).

Superfamily ALPHEOIDEA

Family ALPHEIDAE

- {*Alpheopsis trigonus* (Rathbun). BE (Chace, 1972)}. Distribution: Bermuda; Puerto Rico; Virgin Islands; Quintana Roo; Barbuda; Barbados; Venezuela (Chace, 1972; Rodríguez, 1980).
- {*Alpheus amblyonyx* Chace. BA (Chace, 1972)}. Distribution: Quintana Roo; Puerto Rico; St. Thomas; Dominica (Chace, 1972).
- A. armatus* Rathbun. Under anemone *Bartholomea*, 8 m; off limestone bluffs near San Miguel, IC (MKW). {BA (Chace, 1972)}. Distribution: Bahamas and S Florida through West Indies to Tobago and Quintana Roo; Venezuela (Chace, 1972; Rodríguez, 1980).
- A. armillatus* H. Milne Edwards. In sponge; PM. Under rocks, OA. In *Strombus*-shell reefs; OP. In coral rubble; VC; PE; PI; BR; CC; La Glorieta. {IC, BA (Chace, 1972)}. Distribution: Bermuda; North Carolina through Gulf of Mexico and Caribbean to Brazil (Chace, 1972).
- A. bahamensis* Rankin. CC. {IC, BA (Chace, 1972)}. Distribution: Bermuda; Dry Tortugas through West Indies to Quintana Roo; Venezuela (Chace, 1972; Rodríguez, 1980).

- **A. bouvieri* A. Milne Edwards. PX. Previous distribution in W Atlantic: Bermuda and Antigua to Tobago and Fernando de Naronha (Chace, 1972).
- A. cristulifrons* Rathbun. In coral rubble; PE; BR. On *Thalassia*; near AR. {IM, BA, BE (Chace, 1972)}. Distribution in W Atlantic: Dry Tortugas to Fernando de Naronha and Yucatán Peninsula; Venezuela (Chace, 1972; Rodríguez, 1980).
- {*A. floridanus* Kingsley. BA (Chace, 1972)}. Distribution in W Atlantic: S Florida through Gulf of Mexico; Quintana Roo; Antigua and Guadeloupe to Venezuela; Brazil (Chace, 1972; Rodríguez, 1980).
- A. formosus* Gibbes. AR. In coral rubble; PE, PC, Pl, BR. {BA (Chace, 1972)}. Distribution: Bermuda; North Carolina through Gulf of Mexico and West Indies to Brazil (Chace, 1972; Abele & Kim, 1986).
- **A. heterochaelis* Say. Near AR. In empty *Strombus* shells; CQ. VG. Previous distribution: Bermuda?; North Carolina to Surinam; Brazil; though many records doubtful (Holthuis, 1959; Chace, 1972; Markham & McDermott, 1981).
- **A. malleator* Dana. In coral rubble; PE. Previous distribution in W Atlantic: Puerto Rico through Grenada to Brazil (Chace, 1972).
- {*A. normanni* Kingsley. BA (Chace, 1972)}. Distribution: Bermuda; Virginia through Puerto Rico to Tobago; Quintana Roo; Venezuela (Chace, 1972; Rodríguez, 1980; Bauer, 1985b).
- {*A. peasei* (Armstrong). IM, IC, BA, BE (Chace, 1972)}. Distribution: Bermuda; S Florida through Caribbean to Tobago, Quintana Roo and Isla de Providencia; Venezuela (Chace, 1972; Rodríguez, 1980).
- {*A. viridari* (Armstrong). IC, BA (Chace, 1972)}. Distribution: Florida Keys through Caribbean to Trinidad, Curaçao and Quintana Roo (Chace, 1972).
- A. websteri* Kingsley. In coral rubble; PC, PE. {IC, BA [as *A. ridleyi* Pocock] (Chace, 1972)}. Distribution: Bermuda; S Florida; Bahamas through Antilles to Brazil; Quintana Roo (Chace, 1972; Markham & McDermott, 1981; Abele & Kim, 1986).
- {*Automate gardinieri* Coutière. BA (Chace, 1972)}. Distribution in W Atlantic: North Carolina; Virgin Islands; Antigua; Barbados; Quintana Roo (Chace, 1972).
- {*A. rectifrons* Chace. BA [type-locality] (Chace, 1972)}. Distribution: S Florida; Quintana Roo; Antigua? (Chace, 1972; Abele & Kim, 1986).
- {*Metalpheus rostratipes* (Pocock). IC, BA, BE (Chace, 1972)}. Distribution in W Atlantic: Puerto Rico and Quintana Roo to Brazil (Chace, 1972).
- {*Salmoneus ortmanni* (Rankin), BA, BE (Chace, 1972)}. Distribution: Bermuda; Bahamas; Quintana Roo (Chace, 1972).
- Synalpheus anasimus* Chace. In coral rubble; PC. {BA, BE (Chace, 1972; Dardeau, 1984)}. Distribution: Only Quintana Roo (Chace, 1972; Dardeau, 1984).
- S. apioceros* Coutière. CC. {IC, BA (Chace, 1972)}. Distribution: Florida through West Indies, Venezuela and Surinam to S Brazil; Yucatán Peninsula (Holthuis, 1959; Chace, 1972; Rodríguez, 1980).
- S. bousfieldi* Chace. In sponge, OP. {BE (Chace, 1972; Dardeau, 1984)}. Distribution: Bahamas; W Florida; Quintana Roo; Virgin Islands? (Chace, 1972; Dardeau, 1984).
- S. brooksi* Coutière. In sponge *Ircinia felix* (Duch. & Mich.); PC. {Off Cabo Catoche (Coutière, 1909). IM, IC, BA (Chace, 1972)}. Distribution: Florida Keys; Gulf of

- Mexico; Bahamas; Quintana Roo; Puerto Rico; Virgin Islands; Antilles; Venezuela; Surinam; Brazil (Chace, 1972; Rodríguez, 1980; Dardeau, 1984).
- S. fritzmuelleri* Coutière. In sponge *Ircinia felix* (Duch. & Mich.); near OP. PX. In unidentified sponge; PA. {BA (Chace, 1972)}. Distribution in NW Atlantic: Bermuda; North Carolina to Brazil (Chace, 1972).
- S. longicarpus* (Herrick). In sponge on mangroves near lighthouse; PA. {Off Cabo Catoche (Coutière, 1909. BA (Chace, 1972)}. Distribution: North Carolina and Bermuda to E and W Florida and Bahamas; Quintana Roo; Jamaica; Haiti?; Virgin Islands; Netherlands Antilles; Barbados; Venezuela (Chace, 1972; Dardeau, 1984).
- {*S. macclendoni* Coutière. BA, BE (Chace, 1972)}. Distribution: S Florida; Bahamas; Quintana Roo; Windward Islands; Barbados; Tobago (Chace, 1972; Dardeau, 1984).
- S. minus* (Say). CC. {IC, BA, BE (Chace, 1972)}. Distribution: Bermuda; North Carolina to Brazil (Chace, 1972).
- {*S. paranepentus* Coutière. BA, BE (Chace, 1972; Dardeau, 1984)}. Distribution: W and S Florida; Quintana Roo; Jamaica; Puerto Rico; Leeward and Windward Islands; Colombia (Chace, 1972; Dardeau, 1984).
- {*S. pectiniger* Coutière. IM, IC, BA (Chace, 1972)}. Distribution: Florida Keys; Gulf of Mexico; Bahamas; Quintana Roo; Puerto Rico; Virgin Islands; Antilles; Venezuela; Surinam; Brazil (Chace, 1972; Rodríguez, 1980; Dardeau, 1984).
- {*S. rathbunae* Coutière. BA (Chace, 1972)}. Distribution: SE Florida; Bahamas to Grenadines; St. Thomas; Quintana Roo (Chace, 1972; Abele & Kim, 1986).
- S. townsendi* Coutière. Mangrove roots; PA, PH. {Off Cabo Catoche (Coutière, 1909). BA (Chace, 1972)}. Distribution in W Atlantic: Bermuda; W Florida; North Carolina to Brazil (Chace, 1972).
- {*Thunor rathbunae* (Schmitt). BA (Chace, 1972)}. Distribution: Florida Keys and Quintana Roo to Barbados (Chace, 1972).

Family HIPPOLYTIDAE

- Hippolyte zostericola* (Smith). In *Sargassum*; VC. CC. {BA (Chace, 1972)}. Distribution: Massachusetts; Bermuda; North Carolina through Yucatán Peninsula to Trinidad, Curaçao and Venezuela; Brazil (Chace, 1972; Rodríguez, 1980; Abele & Kim, 1986).
- {*Janicea antiguensis* (Chace). In marine cave, IC (Kensley, 1988)}. Distribution: Bermuda; Bahamas; Quintana Roo; Antigua (Kensley, 1988).
- Latreutes fucorum* (Fabricius). Pozas de marea; IC. In *Thalassia*; PC. On *Pinna* shell; CC. On mangrove roots; PH. {BA (Chace, 1972)}. Distribution in W Atlantic: 50° N to 10° N (Chace, 1972).
- L. parvulus* (Stimpson). In *Strombus* shell reef; OP. {BE (Chace, 1972)}. Distribution in W Atlantic: Texas; North Carolina to Brazil (Chace, 1972).
- {*Lymata intermedia* (Kingsley). BA (Chace, 1972)}. Distribution in W Atlantic: E Gulf of Mexico; Florida Keys to Tobago, Curaçao and Venezuela (Chace, 1972; Rodríguez, 1980; Abele & Kim, 1986).
- L. wurdemanni* (Gibbes). *Strombus*-shell reef, OP. Common; AR, BA. {BA (Chace,

- 1972)}. Distribution: New Jersey through Florida to Texas; Quintana Roo; Cuba; Venezuela; Guianas; Brazil (Holthuis, 1959; Chace, 1972; Rodríguez, 1980; Williams, 1984).
- Lysmata* sp. [aff. *L. wurdemanni*]: *Strombus*-shell reef; OP. Color: translucent white except red antennules and red stripe along outer side of each eyestalk and of each pereopod; two thin longitudinal stripes along abdomen, oblique stripes on sides of carapace and uropodal endopodites.
- {*Somersiella sterreri* Hart & Manning. In marine cave. IC (Kensley, 1988)} Distribution: Bermuda; Quintana Roo (Kensley, 1988).
- Thor amboinensis* (De Man). On anemone *Condylactis*; 8-18 m, Palancar Gardens, IC (MKW). On anemone *Bartholomea*; 7 m, off limestone bluffs near San Miguel, IC (MKW). On sand; PA. {BA (Chace, 1972)}. Distribution in W Atlantic: Florida Keys to Tobago and Yucatán Peninsula (Chace, 1972).
- T. dobkini* Chace. In *Sargassum*; VC. {BA (Chace, 1972)}. Distribution: North Carolina to Yucatán Peninsula; Louisiana; N Cuba (Williams, 1984).
- T. floridanus* Kingsley. In *Thalassia*; LN. CC. {Off Cabo Catoche (Rathbun, 1902). BA (Chace, 1972)}. Distribution: North Carolina (?) and South Carolina to Yucatán Peninsula (Chace, 1972).
- {*T. manningi* Chace. BA (Chace, 1972)}. Distribution in W Atlantic: North Carolina to Tobago, Curaçao and Venezuela; Quintana Roo (Chace, 1972; Rodríguez, 1980).
- Tozeuma carolinense* Kingsley. Attracted to dive light at night; OA. In *Sargassum*; VC. {IC (USNM). BA (Chace, 1972)}. Distribution: Massachusetts through Yucatán Peninsula and Antilles to Panama and Curacao; Venezuela; Brazil (Chace, 1972; Rodríguez, 1980; Abele & Kim, 1986).
- {*Trachycaris restrictus* (A. Milne Edwards). Off Cabo Catoche [as *Platybema rugosum* Bate] (Rathbun, 1902)}. Distribution in W Atlantic: Bermuda; Gulf of Mexico; S Florida; Yucatán Channel; Venezuela; Brazil (Rathbun, 1902; Chace, 1972; Rodríguez, 1980).
- {*Yagerocaris cozumel* Kensley. In Marine cave, IC (Kensley, 1988)}. Distribution: Known only from type-locality, Cozumel.

Family PROCESSIDAE

- Processa fimbriata* Manning & Chace. AR. PE. {IC, BA (Chace, 1972)}. Distribution: North Carolina to Brazil (Chace, 1972).

Infraorder PALINURA Superfamily PALINUROIDEA Family PALINURIDAE

- Note. Espejel-Montes (1983a) lists 3 species of *Panulirus* from the Sian Ka'an region of Quintana Roo, namely *P. argus* (Latreille), *P. guttatus* (Latreille), and *P. laevicauda* (Latreille), as of potential commercial value.
- Panulirus argus* (Latreille). In caves of reefs and under coral rubble; PE, PC, PI. On four reefs; 7-23 m, IC (MKW). {IC (USNM). BA (Solís, 1963)} Common along-

entire coast of Quintana Roo and fished commercially. Distribution: Bermuda; North Carolina through Gulf of Mexico and West Indies to Brazil (Williams, 1984).
P. guttatus (Latreille). {BA (Solís, 1963)} Also common along Quintana Roo coast, often caught incidentally to fishery for *P. argus*, mostly used for private consumption. Distribution: Bermuda; Bahamas; S Florida; Quintana Roo; Belize; Cuba; Haiti, Virgin Islands; Leeward Islands including Barbados; Netherlands Antilles; Venezuela; Panama (Solís, 1963; Holthuis et al., 1980).
 {*P. laevicauda* (Latreille). BA (Solís, 1963)} Distribution: Bermuda; Florida; Quintana Roo; Cuba; Jamaica; Curaçao; Surinam; French Guiana; Brazil (Holthuis, 1959; Solís, 1963)

Family SCYLLARIDAE
 Subfamily ARCTIDINAE

Scyllarides nodifer (Stimpson). AR. On grass flats; BA. {Off Cabo Catoche (Lyons, 1970)}. Widely used as food, though evidently not commercially. Distribution: Bermuda; North Carolina to Florida and through Gulf of Mexico to Texas; Quintana Roo (Lyons, 1970; Williams, 1984).

Infraorder THALASSINIDEA
 Superfamily THALASSINOIDEA
 Family UPOGEBIIDAE

**Upogebia* n. sp. [to be described by A. B. Williams] In old battery case; OP.

Family LAOMEDIIDAE
 Subfamily NAUSHONIINAE

{*Naushonia portoricensis* (Rathbun). Sand flats; near Punta Solimán, BA (Goy & Provenzano, 1979)}. Distribution: Bermuda; Cuba; Puerto Rico; Quintana Roo (Goy & Provenzano, 1979).

Infraorder ANOMURA

Note. Anomurans of the Caribbean are only incompletely recorded. A recent paper by Gómez-Hernández and Martínez-Iglesias (1986) lists 69 species of paguroids from Cuba (though only 26 of those have been confirmed to occur there, according to the notation in that report), the closest locality to Quintana Roo to have been surveyed thoroughly. Although our catalog is much shorter, all but 7 species positively identified from Quintana Roo are also known from Cuba. There are many peculiarities in the microdistributions of hermit crabs in Quintana Roo, which are noted in the species citations but remain unexplained.

Superfamily COENOBITOIDEA
 Family DIOGENIDAE

Calcinus tibicen (Herbst). On *Porites* clumps; PN. Only hermit common in that loca-

- lity. Common between coral and coral rubble, almost always forming groups; IC, IM, PE, PC, BR, PX. Abundant in shallow water; off San Miguel, IC (MKW). CC. Distribution: Bermuda; NW and S Florida through West Indies to Brazil (Provenzano, 1959; Forest & de Saint Laurent, 1967; Abele & Kim, 1986).
- **Clibanarius antillensis* Stimpson. Intertidal on sandy bottom; VC. Previous distribution: Bermuda; S Florida through Cuba, Puerto Rico and other West Indian islands to Curaçao, Venezuela and Brazil (Provenzano, 1959; Rodríguez, 1980; Markham & McDermott, 1981; Bauer, 1985a; Gómez-Hernández & Martínez-Iglesias, 1986).
- **C. scolopetarius* (Herbst). Intertidal, VC. Shallow waters; LP. Previous distribution: Florida; Campeche; Cuba; West Indies; Curaçao; Venezuela [as *C. cubensis* (de Saussure)]; see Holthuis, 1959] (Creaser, 1936; Provenzano, 1959; Hazlett, 1966; Rodríguez, 1980).
- C. tricolor* (Gibbes). Common intertidally; south coast, IC. Abundant in shallow water; off San Miguel, IC (MKW). Coral and coral rubble; IC, PE, PC. Caleta Xel-ha. Abundant on subtidal rock bottom; CY. Distribution: Bermuda; S Florida through West Indies to Curaçao and Venezuela (Provenzano, 1959; Hazlett, 1966; Rodríguez, 1980).
- C. vittatus* (Bosc). Intertidally; VC. Shallow waters; LP. Distribution: Virginia through Florida; NW and S Gulf of Mexico to Curaçao, Venezuela and Guianas; Brazil (Hazlett, 1966; Rodríguez, 1980; Williams, 1984; Raz-Guzmán et al., 1986).
- **Dardanus venosus* (H. Milne Edwards). Fairly common near AR. Previous distribution: Bermuda; Cuba; Haiti; Puerto Rico; Virgin Islands; Guadeloupe; Barbados; Venezuela through Surinam to Brazil [though some records may refer to *D. fucosus* Biffar & Provenzano] (Forest & de Saint Laurent, 1967; Rodríguez, 1980).
- Paguristes cadenati* Forest. Frequent on patch reefs; south of IM. Abundant; OA. Common at 6 m on bedrock; Parque Chankanaab, IC. At 6-8 m; El Avión Reef, IC (MKW). [IC (Wicksten, 1988)]. Distribution: S Florida; Quintana Roo; Martinique; Curaçao; Venezuela (Hazlett, 1966; Rodríguez, 1980; Abele & Kim, 1986; Wicksten, 1988).
- P. grayi* Benedict. Coral rubble; IM, PC. In shells of *Strombus gigas* L.; PI. Very common. At 9 m; off limestone bluffs near San Miguel, IC (MKW). [IC (Wicksten, 1988)]. Distribution: S Florida; Cuba; Puerto Rico; Hispaniola; Quintana Roo; Venezuela (Provenzano, 1959; Rodríguez, 1980; Gómez-Hernández & Martínez-Iglesias, 1986; Wicksten, 1988).
- **P. puncticeps* Benedict. PC. AR. On *Strombus* shell reefs; OP. Distinctively colored, having a red background with round white spots over all of body and appendages, except soft parts of abdomen pink instead of red and fading rapidly in preservative. Previous distribution: NW and S Florida; Cuba; Virgin Islands; Venezuela (Provenzano, 1959; 1961; Rodríguez, 1980; Gómez-Hernández & Martínez-Iglesias, 1986).
- Paguristes* sp. indet. One specimen only; AR. Descriptive notes: Antennae very short; eyestalks stout with large brack corneae; dorsal and ventral ridges of all pereopods thickly fringed with pinnately branched setae. Color: Background pale tan; distal halves of eyestalks and flagella of antennules and antennae metallic blue except for very thin white band at end of each antennal segment; shield with

triangles of olive-green on rostrum and anterolateral corners; minute sparse red dots on soft part of carapace and abdomen; corneous brown tips on chelae and on dactyli of walking legs.

Petrochirus diogenes (L.). Near AR. Common on reefs, 8-18 m; IC (MKW). In *Thalassia* flats; BA. BA (USNM). Distribution: Bermuda; North Carolina through Gulf of Mexico and West Indies to S Brazil (Markham & McDermott, 1981; Williams, 1984).

Family COENOBITIDAE

Coenobita clypeatus (Herbst). Common among roots of mangroves; LP, IC, BA. On roads and in maritime vegetation; PC, PM. Isla La Pasión, Playa San Francisco and El Mirador, IC (MKW). IC; BA (USNM). This common terrestrial species bears almost exclusively shells of *Cittarium pica* (L.). Distribution: Bermuda; S Florida and Bahamas through West Indies to Brazil (Provenzano, 1959).

Superfamily PAGUROIDEA

Family PAGURIDAE

**Iridopagurus* sp. [evidently distinct from *I. caribbensis* (A. Milne Edwards & Bouvier)]. On sand; near AR.

Manucomplanus corallinus (Benedict). Off Cabo Catoche, 38-50 m (USNM). Distribution: North Carolina through Florida to N Gulf of Mexico; Quintana Roo; French Guiana? (Williams, 1984).

**Pagurus annulipes* (Stimpson). Intertidal; VC. Previous distribution: Massachusetts to S Florida (Lemaitre et al., 1982).

P. brevidactylus (Stimpson). Fairly common; AR. Among algae; PX. On rocky subtidal bottom with *Clibanarius tricolor* but much less abundant; CY. Distribution: Bermuda; NE Florida and Bahamas through Gulf of Mexico and Caribbean to Brazil (Lemaitre et al., 1982).

**P. stimpsoni* (A. Milne Edwards & Bouvier). Fairly common; AR. On rocky subtidal bottom with *Clibanarius tricolor* but much less abundant; CY. CC. VG, Cayo Cedro. Previous distribution: North Carolina to Florida; Gulf of Mexico; Puerto Rico; SE Caribbean (Lemaitre et al., 1982; Bauer, 1985a).

**Pagurus* sp. A. On sand; near AR. In *Strombus*-shell reef, OP.

**Pagurus* sp. B. [aff. *P. trichocerus* Forest & de Saint Laurent]. CC.

**Phimochirus operculatus* (Stimpson). Very common on bottoms covered with coral rubble; IC. At 9 m; off limestone bluffs near San Miguel, IC (MKW). Molt near patch reef; OA. Previous distribution: S Florida; Curaçao; Colombia; Venezuela (Rodríguez, 1980; McLaughlin, 1981a).

Superfamily GALATHEOIDEA

Family GALATHEIDAE

Munida pusilla Benedict. In rubble heap; near AR. [New bathymetric record, 7 m.] {Off Cabo Catoche (Haig, 1956)}. Distribution: North Carolina to S Florida and

Bahamas; Straits of Florida through E Gulf of Mexico to Yucatán Peninsula; Colombia; Venezuela; Tobago; Trinidad (Haig, 1956; Williams, 1984).

Family PORCELLANIDAE

Megalobrachium soriatum (Say). In coral rubble; BR. {Isla Contoy (Milne Edwards & Bouvier, 1923)}. Distribution: Widespread from North Carolina to Florida; Gulf of Mexico; Quintana Roo; Barbados and E Caribbean; Panama; Colombia; Brazil (Gore & Abele, 1976; Werding, 1977; Williams, 1984).

**Neopisosoma curacaoense* (Schmitt). In coral rubble, only 1 example; PC. Previous distribution: Puerto Rico and Virgin Islands; Curaçao; Colombia; Venezuela (Haig, 1956; Werding, 1978; Rodríguez, 1980).

**Pachycheles ackleianus* A. Milne Edwards. In sponge; PM. In algae; PX. Previous distribution: W and S Florida; Gulf of Mexico north of Yucatán Peninsula; Cuba; Jamaica; St. Thomas; Barbados; Colombia (Haig, 1956; Werding, 1977).

**P. pilosus* (H. Milne Edwards). In coral rubble; IC, PE. Among algae; PX, Xamach. Previous distribution: South Carolina; SW Florida; through West Indies to Tobago, Aruba, Colombia and Venezuela (Werding, 1977; Rodríguez, 1980; Williams, 1984).

P. rugimanus A. Milne Edwards. Among algae; PX. {Isla Contoy (Milne Edwards & Bouvier, 1923)}. Distribution: North Carolina through Florida to St. Thomas; Quintana Roo; Brazil (Williams, 1984).

**Petrolisthes armatus* (Gibbes). Intertidally, beneath coral rubble; IC, PE. Previous W Atlantic distribution: Connecticut; Bermuda; Florida; Bahamas; NW Gulf of Mexico; Campeche; Cuba; Jamaica; Puerto Rico; St. Thomas; Curaçao; Colombia; Venezuela; Panama; Brazil (Milne Edwards & Bouvier, 1923; Creaser, 1936; Werding, 1977; Rodríguez, 1980; Markham & McDermott, 1981; Gore, 1982; Raz-Guzmán et al., 1986).

P. galathinus (Bosc). In *Strombus* shell; CQ. In coral; BR. In coral rubble; IC, IM, PE, PC, PI. {Isla Contoy (Milne Edwards & Bouvier, 1923)}. Atlantic Distribution: North Carolina to W and S Florida; through Gulf of Mexico; Cuba; Jamaica; Quintana Roo; Puerto Rico; St. Thomas; Barbados; Netherlands Antilles; Trinidad; Colombia; Venezuela to Brazil (Milne Edwards & Bouvier, 1923; Gore & Abele, 1976; Werding, 1977; Williams, 1984).

**P. jugosus* Streets. In sponge; PM. In coral rubble; PE. Previous distribution: W and S Florida; Veracruz; Puerto Rico; St. Thomas; Barbados; Netherlands Antilles; Trinidad; Tobago; Panama; Colombia; Venezuela (Milne Edwards & Bouvier, 1923; Haig, 1956; Rickner, 1975; Gore & Abele, 1976; Werding, 1977).

**P. quadratus* Benedict. Found only in regions of bedrock with heavy wave action; IC. Previous distribution: Bahamas; Veracruz; Puerto Rico; Panama; Aruba; Curaçao; Colombia; Venezuela (Haig, 1956; Rickner, 1975; Werding, 1977; Rodríguez, 1980).

Porcellana sayana* (Leach). Tancah (USNM**). Previous distribution: North Carolina through Florida to Gulf of Mexico and Caribbean; Brazil (Williams, 1984).

Infraorder BRACHYURA

Note. In a list of the Brachyura (not including semiterrestrial and terrestrial species) of Golfo de Batabanó in nearby southwestern Cuba, Martínez-Iglesias & Gómez-Hernández (1986) report 56 species, of which 32 are common to Quintana Roo. Equally close in a different direction, but with an opposite bias, Keith (1985) reports 67 species of shallow-water and terrestrial Brachyura from islands offshore from Honduras, of which we also report 45 from Quintana Roo.

Family HOMOLODROMIIDAE

**Dicranodromia* sp. [Apparently distinct from *D. ovata* A. Milne Edwards]. One pair; PM.

Family DROMIIDAE

Dromidia antillensis Stimpson. In coral rubble; IC, PC. In *Strombus* shells; PI. In sponge in fouling; PA. {Off Cabo Catoche (Rathbun, 1937)}. Distribution in W Atlantic: Bermuda; North Carolina via Florida and Bahamas through Gulf of Mexico and Caribbean to Venezuela and Surinam; Brazil (Holthuis, 1959; Garth, 1978; Rodríguez, 1980; Williams, 1984; Abele & Kim, 1986).

Family CALAPPIDAE Subfamily CALAPPINAE

**Calappa flammea* (Herbst). Intertidal on sandy beach; PI. BA. Previous distribution: Massachusetts to Florida Keys and Bahamas; Bermuda; coasts of Gulf of Mexico to Campeche (Hernández-Aguilera & Villalobos-Hiriart, 1980; Williams, 1984).

**C. gallus* (Herbst). Cast ashore; Playa San Francisco, IC (MKW). Previous distribution in W Atlantic: Bermuda; Bahamas; S Florida; Cuba; Jamaica; Puerto Rico; St. Croix to Barbados; off Campeche; Panama to Venezuela; Netherlands Antilles; Brazil (Powers, 1977).

Cycloes bairdii Stimpson. Common in subtidal sand; PM. Distribution in W Atlantic: Bermuda; North Carolina to Brazil (Williams, 1984).

Family LEUCOSIIDAE Subfamily EBALIINAE

Spelaeophorus pontifer (Stimpson). On sand and *Thalassia*; near AR. Distribution: North Carolina; Florida; West Indies to Barbados (Rathbun, 1937; Williams, 1984).

**Uhlias limbatus* Stimpson. In coral rubble; PE. Previous distribution: S Florida; Cuba; Jamaica; Haiti; Virgin Islands; Veracruz (Rathbun, 1937; Powers, 1977; Martínez-Iglesias & Gómez-Hernández, 1986).

Family MAJIDAE
Subfamily INACHINAE

- Podocheila macrodera* Stimpson. Among algae covering coral rubble; PE. {IM (Rathbun, 1925)}. Distribution: W and S Florida; Bahamas; Quintana Roo; Cuba; Puerto Rico; Virgin Islands; Guadeloupe; Netherlands Antilles; Venezuela; Brazil (Rathbun, 1925; Rodríguez, 1980; Keith, 1985).
- P. riisei* Stimpson. AR. {Isla Contoy (Milne Edwards & Bouvier, 1923)}. Distribution: Bermuda; North Carolina to Campeche and Quintana Roo; through West Indies to Trinidad; Brazil (Williams, 1984).
- {*P. sidneyi* Rathbun. Off Cabo Catoche (Rathbun, 1925)}. Distribution: North Carolina; Alabama; S and W Florida; Cuba; Veracruz; Quintana Roo (Rathbun, 1925; Williams, 1984).
- Stenorhynchus seticornis* (Herbst). Patch reefs; N of Isla Cancún. Most conspicuous crab; AR. *Strombus*-shell reefs; OP. Abundant and conspicuous; many reef localities, IC (MKW). On coral; BA. In coral rubble; PE, PC. On patch reef; BA. Distribution: Bermuda; North and South Carolina; Florida; Alabama; Bahamas; Cuba; Jamaica; Puerto Rico; St. Thomas; Yucatán Channel; St. Martin; Dominica; Curaçao; Colombia; Surinam; Brazil (Rathbun, 1925; Holthuis, 1959; Garth, 1978; Williams, 1984; Martínez-Iglesias & Gómez-Hernández, 1986).

Subfamily OPHTHALMIINAE

- **Pitho anisodon* (Von Martens). Cast ashore; Isla La Pasión, IC (MKW). Previous distribution: Florida; Bahamas; Cuba; Jamaica; Puerto Rico; Guadeloupe; Curaçao (Powers, 1977).
- **P. aculeata* (Gibbes). In rubble heap; near AR. Among algae covering coral rubble; PE. Previous distribution: W and S Florida; Bahamas; Cuba; Jamaica; Puerto Rico; Virgin Islands; Guadeloupe; Netherlands Antilles; N South America (Rathbun, 1925; Powers, 1977; Garth, 1978).
- **P. laevigata* (A. Milne Edwards). La Glorieta, BA. Previous distribution: W and NW Florida; Trinidad; Colombia (Rathbun, 1925; Powers, 1977).
- P. lherminieri* (Schramm). Among tunicates and sponges on base of *Porites*; AR. *Strombus*-shell reefs; OP. Distribution: North Carolina to W Florida; Veracruz; West Indies through Venezuela to Brazil (Rodríguez, 1980; Williams, 1984).

Subfamily EPIALTINAE

- **Acanthonyx petiverii* H. Milne Edwards. Among algae covering coral rubble; PE. In algae; Xochem. Previous distribution in W Atlantic: NW and SE Florida; Bahamas; Cuba; Jamaica; Puerto Rico; Virgin Islands; Tamaulipas; Panama; Netherlands Antilles; Venezuela; Brazil (Rathbun, 1925; Buitendij, 1950; Powers, 1977; Garth, 1978).
- **Epialtus bituberculatus* H. Milne Edwards. Among algae covering coral rubble; IC. In algae; Tulum. Previous distribution: E and S Florida; Puerto Rico; Bonaire?; Colombia; Panama; Venezuela; Brazil? (Rathbun, 1925; Chace & Holthuis, 1948; Powers, 1977; Rodríguez, 1980).

E. dilatatus A. Milne Edwards. In algae; Xochem. {IM (Rathbun, 1925)}. Distribution: North Carolina; W and S Florida; Bahamas; Quintana Roo; Puerto Rico; St. Thomas (Rathbun, 1925; Williams, 1984).

Subfamily MITHRACINAE

Chorinus heros (Herbst). Among algae covering coral rubble; PE. Molt cast ashore; Playa San Francisco, IC (MKW). Distribution: Bermuda; Florida Keys; Quintana Roo; Campeche; Cuba; Puerto Rico; Jamaica; Hispaniola; Barbados; Venezuela; Brazil (Rathbun, 1925; Rodríguez, 1980).

{*Hemus cristulipes* A. Milne Edwards. Near Isla Contoy [type-locality] (Milne Edwards, 1873-1881). Off Cabo Catoche. IM (Rathbun, 1925)}. Distribution: North and South Carolina; W Florida; NW Gulf of Mexico; Quintana Roo; Cuba; Puerto Rico; Curaçao; Venezuela; Brazil (Rathbun, 1925; Rodríguez, 1980; Abele & Kim, 1986; Martínez-Iglesias & Gómez-Hernández, 1986).

**Libinia dubia* H. Milne Edwards; CC. Previous distribution: Massachusetts to Texas; Bahamas; Campeche; Cuba (Williams; 1984; Raz-Guzmán et al., 1986).

**Macrocoeloma diplacanthum* (Stimpson). In rubble heap; AR. Previous distribution: S Florida; Bahamas; Cuba; Jamaica; Puerto Rico; Virgin Islands; Guadeloupe; Curaçao; Honduras; Venezuela (Rathbun, 1925; Rodríguez, 1980; Keith, 1985).

**M. subparallelum* (Stimpson). Among algae covering coral rubble; IC, PE. CC. Previous distribution: Bahamas; Cuba; Jamaica; Haiti; Puerto Rico; St. Thomas; Guadeloupe; Old Providence I.; Brazil (Powers, 1977; Garth, 1978).

M. trispinosum (Latreille). In sponge among mangroves; PA. {Isla Contoy. IM (Rathbun, 1925)}. Distribution: North Carolina to NW and S Florida; Yucatán; Quintana Roo; Honduras; Cuba; Jamaica; Puerto Rico; St. Thomas; Antigua; Curaçao; Venezuela; Brazil (Rathbun, 1925; Powers, 1977; Rodríguez, 1980; Williams, 1984; Keith, 1985).

**Microphrys antillensis* Rathbun. Among algae covering coral rubble; IM. Previous distribution: North Carolina; Bimini; W Florida; N Cuba; Jamaica; Puerto Rico; Brazil (Rathbun, 1925; Powers, 1977; Williams, 1984).

M. bicornutus (Latreille). Among algae covering coral rubble, IM, PE. PM. Cast ashore; San Miguel and Playa San Francisco, IC (MKW). Distribution: Bermuda; North Carolina to Florida and Bahamas through Gulf of Mexico and West Indies to Brazil (Garth, 1978; Williams, 1984; Raz-Guzmán et al., 1986).

**M. interruptus* Rathbun. Among algae covering coral rubble; PE, PC. Previous distribution: Cuba; Antigua; Barbados (Rathbun, 1925).

Microphrys sp. Pier in front of lighthouse; CC.

Mithrax (Mithrax) acuticornis Stimpson. In sponge; PM. CC. {Off Cabo Catoche. IM (Rathbun, 1925)}. Distribution: North Carolina; Florida; Bahamas; Quintana Roo; Cuba; Puerto Rico; Montserrat; Grenadines; Brazil (Rathbun, 1925; Garth, 1978; Williams, 1984; Keith, 1985; Martínez-Iglesias & Gómez-Hernández, 1986).

**M. (M.) cornutus* (de Saussure). BA. Previous distribution: Bermuda; S Florida; Cuba; Jamaica; Haiti; Martinique; Dominica; Brazil (Rathbun, 1925).

- **M. (M.) holderi* Stimpson. Coral rubble; PE, PC. Previous distribution: S Florida; Cuba; Jamaica; Puerto Rico; Virgin Islands (Rathbun, 1925; Powers, 1977).
- M. (M.) pleuracanthus* Stimpson. On coral rubble; PC. In *Strombus* shells; PI. In sponge; PM. In *Strombus*-shell reefs; OP. {Off Cabo Catoche (Rathbun, 1925)}. Distribution: Bermuda; North and South Carolina; NW Florida; W Gulf of Mexico to Yucatán Channel; Cuba; Puerto Rico; St. Thomas; St. Martin; Curaçao; Venezuela (Rathbun, 1925; Williams, 1984).
- M. (M.) spinosissimus* (Lamarck). In coral rubble; PE, PC, IM. On reefs; six localities, IC (MKW). In coral; BR. Often used as food; PM.BA. Distribution: Bermuda; North (?) and South Carolina to Nicaragua; through West Indies to Barbados and Venezuela (Markham & McDermott, 1981; Williams, 1984).
- **M. (M.) verrucosus* H. Milne Edwards. In coral rubble; IC. Off limestone bluffs; near San Miguel, IC (MKW). Previous distribution: South Carolina; Florida; Bahamas; Campeche Banks; Honduras; through West Indies and Venezuela to Brazil (Rodríguez, 1980; Williams, 1984; Keith, 1985).
- **M. (Mithraculus) cinctimanus* (Stimpson). With sea anemones; Santa Rosa and Paradise Reefs, IC (MKW). Previous distribution: S Florida; Bahamas; Jamaica; Dominica; Curaçao (Rathbun, 1925; Patton, 1979).
- **M. (M.) coryphe* (Herbst). In coral rubble; IC, IM, PE; PC, BR. In *Strombus* shells; PI. In algae; Xochem. Tancah (**USNM**). Previous distribution: Bahamas; S Florida; Honduras; Puerto Rico; Virgin Islands; Barbados; Curaçao; Trinidad; Caribbean coast from Panama to Brazil (Garth, 1978; Keith, 1985; Abele & Kim, 1986).
- M. (M.) forceps* A. Milne Edwards. In coral rubble; PC, BR. In *Strombus*-shell reef; OP. Distribution: Bermuda; North Carolina; Florida; Gulf of Mexico to Brazil (Keith, 1985).
- M. (M.) sculptus* (Lamarck). In coral rubble; IC, IM, PC, BR. Under rock off limestone bluffs; San Miguel, IC (MKW). In *Strombus* shells; PI. Distribution: Bahamas and S Florida throughout Caribbean to Brazil (Keith, 1985).
- {*Stenocionops furcata coelata* (A. Milne Edwards). Off Cabo Catoche (Rathbun, 1925)}. Distribution: Bermuda; North and South Carolina; W and S Florida; Alabama; Quintana Roo; Cuba; Puerto Rico; St. Lucia; Barbados; Venezuela; Surinam? (Rathbun, 1925; Holthuis, 1959; Rodríguez, 1980; Markham & McDermott, 1981).
- **S. spinimanus* (Rathbun). BA. Previous distribution: North Carolina through Florida to Mississippi (Williams, 1984).
- {*Teelophrys ornatus* Rathbun. Off Cabo Catoche (Rathbun, 1925)}. Distribution: Puerto Rico; St. Croix; Quintana Roo; Brazil (Rathbun, 1925).
- **Thoe aspera* Rathbun. Among algae covering coral rubble; IC. Previous distribution: Puerto Rico (Rathbun, 1925).
- **T. puella* Stimpson. Among algae covering coral rubble; IC. Previous distribution: Bahamas and Florida through West Indies, including Honduras, Puerto Rico, Virgin Islands, Jamaica and Guadeloupe to Curaçao and Venezuela (Rathbun, 1925; Powers, 1977; Rodríguez, 1980; Keith, 1985).

Family PARTHENOPIDAE

{*Parthenope (Platylambrus) fraterculus* (Stimpson). Off Cabo Catoche (Rathbun, 1925)}. Distribution: North Carolina; Florida; Quintana Roo; Barbados; Surinam; Brazil (Rathbun, 1925; Gore & Scotto, 1979; Williams, 1984).

Family PORTUNIDAE

- **Arenaeus cribrarius* (Lamarck). Sandy beach; PE. Previous distribution: Massachusetts to North Carolina; E Florida and Keys; W Florida to Veracruz and Tabasco; Jamaica; Puerto Rico; Dominica to St. Lucia; Belize to Colombia; Curaçao; Venezuela; Brazil (Buitendijk, 1950; Powers, 1977; Rodríguez, 1980; Williams, 1984).
- {*Callinectes danae* Smith. BE (Williams, 1974)}. Distribution: Bermuda; North Carolina; S Florida; Cuba and Jamaica through Antilles; Campeche; Quintana Roo to Honduras; Panama to Venezuela; Surinam; Brazil (Williams, 1974; Abele & Kim, 1986; Román-Contreras, 1986).
- C. exasperatus* (Gerstaecker). CC. Intertidally on beach; VC. Shallow water; LP. {BA, BE (Williams, 1974)}. Distribution: Bermuda; E Florida; Bahamas; Texas; Veracruz; Campeche; Quintana Roo to Panama, Venezuela and Trinidad; West Indies; Brazil (Williams, 1974; 1984; Keith, 1985; Raz-Guzmán et al., 1986).
- C. larvatus* Ordway. On beach with *Thalassia*; PE, OA. On pilings of pier near lighthouse; CC. In shallow water; LP. IC. Punta Santa María. BA. BE (All USNM). {IC (Rathbun, 1930) IC, BE (Williams, 1974) [as *C. marginatus* (A. Milne Edwards — see Williams, 1984)]. Distribution: Bermuda; North Carolina; Florida; Bahamas; Virgin Islands; Cuba; Jamaica; Hispaniola; Puerto Rico; Quintana Roo; through Caribbean to Venezuela; S Brazil (Williams, 1974; 1984; Abele & Kim, 1986).
- C. ornatus* Ordway. Valencia, BA. CC. On beach; VC. In shallow water; LP. Also: In mangroves W of Faro Punta Allen. BE (USNM). {IC (Rathbun, 1918). PA. BE (Williams, 1974)}. Distribution: Bermuda; New Jersey; Virginia through S Florida and Bahamas to Cuba; Campeche to Belize; Jamaica through Antilles; Panama to S Brazil (Holthuis, 1959; Williams, 1974; Garth, 1978; Williams, 1984; Román-Contreras, 1986).
- C. sapidus* Rathbun. On beach; PC, CH. In shallow water; LP. Natural distribution: Bermuda; Nova Scotia via Bahamas and Florida throughout Gulf of Mexico and Caribbean to Venezuela; Brazil; Uruguay; Argentina (Williams, 1974; Powers, 1977; Williams, 1984).
- **Cronius ruber* (Lamarck). On beach with coral rubble; PE, OA, PC. Previous distribution in W Atlantic: New Jersey; Delaware; Bermuda; Virginia to S Florida and Bahamas; Texas; Veracruz; Campeche; Cuba; Jamaica; Puerto Rico; Virgin Islands to Dominica; Panama; Venezuela; Surinam; Brazil (Holthuis, 1959; Powers, 1977; Garth, 1978; Rodríguez, 1980; Markham & McDermott, 1981; Williams, 1984).
- Portunus anceps* (de Saussure). On beach with *Thalassia*; PC. {IC (Rathbun, 1918)}. Distribution: Bermuda; North Carolina; Bahamas; Florida Keys; Cuba; Yucatán;

- Jamaica; Puerto Rico; Virgin Islands to Guadeloupe; Panama to Brazil (Powers, 1977; Williams, 1984).
- P. depressifrons* (Stimpson). In sand; near AR. On beach with *Thalassia*; PC. Distribution: Bermuda; North Carolina through NW Florida and Bahamas; Cuba; Campeche through Caribbean to Aruba and Venezuela (Garth, 1978; Rodríguez, 1980; Williams, 1984; Martínez-Iglesias & Gómez-Hernández, 1986).
- **P. floridanus* Rathbun. On beach with *Thalassia*; PE. Previous distribution: North Carolina through S Florida to Honduras and Nicaragua; West Indies through N South America to Surinam (Powers, 1977; Williams, 1984).
- **P. gibbesii* (Stimpson). In shell on sand just offshore; PM. Previous distribution: Massachusetts; New Jersey through Florida to Texas; Caribbean coast from Venezuela to French Guiana (Rathbun, 1930; Holthuis, 1959; Williams, 1984).
- {*P. ordwayi* (Stimpson). Off Cabo Catoche. IC (Rathbun, 1930)}. Distribution: Bermuda; Massachusetts; North Carolina through Gulf of Mexico, West Indies and Caribbean to Brazil (Williams, 1984).
- P. sayi* (Gibbes). VG. Distribution in W Atlantic: Bermuda; Nova Scotia through Gulf of Mexico to Guianas; mid-oceanic on *Sargassum* (Williams, 1984).
- **P. sebae* (H. Milne Edwards). In old jar on sand; OP. In *Strombus*-shell reefs; PM. Previous distribution: Bermuda; W and S Florida; Cuba; Jamaica; Puerto Rico; Virgin Islands; Dominica; Honduras; Aruba; Curaçao; Venezuela (Rathbun, 1930; Powers, 1977; Rodríguez, 1980; Keith, 1985).
- **P. spinimanus* Latreille. On beach with *Thalassia*; PC. Offshore, IM (USNM). Previous distribution: Bermuda; New Jersey through Bahamas and Florida to Texas; Tamaulipas to Campeche; Cuba; Jamaica; Puerto Rico; Hispaniola; Trinidad; Netherlands Antilles; Venezuela; Surinam; Brazil (Holthuis, 1959; Powers, 1977; Rodríguez, 1980; Williams, 1984).

Family XANTHIDAE

- Actaea acantha* (H. Milne Edwards). In coral rubble; PE, BA. Distribution: Bermuda; Bahamas; Florida Keys; Cuba; Jamaica; Haiti; Puerto Rico; Guadeloupe; St. Bartolome; Brazil (Rathbun, 1930; Powers, 1977; Markham & McDermott, 1981).
- **Banareia palmeri* (Rathbun). In coral rubble; BR. Previous distribution: Bermuda; Bahamas; E and S Florida; Cuba; Haiti; Virgin Islands; Curaçao; Venezuela [mostly as *Actaea palmeri* Rathbun] (Rodríguez, 1980; Rathbun, 1930; Powers, 1977; Markham & McDermott, 1981).
- **Carpilius corallinus* (Herbst). BA. Previous distribution: Bermuda; S Florida; Bahamas; NW Gulf of Mexico; Nicaragua; Cuba; Jamaica; Virgin Islands; Guadeloupe; Dominica; Curaçao; Old Providence I.; Venezuela; Brazil (Rathbun, 1930; Rodríguez, 1980; Markham & McDermott, 1981; Keith, 1985; Abele & Kim, 1986).
- {*Carpoporus papulosus* Stimpson. Off Cabo Catoche (Rathbun, 1930)}. Distribution: North Carolina; Alabama to Florida; Quintana Roo (Rathbun, 1930; Williams, 1984).
- **Cataleptodius floridanus* (Gibbes). On beach of rock and sand; PE, PC, IM. In *Thalassia*; CC. Previous distribution: Bermuda; NW and S Florida; Bahamas; Nica-

ragua; Cuba; Jamaica; Puerto Rico; Virgin Islands; Antigua; Barbados; Curaçao; Panama; Colombia; Brazil (Powers, 1977; Garth, 1978; Keith, 1985).

- **Chlorodiella longimana* (H. Milne Edwards). In coral rubble; PE, IM. Previous distribution: Bahamas and E Florida; Honduras; through Antilles to Barbados and Curaçao; Venezuela (Garth, 1978; Rodríguez, 1980; Keith, 1985).
- **Domecia acanthophora acanthophora* (Desbonne & Schramm). On *Millepora* encrusting pilings of pier; CC. Previous distribution: Bermuda; North and South Carolina; Florida; Bahamas; NW and S Gulf of Mexico; Puerto Rico; Virgin Islands; Jamaica; Guadeloupe; Barbados; Netherlands Antilles; Venezuela; Brazil [Many records as *D. hispida* Eydoux & Souleyet] (Rathbun, 1930; Guinot, 1964; Rodríguez, 1980; Williams, 1984; Keith, 1985). *D. a. acanthophora* was also collected on *Millepora* encrusting pilings in Bermuda (J.C. Markham, personal observation).
- **Eriphia gonagra* (Fabricius). On rocky intertidal beach; IC. Previous distribution: Bermuda; North Carolina; Bahamas; Yucatán; Jamaica; Hispaniola; Puerto Rico; Virgin Islands; Antigua; Barbados; Trinidad; Aruba; Colombia; Venezuela; Brazil; Argentina (Rathbun, 1930; Rodríguez, 1980; Williams, 1984).
- **Etisus maculatus* (Stimpson). In *Strombus* shells; PI. Previous distribution: S Florida; Bahamas; Cuba; Puerto Rico; Virgin Islands; Honduras; Antilles; Colombia (Rathbun, 1930; Powers, 1977; Keith, 1985).
- **Eurypanopeus abbreviatus* (Stimpson). Sandy and rocky beach; IC. Previous distribution: South Carolina; Bahamas; Florida Keys; Louisiana; Texas; Jamaica; Haiti; Puerto Rico; Virgin Islands; Antigua; Barbados; Curaçao; Trinidad; Colombia; Venezuela; Brazil (Rathbun, 1930; Powers, 1977; Rodríguez, 1980).
- **E. depressus* (Smith). Sandy and rocky beach; VC. Previous distribution: Massachusetts to E and W Florida; Bermuda; Texas; Campeche; West Indies (Powers, 1977; Williams, 1984; Raz-Guzmán et al., 1986).
- **E. dissimilis* (Benedict & Rathbun). Sandy and rocky beach; CH. Previous distribution: W Florida; Veracruz; Cuba; Jamaica; Trinidad; Venezuela; Brazil (Rathbun, 1930; Buitendijk, 1950; Powers, 1977; Rodríguez, 1980).
- {*Glyptoxanthus erosus* (Stimpson). Off Cabo Catoche (Rathbun, 1930)}. Distribution: North Carolina; Florida; Bahamas; Louisiana; Campeche; Quintana Roo; West Indies to Guadeloupe (Rathbun, 1930; Williams, 1984).
- **Hexapanopeus angustifrons* (Benedict & Rathbun). AR. Previous distribution: Massachusetts through W Florida to Texas; Bahamas; Campeche; Jamaica (Rathbun, 1930; Williams, 1984; Raz-Guzmán et al., 1986).
- Leptodius* sp. [aff. *L. tridentatus* Lenz]. On sponge on stake; PA.
- {*Lobopilumnus agassizi* (Stimpson). Off Cabo Catoche. Isla Contoy (Richardson, 1930)}. Distribution: Bermuda; North Carolina; E Gulf of Mexico; Quintana Roo; Cuba; Venezuela; Trinidad (Rathbun, 1930; Williams, 1984).
- **Menippe mercenaria* (Say). BA. Previous distribution: North Carolina to E, SW, S Florida and Bahamas; Campeche; Belize; Cuba; Jamaica; St. Thomas (Raz-Guzmán et al., 1986; Williams & Felder, 1986).
- **M. nodifrons* Stimpson. In coral rubble; PE, PC. Previous distribution in W Atlantic: E Florida; Louisiana; Virgin Islands; Cuba; Jamaica; Trinidad; Panama; Co-

- Iombia; Venezuela; Surinam; French Guiana; Brazil (Rathbun, 1930; Holthuis, 1959; Powers, 1977; Rodríguez, 1980).
- {*Micropanope nuttingi* (Rathbun). Off Cabo Catoche (Rathbun, 1930)}. Distribution: North Carolina; Bahamas; S Florida; Quintana Roo; Cuba; Jamaica; Puerto Rico; Virgin Islands; Brazil (Rathbun, 1930).
- **Neopanope packardii* (Kingsley). Rocky sandy beach; VC. Previous distribution: Bahamas; SE and NW Florida to Louisiana; Cuba; Honduras? (Abele, 1972; Keith, 1985).
- **Ozium reticulatus* (Desbonne & Schramm). Under intertidal limestone rocks; IM. Previous distribution: Bahamas; West Indies; Jamaica; Curaçao; Panama; Colombia; N South America (Rathbun, 1930; Rodríguez, 1980).
- **Panopeus lacustris* Desbonne. On sponge on mangroves; PA. Punta Sur, CC. Sandy, rocky beach; IC. Previous natural distribution: Bermuda; SE and S Florida; Bahamas; Campeche; Cuba; Jamaica; Puerto Rico; Virgin Islands; Antigua; Barbados; Trinidad; Netherlands Antilles; Panama; Colombia; Brazil (Williams, 1983; Raz-Guzmán et al., 1986). [Usually reported as *P. herbstii* H. Milne Edwards, but that species split and its known distribution restricted by Williams (1983).]
- **P. occidentalis* de Saussure. On pier near lighthouse and in *Thalassia*; CC. On rocky sandy beach; CH, VC, PI. Previous distribution: Bermuda; North and South Carolina; Florida and Bahamas; Honduras; Nicaragua; through West Indies to Panama; Venezuela; Brazil (Rathbun, 1930; Rodríguez, 1980; Williams, 1984; Keith, 1985).
- **Pilumnus caribaeus* Desbonne & Schramm? [Identification somewhat uncertain]. AR. Previous distribution: Florida; Bahamas; Cuba; Jamaica; Puerto Rico; Virgin Islands; Guadeloupe; Curaçao; Venezuela; Brazil (Rathbun, 1930; Rodríguez, 1980).
- **P. dasypodus* Kingsley. In coral rubble; VC. Previous distribution: Bermuda; North Carolina to Gulf of Mexico; Caribbean and West Indies to Brazil (Rathbun, 1930; Rodríguez, 1980; Markham & McDermott, 1981; Williams, 1984).
- {*P. floridanus* Stimpson. Off Cabo Catoche (Rathbun, 1930)}. Distribution: North Carolina; W Florida; Bahamas; Jamaica; Puerto Rico; Virgin Islands; Quintana Roo; Honduras; Venezuela; Brazil (Rathbun, 1930; Rodríguez, 1980; Williams, 1984).
- **P. holosericus* Rathbun. In coral rubble; IM. Previous distribution: S Florida; Bahamas; Puerto Rico; Virgin Islands; Trinidad; Curaçao; NW Caribbean; Honduras; Venezuela (Powers, 1977; Rodríguez, 1980; Keith, 1985).
- **P. lacteus* Stimpson. In rocky sandy beach; VC. Previous distribution: North and South Carolina; S and W Florida; Cuba (Powers, 1977; Williams, 1984).
- **P. longleyi* Rathbun. Clinging to shell on sand; near AR. In coral rubble; IC. Previous distribution: S Florida; Bahamas; Honduras (Rathbun, 1930; Keith, 1985).
- **Platyactaea setigera* (H. Milne Edwards). In coral rubble; PE; IM. Previous distribution: Bermuda; Bahamas; S Florida; Honduras; Cuba; Jamaica; Puerto Rico; Virgin Islands; Antigua; Barbados; Trinidad; Curaçao; Colombia; Venezuela (Rathbun, 1930; Rodríguez, 1980; Keith, 1985 [Some records as *Actaea setigera* (H. Milne Edwards)]).
- **Platypodiella spectabilis* (Herbst). In coral rubble; PE. Previous distribution: Ber-

muda; Bahamas; S Florida; Texas; Veracruz; Jamaica; Puerto Rico; Virgin Islands; Guadeloupe; Barbados; Curaçao; Venezuela; Brazil (Rathbun, 1930; Powers, 1977; Rodríguez, 1980).

**Xantho (Xanthodius) denticulatus* White. In coral rubble; IC; BR; PE. Previous distribution in W Atlantic: Bermuda; NW and S Florida; Bahamas; Jamaica; Puerto Rico; Virgin Islands; Antigua; Barbados; Panama; Curaçao; Trinidad; Venezuela; Brazil (Rathbun, 1930; Powers, 1977; Rodríguez, 1980; Keith, 1985).

Family GONEPLACIDAE
Subfamily EURYPLACINAE

**Euryplax nitida* Stimpson. Burrowing in sand; north of AR. Previous distribution: Bermuda; North Carolina; W and S Florida; Louisiana; Texas; Cuba; Puerto Rico; St. Thomas; Brazil (Rathbun, 1918; Williams, 1984; Martínez-Iglesias & Gómez-Hernández, 1986).

Subfamily EUCRATOPSINAE

{*Glyptoplax smithii* A. Milne Edwards. Off Cabo Catoche (Rathbun, 1918)}. Distribution: North Carolina; Gulf of Mexico; Quintana Roo (Rathbun, 1918; Williams, 1984).

{*Panoplax depressa* Stimpson. Off Cabo Catoche (Rathbun, 1918)}. Distribution: North Carolina; E and W Florida; Campeche; Quintana Roo; Puerto Rico; Barbados (Rathbun, 1918; Creaser, 1936; Williams, 1984).

Family GRAPSIDAE
Subfamily GRAPSINAE

**Geograpsus lividus* (H. Milne Edwards). Among supratidal rocks; IC. IM. Previous distribution in W Atlantic: Bermuda; S Florida and Bahamas through Antilles to Trinidad; Honduras; Caribbean coast from Colombia to Brazil (Rathbun, 1918; Powers, 1977; Garth, 1978; Keith, 1985).

Goniopsis cruentata (Latreille). In mangrove roots; VC, LP. Distribution in W Atlantic: Bermuda; Bahamas, W and S Florida; Tamaulipas; Veracruz; Belize; Honduras; Cuba and Puerto Rico through Barbados to Venezuela; Surinam; Brazil (Rathbun, 1918; Buitendijk, 1950; Holthuis, 1959; Rodríguez, 1980; Keith, 1985).

Grapsus grapsus (L.). Intertidal and supratidal rocks; IC. On rockshelf near water line; Punta Hualpich. Distribution in W Atlantic: Bermuda; S Florida through West Indies and along Caribbean coasts to Brazil (Rathbun, 1918; Keith, 1985).

**Pachygrapsus gracilis* (de Saussure). Among mangrove roots; BP. Previous distribution in W Atlantic: Bermuda; Bahamas; S Florida; Texas; Cuba; Jamaica; Puerto Rico; Virgin Islands; Colombia; Venezuela; Brazil (Rathbun, 1918; Powers, 1977; Rodríguez, 1980).

P. transversus (Gibbes). On sponge; PM. On pier pilings; PC, MC. On sponge; PA. On mangrove roots; IC. On mangrove roots (mostly juvenile specimens); many localities, BA. Under rocks in ocean inlets; IC, PE. Distribution in W Atlantic:

Bermuda; North Carolina through Florida; Bahamas; Texas; Veracruz; through Caribbean to Brazil and Uruguay (Rathbun, 1918; Chace & Hobbs, 1969; Williams, 1984).

Subfamily SESARMINAE

- **Aratus pisonii* (H. Milne Edwards). On mangrove tree; PA. Also BA (**USNM**). Previous distribution in W Atlantic: Bermuda; E and W Florida; Bahamas; Cuba; Jamaica and Puerto Rico to Venezuela; Veracruz; Campeche; Belize; Honduras; Venezuela; Surinam; Brazil (Rathbun, 1918; Buitendijk, 1950; Holthuis, 1959; Chace & Hobbs, 1969; Rodríguez, 1980; Markham & McDermott, 1981; Keith, 1985; Raz-Guzmán et al., 1986).
- **Cyclograpsus integer* H. Milne Edwards. BA. Among intertidal and supratidal rocks; IC, IM. Previous distribution in W Atlantic: Bermuda; S Florida; Bahamas; Cuba; Jamaica; Hispaniola; Puerto Rico; St. Croix; Honduras; Dominica; Venezuela; Brazil (Chace & Hobbs, 1969; Rodríguez, 1980; Keith, 1985).
- **Sesarma (Chiromantes) miersii* Rathbun. Among mangrove roots; IM. Valencia and Hualalpich, BA. Previous distribution: S Florida; Cuba; Honduras; Dominica (Powers, 1977).
- **S. (C.) ricordi* H. Milne Edwards. On rocks near cenote; Xcaret. LP. Valencia and Hualalpich, BA. Previous distribution: Bermuda; S and W Florida; Bahamas; Cuba; Jamaica; Hispaniola; Puerto Rico; Virgin Islands; Yucatán; Belize; Honduras; Martinique; Trinidad; Curaçao; Venezuela; Surinam (Rathbun, 1918; Abele, 1973; Rodríguez, 1980; Keith, 1985).

Subfamily PLAGUSIINAE

- **Percnon gibbesi* (H. Milne Edwards). In coral; IC. Under sea urchin *Diadema antiillarum* (Philippi); off San Miguel, IC (MKW). In coral rubble; PE. On pier pilings; PC. Previous distribution in W Atlantic: Bermuda; S Florida and Bahamas through Caribbean to Brazil; Honduras (Chace & Hobbs, 1969; Keith, 1985).
- **Plagusia depressa* (Fabricius). On pier pilings; PC, MC. Under intertidal boulders; PE, IM. Cast ashore; San Miguel, IC (MKW). Pilings of pier near lighthouse; CC. Previous distribution in W Atlantic: Bermuda; North Carolina; N Gulf of Mexico. S Florida; Bahamas; Cuba; Jamaica; Hispaniola; Puerto Rico; Virgin Islands; Dominica; Martinique; Barbados; Trinidad; Netherlands Antilles; Honduras; Venezuela; Brazil (Rathbun, 1918; Chace & Hobbs, 1969; Rodríguez, 1980; Keith, 1985).

Family PINNOTHERIDAE Subfamily PINNOTHERINAE

- {*Parapinnixa bouvieri* Rathbun. Off Cabo Catoche (Rathbun, 1918)}. Distribution: South Carolina; S Florida; Quintana Roo; Puerto Rico (Williams, 1984).
- **P. hendersoni* Rathbun. Swimming to nightlight at pier; PA. Previous distribution:

North Carolina; W Florida; Cuba; through West Indies to Curaçao; Brazil (Rathbun, 1918; Williams, 1984). This species has typically been collected by nightlight.

Family GECARCINIDAE

- Cardisoma guanhumi* Latreille. On road at night; PM. In burrows among mangrove roots; IM, VC. Also BA (**USNM**). {IM (Rathbun, 1918)}. Distribution: Bermuda; S Florida; Louisiana; Texas; Bahamas; E Mexico; Cuba; Jamaica; Hispaniola; Puerto Rico; Virgin Island Montserrat; Dominica; Barbados; Trinidad; Netherlands; Antilles; Honduras; Colombia; Venezuela; Surinam?; Brazil (Chace & Holthuis, 1948; Holthuis, 1959; Chace & Hobbs, 1969; Keith, 1985). [Females commonly found migrating to sea to release larvae at night near full moon.]
- Gecarcinus lateralis* (Fréminville). In burrows among inland rocks and shrubs; IM. Playa San Francisco, IM [Only juveniles, so identification not fully certain] (MKW). Crossing town square; PA. Also PM (**USNM**). {IM. IC (Rathbun, 1918)}. Distribution in W Atlantic: Bermuda; SE Florida and Bahamas; through Gulf of Mexico from Texas to Yucatán; through Caribbean to Colombia, Venezuela and French Guiana (Chace & Hobbs, 1969; Rodríguez, 1980; Powers, 1977; Keith, 1985).

Family OCYPODIDAE Subfamily OCYPODINAE

Note. Crane (1975) presents maps of the distributions of *Uca burgersi*, *U. leptodactyla* and *U. rapax rapax* which include the Caribbean coast of Quintana Roo, but she cites no records of collections of those species there. Because those three species are known from both north and south of Quintana Roo, Crane's maps probably indicate only expected, not known, occurrences, so evidently those species are new records for the state.

Ocyropode quadrata (Fabricius). In burrows on sandy beaches; PS, PE. Isla La Pasión and El Mirador, IC (MKW). PM (**USNM**). {IM. IC (Rathbun, 1918)}. Distribution: Bermuda; Rhode Island to Florida; Bahamas; through Gulf of Mexico and Caribbean to Brazil (Chace & Hobbs, 1969; Garth, 1978; Keith, 1985).

Uca (Celuca) leptodactyla* Rathbun. Beach near canal into Laguna Nichupté (USNM**). Among mangrove roots; LP. Previous distribution: E Florida and Bahamas; Cuba; Jamaica; Puerto Rico; St. Croix; Curaçao; Venezuela to Brazil (Crane, 1975; Powers, 1977).

U. (C.) speciosa speciosa (Ives). Between Lagunas Bojorques and Nichupté, Isla Cancún (**USNM**). Among mangrove roots; LP. Distribution: S Florida; Quintana Roo; Cuba (Crane, 1975; Powers, 1977).

**U. (Minuca) burgersi* Holthuis. Among mangrove roots; IM. Previous distribution: Bahamas; E Florida; NE Gulf of Mexico; Cuba; Guatemala; Jamaica; Hispaniola; Puerto Rico; Virgin Islands; Curaçao; Panama; Venezuela; Brazil (Crane, 1975; Powers, 1977).

**U. (M.) rapax rapax* (Smith). Molt among mangroves near bridge; BP. Previous distribution: E and S Florida; Bahamas; Tamaulipas; Guatemala; Belize; Panama; Haiti; Puerto Rico; Tobago; Trinidad; Jamaica; Netherlands Antilles; Colombia to Surinam; Brazil (Crane, 1975; Keith, 1985).

Family HAPALOCARCINIDAE

**Troglocarcinus corallicola* Verrill. In gall in coral *Manicina areolata* (L.) in *Thalassia* bed just offshore; CQ. Previous distribution: Bermuda; SE Florida; Jamaica; Puerto Rico; Tamaulipas; Veracruz; Belize; Panama; Dominicana; Curaçao (Kropp & Manning, 1987).

DISCUSSION

The crustacean fauna of Quintana Roo is definitely tropical, with most of its species occurring throughout much of the Caribbean Sea. Although we have endeavored to list the currently known localities of all the species considered, according to published sources, it is useful as well to record broad zoogeographic regions of occurrence of the species, as summarized in Table 1. The regions considered are: Boreal (Arctic Ocean to Cape Cod); Virginian (Cape Cod to North Carolina); Carolinian (North Carolina to Cape Cañaveral); Northern Gulf (Sanibel Island to Rio Grande); Bermudian (Bermuda); Floridian (around Florida from Cape Cañaveral to Sanibel Island, including Bahamas); Southern Gulf (Rio Grande to Cabo Catoche); Caribbean (Caribbean Sea from Cabo Catoche to Punta Peñas, including all islands from Cuba to Trinidad); Guayanan (Punta Peñas to Amazon River); Austral American (Amazon River to Antarctica); Eastern Atlantic; Eastern Pacific; and Indo-West Pacific. Table 1 shows the number of species in each crustacean taxon considered found in Quintana Roo and the number of those also found in each of the other regions; also recorded are the numbers of species endemic to Quintana Roo and the number of Quintana-roense species also found elsewhere in the Caribbean but endemic to it.

Williams (1984), from whose book our selected zoogeographic regions are largely derived, reports a break in the distribution of Decapoda at Cape Fear. Markham (1988) found a more pronounced break in the distribution of bopyrid isopods at Cape Hatteras. For this reason, we have called the boundary between the Virginian and Carolinian regions simply "North Carolina" and considered it to lie in an undefined location between two headlands.

Of the 302 species from Quintana Roo considered (without Remipedia, Cephalocarida and Tanaidacea species), 247 (81.7%) occur elsewhere in the Caribbean, but only 25 (8.3%) are endemic to that sea. Of the Caribbean endemics, 12 (4.0%) are known only from Quintana Roo, but this is almost certainly an artifact of collecting likely to change as comparable collections are made elsewhere; it is especially noteworthy that undescribed and recently described species of Cumacea make up nearly half of the Quintana Roo endemics, simply because cumaceans have not been collected in most other areas.

Outside of the Caribbean region, the greatest affinity of the carcinofauna of Quintana Roo is with the adjacent Floridian region, where 212 (70.7%) of the species also occur. Correspondences with other regions are much lower, with the Guayanan (an adjacent region), Northern Gulf and Carolinian all about equal. What seems especially noteworthy is that the Southern Gulf region, which immediately borders the Caribbean coast of Quintana Roo at Cabo Catoche, shares only 80 of the 302 spe-

TABLE 1
DISTRIBUTION OF CERTAIN CRUSTACEAN TAXA OF SHALLOW-WATER COAST OF QUINTANA ROO.

Taxon Number	Species in QR	New to QR	Endemic to QR	Endemic Caribb.	Boreal	Virginian	Carolinian	N Gulf	Bermudian	Floridian	S Gulf	Caribbean	Guayan	Austral-America	East Atl. Pac.	East Pac.	I-W Pac.
Stomatopoda	5	3	0	0	0	0	2	0	5	4	0	4	4	0	0	0	0
Mysidacea	7	0	1	0	0	0	0	0	0	3	1	4	1	0	0	0	0
Cumacea	16	5	5	2	0	0	0	3	0	4	1	6	2	0	0	0	0
Isopoda	41	21	1	5	1	3	9	11	4	16	2	27	4	3	1	3	1
Decapoda																	
Total	233	96	5	6	6	29	102	102	87	185	83	206	106	7	24	20	8
Panaeidea	9	1	0	0	1	4	5	4	5	6	4	6	4	0	0	2	0
Stenopodidea	4	1	0	0	0	0	2	2	2	3	2	3	2	0	0	0	1
Caridea	69	10	4	4	3	8	26	22	19	48	19	59	23	1	8	7	5
Palinura	4	0	0	0	0	0	2	2	4	4	1	4	2	0	0	0	0
Anomura	30	17	1	0	0	3	10	12	6	22	17	24	10	1	1	2	0
Brachyura	116	67	0	2	2	14	59	60	51	102	40	110	65	5	15	9	2
Total	302	125	12	13	7	32	113	116	96	212	87	247	117	10	25	23	9
% of Total	100.0	41.4	4.0	4.3	2.3	10.6	37.4	38.4	31.8	70.1	28.8	81.8	38.7	3.3	8.2	7.6	2.9

cies with it and thus ranks behind the other two adjacent regions and even three more distant regions, the Northern Gulf, Carolinian, and Bermudian. Although relative affinities differ among the component taxa, the Infraorder Brachyura (which with 116 species contains 39.0% of the total) follows the same sequence of affinities as the total to the ninth place. The Anomura, with 30 species, follows a very different sequence and ranks the Southern Gulf second only to the Floridian, the only taxon to place that region nearly that high.

Menzies and Glynn (1968) found the greatest affinities of the Puerto Rican isopod fauna to be with Bermuda and the Pacific Ocean, 14 species shared with each region. Of the 41 species of Isopoda now known from Quintana Roo, 14 (34.1%) are among the 44 species reported from Puerto Rico. In Bermuda, where 50 isopod species are recorded (Schultz, 1960), only four are common to Quintana Roo. Only three species recorded from Quintana Roo also occur in the Pacific. From adjacent Belize, Kensley (1982, 1984a, b, 1987), Kensley and Schote (1987) and Markham (1985, 1988) report 63 species of isopods (22 of them anthurideans and 7 epicarideans), of which only 10 are also known from Quintana Roo. Ortiz *et al.* (1987) report 59 species of marine isopods from nearby Cuba, of which only five are reported here from Quintana Roo.

It is much more difficult to compare our records with tabulations of the major order, Decapoda, because each published list has different biases. Thus Williams (1984) considers species to 190 m in the Boreal, Virginian, Carolinian and Northern Gulf regions. Markham and Mcdermott (1981) catalog terrestrial species along with marine ones to 2750 m on and around Bermuda; of 268 species recorded, 96 are also known from Quintana Roo. Holthuis (1959) covers the fauna of Surinam, whose ecological peculiarities exclude many species found elsewhere in the Caribbean. The list of Decapoda of Venezuela by Rodríguez (1980) is probably most similar in scope to ours than any other from the Caribbean; he lists 310 species, of which 137 (44.2%) are common to Quintana Roo.

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