

# The Brachyura (Crustacea, Decapoda) of the coast of the State of Paraíba Brazil, collected by Project Algas

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**ABSTRACT.** A survey was made of the species of Brachyura collected by "Project Algas", along the entire coast of the state of Paraíba, Brazil. This project was one of the most complete ever carried out off the coast of this state. At the 93 stations sampled by the vessel "Pesquisador IV", 60 species, in 41 genera and 15 families were collected. For each species, the geographical distribution, habitat and list of stations where it occurred are given. Also provided are a map showing the locations of all the project stations and a table with the oceanographic data of each station and the species occurring at each station.

**KEY WORDS.** Crabs, survey, littoral, Northeastern Brazil.

**RESUMO.** Os Brachyura (Crustacea, Decapoda) da costa do estado da Paraíba, Brasil, coletados pelo Projeto Algas. Foi elaborado um levantamento faunístico das espécies de Brachyura coletadas pelo "Projeto Algas", ao longo de todo o litoral do estado da Paraíba, Brasil. Este projeto foi um dos mais completos já efetuados no litoral desse Estado. Nas 93 estações feitas pelo barco "Pesquisador IV" foram coletadas 60 espécies, incluídas em 41 gêneros e 15 famílias. Para cada espécie são fornecidas informações sobre: distribuição geográfica, habitat e lista das estações em que ocorreram. São fornecidos, também, um mapa com a localização de todas as estações do projeto e uma tabela com os dados oceanográficos de cada estação e com as espécies que ocorreram em cada estação.

**PALAVRAS CHAVE.** Caranguejos, levantamento, litoral, Nordeste brasileiro

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In order to locate algal banks of economic importance along the coast of Paraíba, the Division of Fishery Resources of the Superintendency of Development of the Northeast (Divisão de Recursos Pesqueiros da Superintendência do Desenvolvimento do Nordeste, SUDENE) developed "Projeto Algas" (Project Algae). Along the 130 km-long Paraíba coast, survey cruises were made between January and June 1981. During this period, samples were obtained from 93 stations, at depths from 10 to 35 m, located along 23 profiles perpendicular to the coastline. The stations began off the mouth of the Goiana River, the boundary with the state of Pernambuco (07°33'S, 34°59'W), and continued to the boundary of the state of Rio Grande do Norte (06°26'S, 34°52'W), where the last stations were located (Fig. 1).

Of the 93 project stations, 3 (24, 25, 26) were not sampled, and at 12 stations (14, 17, 41, 44, 58, 59, 70, 72, 78, 79, 91, 92) no brachyurans were collected.

The biological material collected by the vessel "Pesquisador IV" was sorted, identified and deposited in the Department of Systematics and Ecology of the Universidade Federal da Paraíba (DSE) and in the Museu de Zoologia da Universidade de São Paulo (MZUSP). This material constitutes an important resource for studies of the marine fauna of this state, in which

there are almost no previous studies of the composition of the marine species in this region.

Classification of the species, genera and families was based on MELO (1996) and MARTIN & DAVIS (2001). The Xanthidae was an exception, because according to MARTIN & DAVIS (2001: 53) this group is in need of a thorough taxonomic as well as phylogenetic revision; there is no general agreement as to which genera should be included in which families. For this reason, in the present work all the genera and species of this group were included in the old family Xanthidae *s.l.*

## RESULTS

### Dromiidae De Haan, 1833

#### *Moreiradromia antillensis* (Stimpson, 1858)

Distribution: Western Atlantic – North Carolina, Bermuda, Florida, Gulf of Mexico, Antilles, Venezuela, Guiana, Suriname, French Guiana and Brazil (from Amapá to Rio Grande do Sul).

Habitat: Hard substrates such as corals, broken shells and rocks. Intertidal to 330 m. They generally cover the carapace with sponges or ascidians.

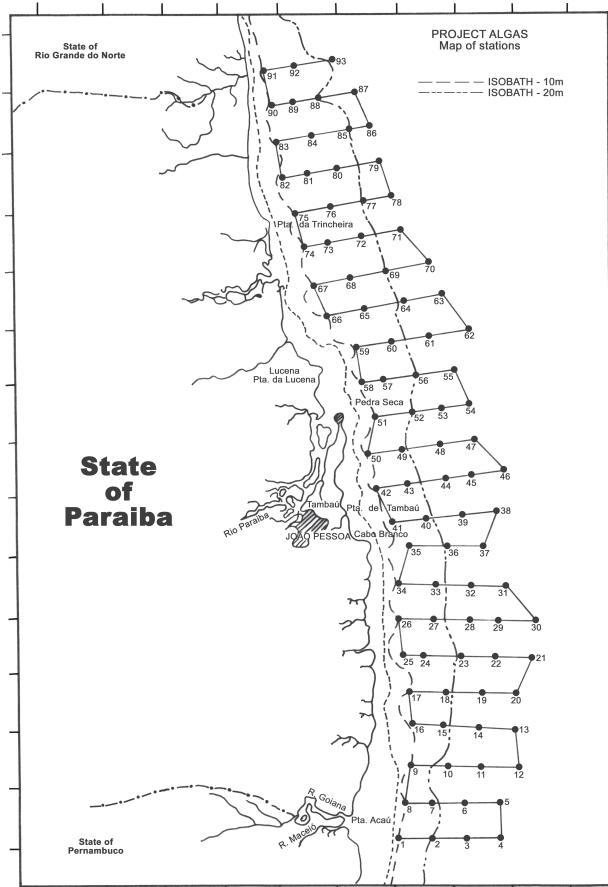


Figura 1. Map of stations of the Project Algas.

Material examined: Stations 30, 53, 88.

Remarks: *Moreiradromia antillensis* is a new combination for *Cryptodromiopsis antillensis*, a relatively common species along the Brazilian coast (see GUINOT & TAVARES 2003: 82).

### Dorippidae De Haan, 1838

#### *Ethusa americana* A. Milne-Edwards, 1880

Distribution: Western Atlantic – North Carolina, Florida, Gulf of Mexico, Antilles and Brazil (from Maranhão to Rio de Janeiro). Eastern Pacific – Gulf of California and (?) Panama.

Habitat: Rock and coral bottoms, sand and shell substrates; also on bottoms with algae and bryozoans. Shallow waters to 90 m.

Material examined: Station 53.

### Raninidae De Haan, 1839

#### *Symethis variolosa* (Fabricius, 1793)

Distribution: Western Atlantic – North Carolina, Florida, Gulf of Mexico, Antilles and Brazil (Fernando de Noronha, and

from Amapá to São Paulo).

Habitat: Sand, mud and calcareous algae bottoms. Depths from 20 to 110 m.

Material examined: Stations 2, 3, 6, 7, 16, 29, 36, 37, 38, 43, 45, 47, 80, 85.

### Calappidae H. Milne Edwards, 1837

#### *Calappa gallus* (Herbst, 1803)

Distribution: Western Atlantic – Bermuda, Florida, Gulf of Mexico, Antilles, Central America, northern South America and Brazil (from Ceará to Rio Grande do Sul). Mid-Atlantic – Santa Helena Island. Eastern Atlantic – Cape Verde islands to Angola. Indo-Pacific – Red Sea, Persian Gulf and Japan.

Habitat: Hard substrates such as corals, shells or rocks. Occasionally on calcareous algae and sand. Intertidal to 220 m.

Material examined: Stations 12, 29, 31, 32, 33, 64.

#### *Calappa ocellata* Holthuis, 1958

Distribution: Western Atlantic – North Carolina, Florida, Gulf of Mexico, Antilles, Colombia, Venezuela and Brazil (from Amapá to Rio de Janeiro).

Habitat: Mud, sand, gravel or rock bottoms. Depths to 80 m.

Material examined: Stations 4, 31.

#### *Calappa tortugae* Rathbun, 1933

Distribution: Western Atlantic – North Carolina, Florida, Gulf of Mexico, Antilles, Venezuela and Brazil (from Paraíba to Rio Grande do Sul).

Habitat: On substrates of sand, broken shells, corals and gravel. Shallow waters to 280 m, but preferentially between 7 and 50 m.

Material examined: Stations 61, 82.

Remarks: *Calappa tortugae* Rathbun, 1933 is a senior synonym for *C. angusta* A. Milne Edwards, 1880 (see WILLIAMS & CHILD 1988: 109).

#### *Cryptosoma balguerii* (Desbonne, 1867)

Distribution: Western Atlantic – North Carolina, Bermuda, Florida, Gulf of Mexico, Antilles, Colombia, Venezuela and Brazil (from Amapá to Rio de Janeiro).

Habitat: Bottoms of sand, mud, corals and shell gravel. Sublittoral to 230 m.

Material examined: Station 2.

Remarks: *Cryptosoma balguerii* (Desbonne, 1867) is a new name for *Cycloes bairdii* Stimpson, 1860, a species widely found along the Brazilian coast (see GALIL & CLARK 1996: 186).

### Leucosiidae Samouelle, 1819

#### *Ebalia stimpsoni* A. Milne-Edwards, 1880

Distribution: Western Atlantic – North Carolina, Florida, Gulf of Mexico, Antilles, Colombia and Brazil (from Amapá to São Paulo).

Habitat: Mud-sand, broken-shell and coral bottoms. Shallow waters to 160 m.

Material examined: Stations 47, 82.

***Iliacantha sparsa* Stimpson, 1871**

Distribution: Western Atlantic – Florida, Gulf of Mexico, Antilles, Colombia and Brazil (from Pará to Espírito Santo).

Habitat: Gravel, shell, coral and calcareous-algae bottoms.

Depths between 20 and 80 m.

Material examined: Stations 37, 56.

***Lithadia brasiliensis* (von Martens, 1872)**

Distribution: Western Atlantic – Brazil (from Pará to São Paulo).

Habitat: Sand, gravel and occasionally mud bottoms. Shallow waters to 40 m.

Material examined: Stations 76, 85.

***Lithadia vertiginosa* (Coelho, 1973)**

Distribution: Western Atlantic – Brazil (banks off the Ceará coast, and from Pará to Bahia).

Habitat: Sandy, muddy and, mainly, calcareous algae bottoms. Depths between 30 and 60 m.

Material examined: Station 62.

***Persephona punctata* (Linnaeus, 1758)**

Distribution: Western Atlantic – Antilles, Colombia, Venezuela, Guianas and Brazil (from Amapá to Rio Grande do Sul).

Habitat: Sandy, shell and, mainly, muddy bottoms. Intertidal to 50 m.

Material examined: Station 56.

***Speloeophorus elevatus* Rathbun, 1898**

Distribution: Western Atlantic – Florida, Gulf of Mexico, Antilles and Brazil (from Maranhão to Bahia).

Habitat: Preference for broken-shell bottoms and depths to 85 m.

Material examined: Stations 11, 33, 61.

***Speloeophorus nodosus* (Bell, 1855)**

Distribution: Western Atlantic – North and South Carolina, Florida, Gulf of Mexico, Antilles and Brazil (from Maranhão to Rio de Janeiro).

Habitat: Sandy bottoms, between 10 and 30 m.

Material examined: Stations 47, 76, 85.

**Epialtidae MacLeay, 1838**

***Acanthonyx dissimulatus* Coelho, 1991-93**

Distribution: Western Atlantic – Brazil (from Piauí to Bahia).

Habitat: Rocky, sandy, and algae-covered bottoms. Intertidal to 25 m.

Material examined: Stations 18, 51, 76, 81, 90.

***Epialtoides rostratus* Coelho, 1972**

Distribution: Western Atlantic – Brazil (from Maranhão to Espírito Santo).

Habitat: Bottoms of calcareous algae. Depths from 20 to 60 m.

Material examined: Station 56.

***Epialtus bituberculatus* H. Milne Edwards, 1834**

Distribution: Western Atlantic – Florida, Gulf of Mexico, Antilles, Colombia, Venezuela and Brazil (from Ceará to São Paulo).

Habitat: Among algae in shallow waters. Also on hard bottoms and in tidepools.

Material examined: Station 74.

**Inachidae MacLeay, 1838**

***Aepinus septemspinus* (A. Milne-Edwards, 1879)**

Distribution: Western Atlantic – Florida, Gulf of Mexico, Antilles and Brazil (Fernando de Noronha and Rocas Atoll, and from Pará to São Paulo).

Habitat: Hard bottoms, mainly corals, rocks and calcareous algae. From 10 to 85 m.

Material examined: Stations 48, 52, 53, 60.

***Podocheila algicola* (Stebbing, 1914)**

Distribution: Western Atlantic – Colombia and Brazil (from Maranhão to São Paulo).

Habitat: Sandy or calcareous algae substrates, protected among algae. Body completely camouflaged with pieces of algae between the setae of the ambulatory legs and the carapace. Between 25 and 90 m.

Material examined: Stations 33, 45, 46, 53.

***Podocheila brasiliensis* Coelho, 1972**

Distribution: Western Atlantic – Brazil (from Ceará to Sergipe).

Habitat: Bottoms of calcareous algae. Depths between 20 and 50 m.

Material examined: Stations 12, 57, 67.

***Podocheila gracilipes* Stimpson, 1871**

Distribution: Western Atlantic – North and South Carolina, Florida, Gulf of Mexico, Antilles, Colombia, Guianas and Brazil (from Amapá to Rio Grande do Sul).

Habitat: Sandy, gravel, broken-shell, rocky and coral bottoms. Intertidal to 220 m. Carapace usually covered with pieces of algae.

Material examined: Stations 42, 50.

***Podocheila riisei* Stimpson, 1860**

Distribution: Western Atlantic – from North Carolina to the Gulf of Mexico, Antilles and Brazil (Paraíba, Pernambuco and Rio de Janeiro).

Habitat: On calcareous algae, sandy bottoms, and hard bottoms. Shallow waters to 140 m.

Material examined: Stations 18, 45, 75, 76, 85.

**Inachoididae Dana, 1851**

***Euprognatha acuta* A. Milne Edwards, 1880**

Distribution: Western Atlantic – Massachusetts to Florida,

Gulf of Mexico, Antilles, Guianas, Brazil (from Amapá to Rio Grande do Sul) and Uruguay.

Habitat: Sandy, coral or shell bottoms. Shallow waters to considerable depths (710 m).

Material examined: Station 60.

### Mithracidae Balss, 1929

#### *Leptopisa setirostris* (Stimpson, 1871)

Distribution: Western Atlantic – Florida, Antilles, Venezuela and Brazil (from Maranhão to Espírito Santo).

Habitat: Intertidal to 80 m. On broken-shell, mud and, also, on bottoms with macro-algae. Young specimens are found in sponges.

Material examined: Stations 12, 29, 47, 89.

#### *Macrocoeloma laevigatum* (Stimpson, 1860)

Distribution: Western Atlantic – Florida, Gulf of Mexico, Antilles and Brazil (from Pará to Alagoas).

Habitat: Intertidal to 30 m. Hard bottoms and on sand, often on bottoms with algae.

Material examined: Stations 27, 33, 34, 35, 36, 37, 56, 67, 75, 85, 88, 89, 90.

#### *Macrocoeloma septemspinosum* (Stimpson, 1871)

Distribution: Western Atlantic – South Carolina, Florida, Gulf of Mexico and Brazil (from Ceará to Bahia).

Habitat: Substrates of sand, shell, coral and calcareous algae. Shallow waters to 145 m (rarely to 200 m).

Material examined: Stations 2, 3, 54, 85.

#### *Macrocoeloma trispinosum* (Latreille, 1825)

Distribution: Western Atlantic – North Carolina, Bermuda, Florida, Gulf of Mexico, Antilles and Brazil (Fernando de Noronha, and from Piauí to São Paulo).

Habitat: Sandy, rocky and broken-shell bottoms, and in *Sargassum*. Shallow waters to 80 m.

Material examined: Stations 12, 86.

#### *Microphrys antillensis* Rathbun, 1920

Distribution: Western Atlantic – North Carolina, Florida, Gulf of Mexico, Antilles and Brazil (from Paraíba to Rio de Janeiro).

Habitat: Sandy, muddy, coral and broken-shell bottoms, and living among algae. Shallow waters to 40 m.

Material examined: Stations 5, 20, 21, 31, 32, 33, 35, 38, 39, 53, 60, 61, 65, 68, 69, 76, 86, 88, 93.

#### *Microphrys bicornutus* (Latreille, 1825)

Distribution: Western Atlantic – North Carolina to southern Florida, Bermuda, Gulf of Mexico, Antilles, Central America, Venezuela and Brazil (Fernando de Noronha, and from Maranhão to Rio Grande do Sul).

Habitat: Very common on coral reefs and in almost all shallow marine habitats. Almost always covered with anemones, algae or sponges.

Material examined: Stations 23, 34, 36, 48, 56, 61, 66, 73, 74, 85.

#### *Microphrys interruptus* Rathbun, 1920

Distribution: Western Atlantic – Antilles and Brazil (Fernando de Noronha, and from Piauí to Alagoas).

Habitat: Bottoms composed of calcareous algae and sand, and rocky reefs. Shallow waters to 50 m.

Material examined: Station 39, 75.

#### *Mithraculus forceps* (A. Milne-Edwards, 1875)

Distribution: Western Atlantic– North Carolina to southern Florida, Gulf of Mexico, Antilles, Venezuela and Brazil (Fernando de Noronha and Rocas Atoll, and from Maranhão to São Paulo).

Habitat: Intertidal to 90 m. On hard, fissured substrates along rocky beaches. Also on sandy, coral and algal bottoms, in addition to sponges.

Material examined: Stations 2, 3, 5, 6, 10, 15, 16, 19, 22, 23, 28, 29, 32, 33, 34, 35, 36, 37, 39, 40, 45, 47, 54, 56, 63, 68, 69, 76, 80.

#### *Mithrax hemphilli* Rathbun, 1892

Distribution: Western Atlantic – Florida, Antilles and Brazil (Rocas Atoll, and from Maranhão to Rio de Janeiro).

Habitat: Reefs and calcareous algae, under rocks and in *Thalassia* meadows. Intertidal to 60 m.

Material examined: Stations 5, 6, 56, 60, 61, 63, 64, 69, 85, 88, 93.

### Pisidae Dana, 1851

#### *Apiomithrax violaceus* (A. Milne-Edwards, 1868)

Distribution: Western Atlantic – Brazil (from Paraíba to Rio Grande do Sul). Eastern Atlantic – Cape Verde islands and from Cabo Branco (Azores) to Angola. Mid-Atlantic – Ascension Island.

Habitat: Sandy and muddy bottoms. Shallow waters to 50 m.

Material examined: Stations 18, 51, 60, 76, 81.

#### *Chorinus heros* (Herbst, 1790)

Distribution: Western Atlantic – Bermuda, Florida, Gulf of Mexico, Antilles, Venezuela and Brazil (from Ceará to Bahia).

Habitat: Shallow waters to 50 m. Sandy, rocky and shell bottoms, and mainly in corals.

Material examined: Stations 18, 29, 51, 68, 73.

#### *Notolopas brasiliensis* Miers, 1886

Distribution: Western Atlantic – Colombia, Venezuela and Brazil (from Amapá to São Paulo).

Habitat: Muddy and calcareous algae bottoms, occasionally on sand and shell. Intertidal to 30 m.

Material examined: Stations 68, 73.

### Tichidae Dana, 1851

#### *Picroceroides tubularis* Miers, 1886

Distribution: Western Atlantic – Florida, Gulf of Mexico,

Antilles and Brazil (from Maranhão to Espírito Santo).

Habitat: Preference for calcareous algae bottoms, and depths from 20 to 90 m.

Material examined: Stations 29, 60, 61, 62.

***Pitho lherminieri* (Schramm, 1867)**

Distribution: Western Atlantic – From North Carolina to Florida, Gulf of Mexico, Antilles and Brazil (Fernando de Noronha, and from Pará to São Paulo).

Habitat: Muddy, sandy, broken-shell, rocky and coral bottoms. Shallow waters to 30 m, exceptionally to 200 m.

Material examined: Stations 50, 60, 66, 74, 75, 77.

***Tyche potiguara* Garth, 1952**

Distribution: Western Atlantic – Brazil (from Rio Grande do Norte to Alagoas).

Habitat: On bottoms of calcareous algae and broken shells, and in waters 25 to 70 m deep.

Material examined: Stations 16, 47, 56, 60, 68.

**Parthenopidae MacLeay, 1838**

***Heterocrypta granulata* (Gibbes, 1850)**

Distribution: Western Atlantic – From Massachusetts to Florida, Gulf of Mexico, Antilles and Brazil (from Ceará to Paraná).

Habitat: Sandy, shell and gravel bottoms, where its shape and coloration provide excellent camouflage. Occasionally on rocks and corals. Shallow waters to 140 m.

Material examined: Stations 42, 47.

**Portunidae Rafinesque, 1815**

***Cronius ruber* (Lamarck, 1818)**

Distribution: Western Atlantic – North Carolina to southern Florida, Gulf of Mexico, Central America, Antilles, northern South America and Brazil (from Amapá to Rio Grande do Sul). Eastern Atlantic – from Senegal to Angola. Eastern Pacific – from California to Peru and the Galápagos Islands.

Habitat: Sandy beaches, and rocky and gravelly areas. Shallow waters to 110 m.

Material examined: Stations 2, 15, 45, 51, 81.

***Cronius tumidulus* (Stimpson, 1871)**

Distribution: Western Atlantic – Bermuda, Florida, Gulf of Mexico, Antilles, Guianas and Brazil (from Pará to São Paulo).

Habitat: On sandy, coral and rocky bottoms, and also on algae-covered bottoms. Shallow waters to 75 m.

Material examined: Stations 1, 2, 6, 12, 13, 15, 18, 19, 20, 21, 29, 32, 37, 46, 47, 48, 49, 54, 56, 71, 80, 81, 83, 84, 86, 87, 88, 90.

***Portunus anceps* (Saussure, 1858)**

Distribution: Western Atlantic – North Carolina, Bermuda, Florida, Gulf of Mexico, Antilles and Brazil (from Amapá to Rio de Janeiro).

Habitat: Mainly on sandy, muddy, shell and hard-substrate bottoms. Often on algae-covered bottoms. Usually buried in sand.

Material examined: Stations 1, 16, 18, 20, 36, 42, 75, 85.

***Portunus ordwayi* (Stimpson, 1860)**

Distribution: Western Atlantic – Massachusetts to Florida, Gulf of Mexico, Antilles, Venezuela, Guianas and Brazil (Fernando de Noronha, and from Amapá to Rio Grande do Sul).

Habitat: On substrates of sand, gravel, broken shells and corals.

Material examined: Stations 13, 56.

***Portunus sayi* (Gibbes, 1850)**

Distribution: Western Atlantic – Nova Scotia (43° N) to Florida, Gulf of Mexico, Guianas and Brazil (Paraíba to Bahia).

Habitat: Usually in floating masses of algae.

Material examined: Station 2.

**Xanthidae MacLeay, 1838**

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

Distribution: Western Atlantic – Florida, Gulf of Mexico, Antilles and Brazil (Fernando de Noronha and Rocas Atoll, and from Amapá to Pernambuco).

Habitat: Sandy, muddy, shell and coral bottoms. Depths to 25 m.

Material examined: Stations 65, 86.

***Garthiope spinipes* (A. Milne-Edwards, 1880)**

Distribution: Western Atlantic – Bermuda, Florida, Gulf of Mexico, Venezuela and Brazil (from Amapá to Espírito Santo).

Habitat: Sandy bottoms, coral reefs, and sponges. Intertidal to 60 m.

Material examined: Stations 5, 6, 29, 34, 47, 48, 54, 61, 64, 81, 93.

***Melybia thalamita* Stimpson, 1871**

Distribution: Western Atlantic – Florida, Gulf of Mexico, Antilles, northern South America and Brazil (from Amapá to São Paulo).

Habitat: In corals and on sandy, rocky and broken-shell bottoms. Depths to 200 m.

Material examined: Stations 5, 29, 31, 32, 46, 47, 56, 90.

***Micropanope lobifrons* A. Milne-Edwards, 1880**

Distribution: Western Atlantic – Florida, Antilles, Central America (Panama) and Brazil (Paraíba).

Habitat: Sandy bottoms and among algae. Usually between 60 and 340 m, but can be found at lower depths.

Material examined: Station 47.

***Micropanope nuttingi* (Rathbun, 1898)**

Distribution: Western Atlantic – North Carolina, Florida, Gulf of Mexico, Antilles and Brazil (from Amapá to São Paulo).

Habitat: Rocky, coral, sandy and broken-shell bottoms. Also on bottoms of *Porites* and *Halimeda*. Shallow waters to 180 m.

Material examined: Stations 6, 22, 34, 35, 36, 38, 39, 56, 60, 75, 81, 84, 86, 90.

***Micropanope pusilla* A. Milne-Edwards, 1880**

Distribution: Western Atlantic – Florida, Gulf of Mexico, Antilles and Brazil (from Pará to Paraíba).

Habitat: Sandy, gravel, broken-shell and coral bottoms. From 30 to 310 m.

Material examined: Stations 3, 5, 31, 38, 45, 47.

***Micropanope sculptipes* Stimpson, 1871**

Distribution: Western Atlantic – North and South Carolina, Florida, Gulf of Mexico, Antilles and Brazil (from Amapá to Rio de Janeiro).

Habitat: Sandy, gravel, coral and broken-shell bottoms. Depths from 10 to 310 m.

Material examined: Stations 62, 64, 68.

***Paractaea rufopunctata nodosa* (Stimpson, 1860)**

Distribution: Western Atlantic – North Carolina, Florida, Gulf of Mexico, Antilles, northern South America, Brazil (from Amapá to Rio de Janeiro) and Uruguay. Mid-Atlantic – Ascension Island.

Habitat: In corals and bottoms of sand, shell gravel, rocks and occasionally mud. Intertidal to 220 m.

Material examined: Stations 3, 8, 13, 21, 31, 32, 33, 35, 37, 39, 45, 47, 54, 56, 60, 61, 64, 69, 76, 80, 86, 88.

***Pilumnoides coelhoi* Guinot & Macpherson, 1987**

Distribution: Western Atlantic – Brazil (from Bahia to Santa Catarina).

Habitat: Shallow waters to 30 m. On sandy bottoms or among algae.

Material examined: Station 90.

***Pilumnus diomedae* Rathbun, 1894**

Distribution: Western Atlantic – Gulf of Mexico, Antilles and Brazil (Amapá to Rio Grande do Sul).

Habitat: Muddy and coral bottoms. From 20 to 340 m depth.

Material examined: Stations 40, 53, 93.

***Pilumnus reticulatus* Stimpson, 1860**

Distribution: Western Atlantic – Antilles, Central America, northern South America, Brazil (from Pará to Rio Grande do Sul), Uruguay and Argentina.

Habitat: Sandy and shell bottoms. Intertidal to 75 m.

Material examined: Stations 9, 88.

***Pilumnus spinosissimus* Rathbun, 1898**

Distribution: Western Atlantic – Florida, Gulf of Mexico, Antilles and Brazil (Rio Grande do Norte to Santa Catarina).

Habitat: On sandy, rocky and, mainly, coral substrates. Depths from 5 to 20 m.

Material examined: Stations 9, 15, 20, 22, 23, 40, 49, 51, 53, 81, 83, 86, 89, 90.

***Platypodiella spectabilis* (Herbst, 1794)**

Distribution: Western Atlantic – Bermuda, Florida, Gulf of Mexico, Antilles, Venezuela and Brazil (Fernando de Noronha and Trindade Island, and from Rio Grande do Norte to Rio de Janeiro).

Habitat: Coral reefs and under rocks. Shallow depths of 5 to 15 m.

Material examined: Stations 45, 55, 62, 64, 68, 85.

***Xanthodius denticulatus* (White, 1848)**

Distribution: Western Atlantic – Bermuda, Florida, Gulf of Mexico, Antilles, Venezuela and Brazil (São Pedro and São Paulo Rocks, and from Ceará to Bahia).

Habitat: Tidepools, coral reefs and under rocks. Intertidal to 15 m.

Material examined: Stations 35, 66, 69.

**Goneplacidae MacLeay, 1838**

***Cyrtoplax spinidentata* (Benedict, 1892)**

Distribution: Western Atlantic – Antilles and Brazil (from Pernambuco to Rio Grande do Sul).

Habitat: Muddy bottoms, occasionally in sand or among algae. Shallow waters to 150 m.

Material examined: Station 5.

***Nanoplax xanthiformis* (A. Milne-Edwards, 1880)**

Distribution: Western Atlantic – North Carolina to Florida, Gulf of Mexico, Antilles, northern South America and Brazil (from Amapá to Rio de Janeiro).

Habitat: Sandy, broken-shell, muddy and coral bottoms. Depths from 10 to 330 m.

Material examined: Stations: 28 – 61.

Out of 93 stations established for Project Algas, 3 (24, 25, 26) were not sampled, and at 12 stations (14, 17, 41, 44, 58, 59, 70, 72, 78, 79, 91, 92) no brachyurans were collected.

**DISCUSSION**

The richest stations in species were: numbers 56 (13 species), 60 and 85 (10 species each). The species found most often were *Mithraculus forceps* (29 stations), *Cronius tumidulus* (28 stations) and *Paractaea rufopunctata nodosa* (22 stations) (Tab I).

Calcareous algae, coralligenous, and organogenic bottoms in the tropical region of the Western Atlantic occur north of the Antilles, north of South America, and off northeastern Brazil. Northward along the Brazilian coast in the direction of Pará, and southward toward São Paulo, these bottom types occur farther and farther off the coast until they completely disappear (KEMPF 1970, COUTINHO & KEMPF 1973). These types of substrates occur widely off the coast of Paraíba.

As was to be expected, the largest group (41.6%) of the species collected in Project Algas is tropical and of Caribbean origin. These species take advantage of the high temperatures caused by the Brazil Current, generally reaching southward as far as Rio de Janeiro, although they may also reach to Rio

Table I. Oceanographic data and species collected in each station of the Project Algas.

Stations	Date	Position	Depth (m)	Temp. (°C)	Species	Number of species
1	21/1/1981	7°34'S, 34°45'W	11	28,30	<i>Cronius tumidulus</i> , <i>Portunus anceps</i>	2
2	21/4/1981	7°34'S, 34°42'W	20	28,00	<i>Symethis variolosa</i> , <i>Cryptosoma balgueri</i> , <i>Macrocoeloma septemspinosum</i> , <i>Mithraculus forceps</i> , <i>Cronius ruber</i> , <i>C. tumidulus</i> , <i>Portunus sayi</i>	7
3	22/1/1981	7°34'S, 34°39'W	26	27,62	<i>Macrocoeloma septemspinosum</i> , <i>Mithraculus forceps</i> , <i>Micropanope pusilla</i> , <i>Paractaea rufopunctata nodosa</i>	4
4	22/1/1981	7°34'S, 34°36'W	33	27,82	<i>Calappa ocellata</i> , <i>Goniopsis cruentata</i>	2
5	22/1/1981	7°31'S, 34°31'W	34	27,90	<i>Microphrys antillensis</i> , <i>Mithraculus forceps</i> , <i>Mithrax hemphilli</i> , <i>Garthiope spinipes</i> , <i>Melybia thalamita</i> , <i>Micropanope pusilla</i> , <i>Cyrtoplax spinidentata</i>	7
6	23/1/1981	7°31'S, 34°39'W	24	27,80	<i>Symethis variolosa</i> , <i>Cronius tumidulus</i> , <i>Garthiope spinipes</i> , <i>Micropanope nuttingi</i>	4
7	23/1/1981	7°31'S, 34°42'W	16	28,80	<i>Symethis variolosa</i>	1
8	05/5/1981	7°31'S, 34°45'W	10	28,40	<i>Paractaea rufopunctata. nodosa</i>	1
9	05/5/1981	7°28'S, 34°44'W	10	28,50	<i>Pilumnus reticulatus</i> , <i>P. spinosissimus</i>	2
10	05/5/1981	7°28'S, 34°40'W	14	28,52	<i>Mithraculus forceps</i>	1
11	05/5/1981	7°28'S, 34°37'W	24	28,32	<i>Speloeophorus. elevatus</i>	1
12	06/5/1981	7°28'S, 34°34'W	30	28,20	<i>Calappa gallus</i> , <i>Podochela brasiliensis</i> , <i>Leptopisa setirostris</i> , <i>Macrocoeloma trispinosum</i> , <i>Crorius tumidulus</i>	5
13	06/5/1981	7°25'S, 34°34'W	30	28,24	<i>Cronius tumidulus</i> , <i>Portunus ordwayi</i> , <i>Paractaea rufopunctata nodosa</i>	3
15	07/5/1981	7°25'S, 34°34'W	14	28,20	<i>Mithraculus forceps</i> , <i>Crorius ruber</i> , <i>C. tumidulus</i> , <i>Pilumnus spinosissimus</i>	4
16	07/5/1981	7°25'S, 34°43'W	10	28,30	<i>Symethis variolosa</i> , <i>Mithraculus forceps</i> , <i>Tiche potiguara</i>	3
18	13/5/1981	7°18'S, 34°36'W	14	27,30	<i>Acanthonyx dissimulatus</i> , <i>Podochela riisei</i> , <i>Apiomithrax violaceus</i> , <i>Chorinus heros</i> , <i>Cronius tumidulus</i> , <i>Portunus anceps</i>	6
19	13/5/1981	7°21'S, 34°38'W	16	27,50	<i>Mithraculus forceps</i> , <i>Cronius tumidulus</i>	2
20	13/5/1981	7°21'S, 34°38'W	30	27,50	<i>Microphrys antillensis</i> , <i>Cronius tumidulus</i> , <i>Portunus anceps</i> , <i>Pilumnus spinosissimus</i>	4
21	14/5/1981	7°18'S, 34°33'W	30	27,50	<i>Microphrys antillensis</i> , <i>Cronius tumidulus</i> , <i>Paractaea rufopunctata nodosa</i>	3
22	14/5/1981	7°21'S, 34°41'W	28	27,50	<i>Mithraculus forceps</i> , <i>Micropanope nuttingi</i> , <i>Pilumnus spinosissimus</i>	3
23	14/5/1981	7°18'S, 34°00'W	18	27,50	<i>Microphrys bicornutus</i> , <i>Mithraculus forceps</i> , <i>Pilumnus spinosissimus</i>	3
27	13/4/1981	7°15'S, 34°42'W	16	28,10	<i>Macrocoeloma laevigatum</i>	1
28	02/4/1981	7°15'S, 37°39'W	22	28,30	<i>Mithraculus forceps</i> , <i>Nanoplax xanthiformis</i>	2
29	02/4/1981	7°15'S, 34°36'W	28	28,00	<i>Symethis variolosa</i> , <i>Calappa gallus</i> , <i>Leptopisa setirostris</i> , <i>Mithraculus forceps</i> , <i>Chorinus heros</i> , <i>Picroceroides tubularis</i> , <i>Cronius tumidulus</i> , <i>Garthiope spinipes</i> , <i>Melybia thalamita</i>	9
30	01/4/1981	7°15'S, 34°33'W	35	28,12	<i>Moreiradromia antillensis</i>	1
31	01/4/1981	7°12'S, 34°36'W	26	28,10	<i>Calappa gallus</i> , <i>C. ocellata</i> , <i>Microphrys antillensis</i> , <i>Melybia thalamita</i> , <i>Micropanope pusilla</i> , <i>Paractaea rufopunctata nodosa</i>	6
32	01/4/1981	7°12'S, 34°39'W	20	28,10	<i>Calappa gallus</i> , <i>Microphrys antillensis</i> , <i>Mithraculus forceps</i> , <i>Cronius tumidulus</i> , <i>Melybia thalamita</i> , <i>Paractaea rufopunctata nodosa</i>	6
33	27/3/1981	7°13'S, 34°42'W	20	28,00	<i>Calappa gallus</i> , <i>Speloeophorus elevatus</i> , <i>Podochela algicola</i> , <i>Macrocoeloma laevigatum</i> , <i>Microphrys antillensis</i> , <i>Mithraculus forceps</i> , <i>Paractaea rufopunctata nodosa</i>	7
34	27/3/1981	7°13'S, 34°45'W	10	28,10	<i>Macrocoeloma laevigatum</i> , <i>Microphrys bicornutus</i> , <i>Mithraculus forceps</i> , <i>Garthiope spinipes</i> , <i>Micropanope nuttingi</i>	5

Continues

Table I. Continued.

Stations	Date	Position	Depth (m)	Temp. (°C)	Species	Number of species
35	26/3/1981	7°10'S, 34°45'W	10	28,70	<i>Macrocoeloma laevigatum</i> , <i>Microphrys antillensis</i> , <i>Mithraculus forceps</i> , <i>Micropanope nuttingi</i> , <i>Paractaea rufopunctata nodosa</i> , <i>Xanthodius denticulatus</i>	6
36	26/3/1981	7°10'S, 34°42'W	16	28,00	<i>Symethis variolosa</i> , <i>Macrocoeloma laevigatum</i> , <i>Microphrys bicornutus</i> , <i>Mithraculus forceps</i> , <i>Portunus anceps</i> , <i>Micropanope nuttingi</i>	6
37	26/3/1981	7°10'S, 34°38'W	25	27,90	<i>Symethis variolosa</i> , <i>Iliacantha sparsa</i> , <i>Micropanope laevigatum</i> , <i>Mithraculus forceps</i> , <i>Cronius tumidulus</i> , <i>Paractaea rufopunctata nodosa</i>	6
38	25/5/1981	7°37'S, 34°37'W	27	28,00	<i>Symethis variolosa</i> , <i>Microphrys antillensis</i> , <i>Micropanope nuttingi</i> , <i>M. pusilla</i>	4
39	20/3/1981	7°07'S, 34°40'W	27	27,80	<i>Microphrys antillensis</i> , <i>M. interruptus</i> , <i>Mithraculus forceps</i> , <i>Micropanope nuttingi</i> , <i>Paractaea rufopunctata nodosa</i>	5
40	19/3/1981	7°07'S, 34°43'W	17	27,00	<i>Mithraculus forceps</i> , <i>Pilumnus diomedea</i> , <i>P. spinosissimus</i>	3
42	05/2/1981	7°07'S, 34°47'W	10	28,00	<i>Podochela gracilipes</i> , <i>Heterocrypta granulata</i> , <i>Portunus anceps</i>	3
43	16/2/1981	7°04'S, 34°44'W	16	28,40	<i>Symethis variolosa</i>	1
45	17/2/1981	7°04'S, 34°38'W	26	27,80	<i>Symethis variolosa</i> , <i>Podochela algicola</i> , <i>P. riisei</i> , <i>Mithraculus forceps</i> , <i>Cronius ruber</i> , <i>Micropanope pusilla</i> , <i>Paractaea rufopunctata nodosa</i> , <i>Platypodiella spectabilis</i>	8
46	17/2/1981	7°04'S, 34°36'W	34	27,80	<i>Podochela algicola</i> , <i>Cronius tumidulus</i> , <i>Melybia thalamita</i>	3
47	13/2/1981	7°01'S, 34°30'W	26	28,10	<i>Symethis variolosa</i> , <i>Ebalia stimpsoni</i> , <i>Speloeophorus nodosus</i> , <i>Leptopisa. setirostris</i> , <i>Mithraculus forceps</i> , <i>Tiche potiguara</i> , <i>Heterocrypta granulata</i> , <i>Cronius tumidulus</i> , <i>Garthiope spinipes</i> , <i>Melybia thalamita</i> , <i>Micropanope lobifrons</i> , <i>Paractaea rufopunctata nodosa</i>	12
48	13/2/1981	7°01'S, 34°41'W	24	28,20	<i>Aepinus septemspinus</i> , <i>Microphrys bicornutus</i> , <i>Cronius tumidulus</i> , <i>Garthiope spinipes</i>	4
49	06/2/1981	7°01'S, 34°45'W	16	28,10	<i>Cronius tumidulus</i> , <i>Pilumnus spinosissimus</i>	2
50	05/2/1981	7°01'S, 34°47'W	11	28,00	<i>Podochela gracilipes</i> , <i>Pitho lherminieri</i>	2
51	05/2/1981	6°58'S, 34°46'W	14	27,90	<i>Acanthonyx dissimulatus</i> , <i>Apiomithrax violaceus</i> , <i>Chorinus heros</i> , <i>Cronius ruber</i> , <i>Pilumnus spinosissimus</i>	5
52	06/2/1981	6°58'S, 34°44'W	20	28,10	<i>Aepinus septemspinus</i>	1
53	12/2/1981	6°57'S, 34°41'W	26	28,04	<i>Microphrys antillensis</i> , <i>Ethusa americana</i> , <i>Aepinus septemspinus</i> , <i>Podochela algicola</i> , <i>Moreiradromia antillensis</i> , <i>Pilumnus diomedea</i> , <i>P. spinosissimus</i>	7
54	12/2/1981	6°57'S, 34°38'W	30	28,10	<i>Mithraculus forceps</i> , <i>Cronius tumidulus</i> , <i>Garthiope spinipes</i> , <i>Paractaea rufopunctata nodosa</i>	4
55	11/2/1981	6°55'S, 34°40'W	28	28,10	<i>Platypodiella spectabilis</i>	1
56	11/2/1981	6°55'S, 34°43'W	21	27,96	<i>Iliacantha sparsa</i> , <i>Persephona punctata</i> , <i>Epialtoides rostratus</i> , <i>Macrocoeloma laevigatum</i> , <i>Microphrys bicornutus</i> , <i>Mithraculus forceps</i> , <i>Mithrax emphilli</i> , <i>Tiche potiguara</i> , <i>Cronius tumidulus</i> , <i>Portunus ordwayi</i> , <i>Melybia thalamita</i> , <i>Micropanope nuttingi</i> , <i>Paractaea rufopunctata nodosa</i>	13
57	06/2/1981	6°55'S, 34°46'W	18	28,10	<i>Podochela brasiliensis</i>	1
60	19/2/1981	6°52'S, 34°46'W	18	28,00	<i>Aepinus septemspinus</i> , <i>Euprognatha acuta</i> , <i>Microphrys antillensis</i> , <i>Mithrax hemphilli</i> , <i>Apiomithrax violaceus</i> , <i>Picroceroides tubularis</i> , <i>Pitho lherminieri</i> , <i>Tiche potiguara</i> , <i>Micropanope nuttingi</i> , <i>Paractaea rufopunctata nodosa</i>	10
61	20/2/1981	6°52'S, 34°42'W	20	27,80	<i>Calappa angusta</i> , <i>Speloeophorus elevatus</i> , <i>Microphrys antillensis</i> , <i>M. bicornutus</i> , <i>Mithrax hemphilli</i> , <i>Picroceroides tubularis</i> , <i>Garthiope spinipes</i> , <i>Paractaea rufopunctata nodosa</i> , <i>Nanoplax xanthiformis</i>	9

Continues



Table I. Continued.

Stations	Date	Position	Depth (m)	Temp. (°C)	Species	Number of species
62	20/2/1981	6°52'S, 34°40'W	32	27,80	<i>Lithadia vertiginosa</i> , <i>Picroceroides tubularis</i> , <i>Micropanope sculptipes</i> , <i>Platypodiella spectabilis</i>	4
63	11/3/1981	6°50'S, 34°42'W	30	-	<i>Mithraculus forceps</i> , <i>Mithrax hemphilli</i>	2
64	11/3/1981	6°50'S, 34°44'W	26	-	<i>Calappa gallus</i> , <i>Mithrax hemphilli</i> , <i>Garthiope spinipes</i> , <i>Micropanope sculptipes</i> , <i>Paractaea rufopunctata nodosa</i> , <i>Platypodiella spectabilis</i>	6
65	12/3/1981	6°50'S, 34°47'W	18	-	<i>Microphrys antillensis</i> , <i>Actaea acantha</i>	2
66	12/3/1981	6°50'S, 34°50'W	10	-	<i>Microphrys bicornutus</i> , <i>Pitho lherminieri</i> , <i>Xanthodius denticulatus</i>	3
67	13/3/1981	6°46'S, 34°53'W	10	29,00	<i>Podochela brasiliensis</i> , <i>Macrocoeloma laevigatum</i>	2
68	19/5/1981	6°46'S, 34°50'W	14	27,40	<i>Microphrys antillensis</i> , <i>Mithraculus forceps</i> , <i>Chorinus heros</i> , <i>Notolopas brasiliensis</i> , <i>Tiche potiguara</i> , <i>Micropanope sculptipes</i> , <i>Platypodiella spectabilis</i>	7
69	19/5/1981	6°46'S, 34°47'W	18	27,50	<i>Microphrys antillensis</i> , <i>Mithraculus forceps</i> , <i>Mithrax hemphilli</i> , <i>Paractaea rufopunctata nodosa</i>	4
71	20/5/1981	6°43'S, 34°45'W	22	27,30	<i>Cronius tumidulus</i>	1
73	20/5/1981	6°43'S, 34°51'W	14	27,40	<i>Microphrys bicornutus</i> , <i>Chorinus heros</i> , <i>Notolopas brasiliensis</i>	3
74	22/5/1981	6°43'S, 34°54'W	10	27,10	<i>Epialtus bituberculatus</i> , <i>Mithrax bicornutus</i> , <i>Pitho lherminieri</i>	3
75	22/5/1981	6°40'S, 34°53'W	10	27,20	<i>Podochela riisei</i> , <i>Macrocoeloma laevigatum</i> , <i>Microphrys interruptus</i> , <i>Pitho lherminieri</i> , <i>Portunus anceps</i> , <i>Micropanope nuttingi</i>	6
76	22/5/1981	6°40'S, 34°52'W	15	27,10	<i>Lithadia brasiliensis</i> , <i>Speloeophorus nodosus</i> , <i>Acanthonyx dissimulatus</i> , <i>Podochela riisei</i> , <i>Microphrys antillensis</i> , <i>Mithraculus forceps</i> , <i>Apiomithrax violaceus</i> , <i>Paractaea rufopunctata nodosa</i>	8
77	28/5/1981	6°39'S, 34°49'W	20	27,10	<i>Pitho lherminieri</i>	1
80	02/6/1981	6°37'S, 34°51'W	20	27,00	<i>Symethis variolosa</i> , <i>Mithraculus forceps</i> , <i>Cronius tumidulus</i> , <i>Paractaea rufopunctata nodosa</i>	4
81	02/6/1981	6°37'S, 34°54'W	12	27,00	<i>Acanthonyx dissimulatus</i> , <i>Apiomithrax violaceus</i> , <i>Cronius ruber</i> , <i>C. tumidulus</i> , <i>Garthiope spinipes</i> , <i>Micropanope nuttingi</i> , <i>Pilumnus spinosissimus</i>	7
82	03/6/1981	6°37'S, 34°57'W	12	26,70	<i>Calappa angusta</i> , <i>Ebalia stimpsoni</i>	2
83	03/6/1981	6°33'S, 34°57'W	12	27,10	<i>Cronius tumidulus</i> , <i>Pilumnus spinosissimus</i>	2
84	03/6/1981	6°33'S, 34°54'W	14	27,20	<i>Cronius tumidulus</i> , <i>Micropanope nuttingi</i>	2
85	04/6/1981	6°33'S, 34°51'W	20	27,00	<i>Symethis variolosa</i> , <i>Lithadia brasiliensis</i> , <i>Speloeophorus nodosus</i> , <i>Podochela riisei</i> , <i>Macrocoeloma laevigatum</i> , <i>Macrocoeloma septemspinosum</i> , <i>Microphrys bicornutus</i> , <i>Mithrax hemphilli</i> , <i>Portunus anceps</i> , <i>Platypodiella spectabilis</i>	10
86	04/6/1981	6°33'S, 34°47'W	26	27,40	<i>Macrocoeloma trispinosum</i> , <i>Microphrys antillensis</i> , <i>Cronius tumidulus</i> , <i>Actaea acantha</i> , <i>Micropanope nuttingi</i> , <i>Paractaea rufopunctata nodosa</i> , <i>Pilumnus spinosissimus</i>	7
87	04/6/1981	6°29'S, 34°48'W	30	27,90	<i>Cronius tumidulus</i>	1
88	05/6/1981	6°29'S, 34°51'W	22	27,70	<i>Microphrys antillensis</i> , <i>Macrocoeloma laevigatum</i> , <i>Moreiradromia antillensis</i> , <i>Mithrax hemphilli</i> , <i>Cronius tumidulus</i> , <i>Paractaea rufopunctata nodosa</i> , <i>Pilumnus reticulatus</i>	7
89	10/6/1981	6°29'S, 34°54'W	17	27,10	<i>Leptopisa setirostris</i> , <i>Macrocoeloma laevigatum</i> , <i>Pilumnus spinosissimus</i>	3
90	10/6/1981	6°29'S, 34°57'W	12	27,20	<i>Acanthonyx dissimulatus</i> , <i>Macrocoeloma laevigatum</i> , <i>Cronius tumidulus</i> , <i>Melybia thalmita</i> , <i>Micropanope nuttingi</i> , <i>Pilumnoides coelhoi</i> , <i>Pilumnus spinosissimus</i>	7
93	11/6/1981	6°26'S, 34°52'W	26	27,10	<i>Microphrys antillensis</i> , <i>Mithrax hemphilli</i> , <i>Garthiope spinipes</i> , <i>Pilumnus diomedeeae</i>	4

Grande do Sul, depending on their degree of eurythermy or their ecological capabilities. Being thermophiles, along the coast of Paraíba they find waters of ideal temperature (mean 28° C) for their survival. Four species (0.66%) found off the Paraíba coast are, theoretically, Virginian species, of cold-temperate waters: *Euprognatha acuta*, *Heterocrypta granulata*, *Portunus ordwayi* and *P. sayi*. However, all of them occur off the coast of Virginia beyond depths of 180 m, where the Gulf Stream, with its extremely warm waters, flows next to the outer continental shelf (CERAME-VIVAS & GRAY 1966). Therefore these species should be considered tropical.

The so-called Carolinean or warm-temperate species were also found in great numbers (30%). They normally extend as far south as the coast of Rio Grande do Sul, and sometimes reach the coast of Uruguay and northern Argentina.

*Lithadia brasiliensis*, *L. vertiginosa*, *Acanthonyx dissimulatus*, *Epialtoides rostratus*, *Podochela brasiliensis*, *Tyche potiguara* and *Pilumnoides coelhoi* form a group (11.66%) of species endemic to Brazil. This relatively low rate of endemism demonstrates that the Paraíba coast, as long as Brachyura are concerned, did not undergo long periods of isolation.

*Apiomithrax violaceus* and *Paractaea rufopunctata nodosa* are the only species with an amphi-Atlantic distribution, making up 3.33% of the species collected in this survey. The former has its northern limit at Paraíba, but also occurs in Africa (from the islands of Cape Verde to Angola and at Ascension Island). The latter is widely distributed in American waters, and also occurs in the mid-Atlantic (Ascension Island).

Two additional species, *Ethusa americana* and *Cryptosoma balguerii*, have an amphi-American distribution, with identical distributions on both sides of the Americas.

*Calappa gallus* and *Cronius ruber* are circumtropical, the former occurring in the Western and Eastern Atlantic and the Indo-Pacific, and the latter along both sides of the Atlantic and the Eastern Pacific.

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