

**MACROCRUSTACEANS FROM PONTA DO CABO BRANCO, JOÃO PESSOA, PARAÍBA, BRAZIL, THE EASTERNMOST POINT OF SOUTH AMERICA**

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**RESUMO**

***Macro crustáceos da Ponta do Cabo Branco, João Pessoa, Paraíba, Brasil, o extremo oriental da América do Sul.*** A Ponta do Cabo Branco apresenta, na sua região de entre-marés e na parte rasa do sublitoral, uma grande quantidade de rochas arenítico-ferruginosas, formando diversos habitats para crustáceos escavadores e habitantes de fendas. Um inventário da fauna e da flora nesta área justifica-se por duas razões principais: (i) pelo impacto decorrente da urbanização (poluição, pisoteio de banhistas, presença de curiosos e colecionadores amadores) sobre a estrutura das comunidades e (ii) pelo fato de ser uma área estratégica e prioritária para a conservação do ambiente marinho. O objetivo deste trabalho é fornecer uma lista das espécies de crustáceos coletados na Ponta do Cabo Branco e depositados na Coleção de Invertebrados Marinhos Paulo Young. Um total de setenta e cinco espécies agrupadas em cinquenta e um gêneros e vinte e seis famílias foi encontrado, incluindo nove espécies sem referência prévia para o Estado da Paraíba, nordeste do Brasil. Embora preliminar, esta lista indica que a Ponta do Cabo Branco apresenta uma biodiversidade singular, requerendo estudos ecológicos quantitativos de seus organismos marinhos e uma avaliação adequada de sua biodiversidade.

**Palavras-chave:** Crustáceos, biodiversidade, lista de espécies, Cabo Branco, Paraíba.

**ABSTRACT**

***Macrocrustaceans from Ponta do Cabo Branco, João Pessoa, Paraíba, Brazil, the easternmost point of South America.*** The Ponta do Cabo Branco has abundant ferruginous arenitic rocks in the intertidal and shallow subtidal regions, forming diversified habitats for crevice-dwelling crustaceans. An inventory

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of the fauna and flora of the area is justified by two main reasons: (i) The impact of urbanization, (pollution, treading of bathers, and curious amateur collectors), who may provoke alterations in the community structure and; (ii) Because this area is considered a strategic area deserving priority for marine conservation. The goal of this paper is to provide a list the crustaceans deposited in the Coleção de Invertebrados Paulo Young. Seventy-five species, grouped into fifty-one genera and twenty-six families, were found. Nine species with no previous references for the State of Paraíba, northeastern Brazil, are presented here. Although preliminary, this first list of crustaceans indicates that the Ponta do Cabo Branco has a singular biodiversity, requiring quantitative studies of the ecology of its marine organisms and an adequate evaluation its biodiversity.

**Key Words:** Crustacea, biodiversity, species list, Cabo Branco, Paraíba.

## INTRODUCTION

The Ponta do Cabo Branco (07° 08' 50" S; 34° 47' 51" W) is located on the south portion of the Cabo Branco Beach in João Pessoa, Paraíba, Brazil. In this place, as in other beaches of Northeastern Brazil, the limit between costal and subtidal regions is a live cliff (BARRETO *et al.*, 2004), belonging to the Barreiras Group, a Brazilian Tertiary Formation (SUGUIO and NOGUEIRA, 1999). Abundant ferruginous arenitic rocks, deposited following the gradual erosion of the Barreiras Formation in geological time (MABESONE and COUTINHO, 1970), constitute the intertidal and shallow subtidal region at this most eastern coastal formation in South America.

This depositional terrace extends several hundred meters into the sea, falling short of the arenitic sandstone fringing reefs running parallel to the coastline, a second important biological substrate so typical of the northeastern coast of Brazil. The arrangement of these small to medium-sized rocks, forming piles several meters high in some spots, is responsible for a particularly heterogeneous hydrodynamism. Together with other important factors, such as substrate composition and heterogeneity, and the overall availability of organic matter, these conditions are known as being determinant of the community structure (NUCCI *et al.*, 2001). This heterogeneous collection of local conditions form an array of patches capable of sustaining a rich biodiversity of marine organisms, possibly unrivalled by other similar, but usually less extensive and less diverse habitats.

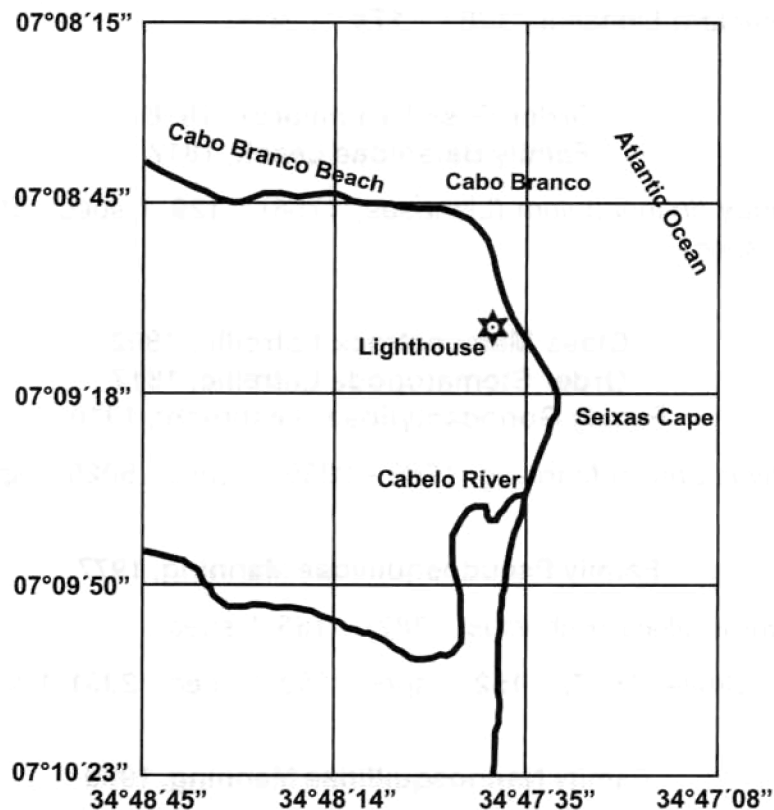
The need for an inventory of the fauna and flora of the Ponta do Cabo Branco is justified by the rapid impact of urbanization of the city of João Pessoa and by the fragility of the habitats, exposed and affected by the treading of bathers and curious amateur collectors, who easily overturn the stones in search of bait, food, or ornamental organisms. This continuous trampling provokes alterations in the structure and composition of the local communities (ECKRICH and HOLMQUIST, 2000; MILAZZO *et al.*, 2002). This area is considered a strategic area deserving priority for marine conservation (MMA,

2002). Finally, we stress that the main information on the carcinological biodiversity of the State of Paraíba is based on the fauna from the estuaries of the Paraíba do Norte River (COELHO, 1971; KOENING, 1971; RAMOS, 1971). For strictly marine environments, BARBOSA and LEONEL (2003) and MELO and VELOSO (2005) are the only published papers focusing on the brachyuran crabs, the former, on forms associated with intertidal algae, and the later, on the material from "PROJETO ALGAS-PB", collected systematically more than 20 years ago along the entire continental shelf of our state.

The aim of this paper is to provide a list of all species of Crustacea collected at Ponta do Cabo Branco, and deposited in the Coleção de Invertebrados Marinhos Paulo Young, Departamento de Sistemática e Ecologia, Universidade Federal da Paraíba (CIMPY-DSE-UFPB). We thus make this information available for the first time, allowing local studies on biodiversity and future work on ecology and conservation.

## MATERIAL AND METHODS

A large portion of the crustacean collection at CIMPY-DSE-UFPB was identified by the following specialists: Melo, G.A.S. (Brachyura); Christoffersen,



**Figure 1** - Map of the study area.

M.L. (Caridea); Young, P. (Cirripedia); Werding, B. (Porcellanidae); Rodrigues, S.A. (Callianassidea). Other samples were identified by students working on the organization of the collections, either in comparison with the samples identified by the above mentioned specialists, or as part of their undergraduate and graduate work. The authors identified the remaining samples. The taxonomic arrangement follows MARTIN and DAVIS (2001). Figure 1 shows the geographical localization of the study area.

## RESULTS

The seventy-five species of crustaceans referred to Ponta do Cabo Branco are arranged into fifty-one genera and twenty-six families. The list of these species follows below. Species without prior references for the Paraíba State are marked with an asterisk (\*). For each species, the catalogue number in the cimpy collection, and the number of specimens, are marked in bold and normal type, respectively.

### **Class Maxillopoda Dahl, 1956**

#### **Order Pedunculata Lamarck, 1818**

##### **Family Lepadidae Darwin, 1852**

*Lepas anserifera* Linnaeus, 1767 - **174** 11 spec.

#### **Order Sessilia Lamarck, 1818**

##### **Family Balanidae Leach, 1817**

*Megabalanus tintinnabulum* (Linnaeus, 1758) - **129** 1 spec., **5041** 2 spec., **2087** 1 spec.

### **Class Malacostraca Latreille, 1802**

#### **Order Stomatopoda Latreille, 1817**

##### **Family Gonodactylidae Giesbrecht, 1910**

*Gonodactylus bredini* Manning, 1969 - **2359** 1 spec., **5025** 3 spec.

##### **Family Pseudosquillidae Manning, 1977**

*Pseudosquilla ciliata* (Fabricius, 1787) - **155** 1 spec.

*P. oculata* (Brullé, 1837) - **152** 1 spec., **153** 1 spec., **2361** 1 spec., **3515** 2 spec.

##### **Family Nannosquillidae Manning, 1980**

*Acanthosquilla digueti* (Coutière, 1905) - **4229** 2 spec.



**Order Isopoda Latreille, 1817**  
**Infraorder Ligiamorpha Vandel, 1943**  
**Family Ligiidae Leach, 1814**

\* *Ligia exotica* Roux, 1828 - **4949** 1 spec.

**Order Decapoda Latreille, 1802**  
**Infraorder Caridea Dana, 1852**  
**Family Palaemonidae Rafinesque, 1815**

*Brachicarpus biunguiculatus* (Lucas, 1849) - **5022** 1 spec.

*Leander paulensis* Ortmann, 1897 - **4773** 4 spec.

*Palaemon (Palaeander) northropi* (Rankin, 1898) - **4808** 13 spec., **4498** 14 spec., **4508** 4 spec., **4807** 14 spec., **4504** 2 spec., **4484** 1 spec., **4473** 1 spec., **4500** 2 spec., **4502** 1 spec., **4511** 1 spec., **4510** 1 spec., **4505** 3 spec., **4503** 2 spec., **4483** 1 spec., **4472** 1 spec., **4485** 3 spec., **4499** 1 spec.

*Periclemenes americanus* (Kingsley, 1878) - **4546** 2 spec., **4540** 1 spec.

*Typton carneus* Holthuis, 1951 - **728** 1 spec.

**Family Alpheidae Rafinesque, 1815**

*Alpheus armillatus* H. Milne Edwards, 1837 - **5031** 2 spec., **5035** 2 spec., **5037** 19 spec.

*A. bouvieri* A. Milne Edwards, 1878 - **857** 2 spec., **858** 1 spec.

*A. formosus* Gibbes, 1850 - **5036** 1 spec.

*A. normanni* Kingsley, 1878 - **2164** 2 spec.

\* *A. nuttingi* (Schmitt, 1924) - **710** 3 spec., **715** 9 spec., **2170** 2 spec., **4792** 1 spec.

\* *A. thomasi* Hendrix & Gore, 1973 - **7952** spec., **994** 2 spec., **5040** 1 spec.

\* *Leptalpheus forceps* Williams, 1965 - **2178** 1 spec.

\* *Synalpheus apioceros* Coutière, 1909 - **839** 1 spec., **5029** 2 spec.

*S. brevicarpus* (Herrick, 1891) - **2200** 1 spec.

*S. brooksi* Coutière, 1909 - **2202** 87 spec.

*S. fritzmulleri* Coutière, 1909 - **5026** 2 spec., **5027** 3 spec., **5034** 3 spec., **5038** 23 spec., **5039** 1 spec.

*S. tenuispina* Coutière, 1909 - **2163** 1 spec.

*S. scaphoceris* Coutière, 1910 - **792** 1 spec., **793** 1 spec.

#### Family Hippolytidae Dana, 1852

\* *Hippolyte curacaoensis* Schmitt, 1924 - **758** 4 spec., **761** 12 spec., **1048** 1 spec., **2158** 1 spec.

*Latreutes parvulus* (Stimpson, 1866) - **764** 3 spec., **765** 1 spec.

\* *Lysmata intermedia* (Kingsley, 1878) - **105** 5 spec., **106** 2 spec.

*L. moorei* (Rathbun, 1902) - **842** 1 spec.

\* *L. wurdemanni* (Gibbes, 1850): **769** 3 spec.

*Thor manningi* Chace, 1972 - **5023** 1 spec.

#### Family Processidae Ortmann, 1896

\* *Ambidexter symmetricus* Manning & Chace, 1971 - **2153** 1 spec., **5043** 1 spec.

*Processa fimbriata* Manning & Chace, 1971 - **2204** 1 spec.

#### Infraorder Thalassinidea Latreille, 1831

##### Family Callianassidae Dana, 1852

*Lepidophthalmus siriboia* Felder & Rodrigues, 1993 - **4216** 1 spec.

#### Family Upogebiidae Borradaile, 1903

*Upogebia omissa* Gomes Corrêa, 1968 - **2250** 1 spec., **2252** 6 spec., **2253** 18 spec., **2254** 12 spec., **2255** 6 spec., **2256** 12 spec., **2258** 5 spec., **2259** 12 spec., **2260** 27 spec., **2261** 8 spec., **2263** 13 spec., **2264** 21 spec., **2715** 9 spec., **4950** 1 spec., **5021** 2 spec.

*U. noronhensis* Fausto-Filho, 1969 - **2267** 2 spec., **2269** 5 spec., **2270** 18 spec., **2271** 9 spec., **2272** 27 spec., **2273** 24 spec., **2275** 20 spec., **2276** 22 spec., **2277** 20 spec., **2278** 5 spec., **2274** 1 spec., **2279** 2 spec., **2280** 11 spec., **2281** 23 spec., **5004** 1 spec., **5059** 2 spec.

#### Infraorder Palinura Latreille, 1802

##### Family Palinuridae Latreille, 1802

*Panulirus argus* (Latreille, 1804) - **4984** 1 spec.

*P. echinatus* Smith, 1869 - **4986** 1 spec.

*P. laevicauda* (Latreille, 1817) - **4982** 7 spec., **4983** 7 spec.

**Family Scyllaridae Latreille, 1825**

*Parribacus antarcticus* (Lund, 1793) - **4989** 1 spec., **4990** 1 spec.

**Infraorder Anomura MacLeay, 1838**

**Family Porcellanidae Haworth, 1825**

*Megalobrachium roseum* (Rathbun, 1900) - **2298** 1 spec.

*Pachycheles greeleyi* (Rathbun, 1900) - **2297** 5 spec.

*Petrolisthes armatus* (Gibbes, 1850) - **4750** 12 spec., **4944** 1 spec., **4945** 2 spec.

*P. galathinus* (Bosc, 1801-1802) - **2290** 86 spec., **4816** 1 spec., **5045** 8 spec.

**Family Hippidae Latreille, 1817**

*Emerita portoricensis* Schmitt, 1935 - **5274** 1 spec.

**Family Diogenidae Ortmann, 1892**

*Calcinus tibicen* (Herbst, 1791) - **458** 1 spec., **460** 4 spec., **461** 1 spec., **462** 1 spec., **463** 1 spec., **2302** 3 spec., **2303** 1 spec., **2304** 1 spec., **2305** 3 spec., **5025** 5 spec.

*Clibanarius antillensis* Stimpson, 1859 - **446** 1 spec., **447** 7 spec., **448** 10 spec., **2299** 2 spec., **2300** 1 spec., **2301** 8 spec., **4946** 3 spec.

*C. sclopetarius* (Herbst, 1796) - **4947** 1 spec., **4948** 3 spec., **5042** 4 spec.

*C. cubensis* (Saussure, 1858) - **444** 1 spec.

*Dardanus venosus* H. Milne Edwards, 1848 - **456** 2 spec., **5028** 1 spec.

**Family Paguridae Latreille, 1803**

*Pagurus criniticornis* (Dana, 1852) - **2750** 3 spec.

**Infraorder Brachyura Latreille, 1802**

**Family Dromiidae De Haan, 1833**

*Moreiradromia antillensis* (Stimpson, 1858) - **5062** 1 spec., **5063** 1 spec.

**Family Calappidae De Haan, 1833**

*Calappa ocellata* Holthuis, 1958 - **5061** 1 spec.

**Family Epialtidae MacLeay, 1838**

*Acanthonyx dissimulatus* Coelho, 1991-1993 – **5287** 1 spec.

*Epialtus brasiliensis* Dana, 1852 - **5288 85** spec.

**Family Mithracidae Balss, 1929**

*Microphrys bicornutus* (Latreille, 1825) - **1750** 1 spec., **1841** 1 spec.

*Mithraculus forceps* (A. Milne Edwards, 1875) - **2615** 1 spec.

*Mithrax hemphilli* Rathbun, 1892 - **2614** 2 spec.

*M. hispidus* (Herbst, 1790) - **5060** 1 spec.

**Family Portunidae Rafinesque, 1815**

*Callinectes bocourti* A. Milne Edwards, 1879 - **5279** 1 spec.

*C. larvatus* Ordway, 1863 - **5275** 1 spec.

*C. sapidus* Rathbun, 1895 - **5280** 1 spec., **5281** 1 spec.

*Cronius ruber* (Lamarck, 1818) - **5276** 1 spec.

**Family Xanthidae MacLeay, 1838**

*Carpilius corallinus* (Herbst, 1783) - **5007** 1 spec., **5008** 1 spec.

*Eriphia gonagra* (Fabricius, 1781) - **2340** 1 spec., **4926** 1 spec., **4927** 2 spec., **4928** 1 spec., **4929** 3 spec., **4994** 3 spec., **4995** 1 spec.

*Eurypanopeus abbreviatus* (Stimpson, 1860) - **2310** 12 spec., **2311** 7 spec., **2312** 17 spec., **2313** 4 spec., **2314** 4 spec., **2315** 23 spec., **2316** 4 spec., **2317** 14 spec., **2318** 12 spec., **2319** 6 spec., **2320** 3 spec., **2321** 3 spec., **2322** 2 spec., **2323** 6 spec., **2324** 19 spec., **4993** 1 spec.

*Garthiope spinipes* (A. Milne Edwards, 1880) - **2385** 4 spec.

*Menippe nodifrons* Stimpson, 1859 - **2338** 1 spec., **2339** 1 spec., **2387** 1 spec., **2388** 1 spec., **2389** 1 spec., **2390** 1 spec., **2391** 2 spec., **2392** 3 spec.

spec., **2393** 8 spec., **2790** 2 spec., **4930** 1 spec., **4931** 1 spec., **4996** 15 spec., **4997** 2 spec., **4998** 1 spec., **4999** 1 spec., **5000** 1 spec., **5001** 2 spec., **5003** 1 spec.

*P. americanus* Sussure, 1857 - **4932** 2 spec.

*Panopeus harttii* Smith, 1869 - **2325** 4 spec., **2326** 4 spec., **2328** 17 spec., **2329** 21 spec., **2331** 2 spec., **2332** 4 spec., **2333** 5 spec., **2334** 1 spec., **2336** 12 spec., **5005** 2 spec.

*P. occidentalis* Sussure, 1857 - **4933** 2 spec., **4934** 4 spec., **4935** 1 spec., **4936** 3 spec.

*Xanthodius denticulatus* (White, 1847) - **2342** 1 spec.

### Family Ocypodidae Rafinesque, 1815

*Ocypode quadrata* (Fabricius, 1787) - **5020** 1 spec.

### Family Grapsidae MacLeay, 1838

*Pachygrapsus transversus* (Gibbes, 1850) - **2345** 1 spec., **2347** 4 spec., **2349** 1 spec., **2354** 1 spec., **4937** 2 spec., **4938** 1 spec., **4939** 1 spec., **4940** 8 spec., **4941** 4 spec., **4942** 1 spec., **4943** 2 spec., **5013** 6 spec., **5014** 1 spec., **5015** 2 spec., **5017** 4 spec.

*Plagusia depressa* (Fabricius, 1775) - **5009** 1 spec., **5010** 1 spec., **5011** 1 spec., **5012** 1 spec.

## COMMENTS

Nowadays, the taxonomic identification of biological organisms to species level has been increasingly neglected in both ecological and conservation papers. This is certainly the consequence of the general trend to loose taxonomic expertise in biology and to the growing costs and required time-effort needed in the taxonomic enterprise (GIANGRANDE, 2003). Supra-specific identification is considered sufficient for the assessment of environmental changes (WARWICK, 1988). In these studies, higher taxonomic levels such as families are considered to be just as satisfactory as species-level identifications for some groups of organisms (OLSGARD and SOMERFIELD, 2000). Notwithstanding, the role of species taxonomy for conservation biology should not be entirely ignored. In our opinion, the increasing resources available on the World Wide Web as species lists, descriptions, and bibliography will gradually make alpha taxonomy easier than at present.

This list includes mainly macrocrustaceans living in rocky habitats



in the intertidal and subtidal region. Although seventy-five species were presented here, this list does not represent the local diversity. A conspicuous set of habitats, such as non-consolidated substrata, phytal, intertidal pools and a large part of the subtidal zone, have not yet been sufficiently sampled. Consequently, we expect the present list to be considerably increased in the future.

Even though preliminary, this list of crustaceans already indicates that the Ponta do Cabo Branco has a singular biodiversity, requiring quantitative studies of the ecology of its marine organisms and adequate methodologies for evaluating its true species biodiversity.

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