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An updated checklist of decapod crustaceans (infraorders Astacidea, Thalassinidea, Polychelida, Palinura, and Anomura) from the northern and northeastern Brazilian coast

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Abstract

A checklist of the decapod crustacean species from the infraorders Astacidea, Thalassinidea, Polychelida, Palinura, and Anomura from the northern and northeastern (N/NE) Brazilian coast based on literature and material deposited in the carcinological collection of the Universidade Federal de Pernambuco, Recife, Brazil, is provided. The list includes marine and estuarine species reported at least once to each of the studied area, including the oceanic islands and banks along the N/NE Brazil. A total of 146 species is reported, corresponding to an increase of 32.7% when compared to the data published in Paulo Young's Catalogue (1998). The most representative infraorder concerning number of species is Anomura, represented in N/NE Brazil by 90 species and 10 families, followed by Thalassinidea, with 36 species and 6 families, Palinura, with 14 species and 4 families and, finally, Astacidea, which comprises 6 species and 2 families. Families with highest species richness were Porcellanidae (20), Diogenidae (19), Paguridae (18) and Galatheidae (15), all of them included in the infraorder Anomura. Zoogeographic affinities regarding the species are briefly discussed.

Key words: species richness; geographic distribution; crustaceans; northern and northeastern Brazil

Introduction

Reliable lists of species occurring in distinct geographic regions of the world are of multiple uses. In addition to providing comparative figures for biodiversity studies, they serve as an important tool in defining the extension of protected areas, inferring potential impact of anthropogenic activity and complexity of communities, and estimating availability of life resources (Hendrickx 1995).

The studies regarding the marine and estuarine decapod crustaceans from the northern and northeastern (N/NE) Brazilian coast started during the 19th century with the contributions of White (1847) and Smith (1869), among others. In the late 19th century, the Brazilian coast was visited by oceanographic expeditions of high historical importance such as the *Challenger* (Miers 1886; Bate 1888; Henderson 1888) and *Branner-Agassiz* (Rathbun 1900). In the 20th century, the R/V *Calypso* carried out samplings between 1961 and 1962 (Haig 1966; Forest & de Saint-Laurent 1967; Rodrigues da Costa 1968; Christoffersen 1979). Collections by the ships *Canopus* and *Akaroa*, between 1967 and 1969, and the *Almirante Saldanha*, between 1967 and 1987 were the basis for studies of Coelho & Koening (1972), Coelho & Ramos (1972), Coelho *et al.* (1980). Additional information about the Brazilian oceanographic expeditions can be found in Coelho *et al.* (2004).

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More recently, in the 1990's, a large number of crustaceans were collected during the activities of the Project "Recursos Vivos da Zona Econômica Exclusiva Brasileira" (REVIZEE) (Ramos-Porto *et al.* 2000a, 2000b; Cabral *et al.* 2000; Silva *et al.* 2002a, 2002b; Cardoso & Serejo 2003; Ramos-Porto *et al.* 2003; Komai 2004; Cardoso & Young 2005; Coelho Filho 2006). With the publication of data from the REVIZEE project and the registration, in the last years, of a number of new species, families, and superfamilies, we consider this an opportune moment for the organization of an updated list of species, incorporating most recent data and attempting a comparison between these data and those in the Young's Catalogue (1998).

The goal of this study is to provide an updated list of the marine and estuarine species concerning the decapod infraorders Astacidea, Thalassinidea, Polychelida, Palinura, and Anomura from N/NE Brazilian coast. Zoogeographic affinities regarding the species are briefly discussed.

Material and methods

Study area

Study area ranges from Cape Orange, northern Amapá State (04°17'N, 51°32'W) to Abrolhos Archipelago, southern Bahia State (18°19'S, 39°40'W), and towards the east to the St. Paul's Rocks (0°55'N, 29°20'W), which, along the Rocas Atoll (3°45'S and 3°56'S, 33°37'W and 33°56'W), seamounts of the North chains (01°00'S and 04°00'S, 37°00'W and 39°00'W), and Fernando de Noronha (03°00'S and 4°30'S, 32°00'W and 37°00'W), were considered within a single category denominated oceanic islands and banks. This area is included in the N/NE Brazilian Political Regions (Fig. 1).

The region undergoes direct influence of two main currents. The South Equatorial Current splits into two branches near 10° S, and continues towards the northwest into the North Brazilian Current. Another branch turns southwards as the beginning of the Brazil Current (Stramma *et al.* 1990). The northeast part of the continent has a semi-arid climate resulting in reduced supply of terrigenous material to the shelf. This leads to stable conditions of salinity, temperature, and water transparency, favorable to the growth of vegetal life, as calcareous algae, and hermatypical corals, to depths of almost 100 m (Mabesoone *et al.* 1972).

The northern South America has been divided by several authors in zoogeographic provinces (e.g., Dana 1853; Balech 1951; Coelho 1969; Coelho & Ramos 1972; Briggs 1974; Coelho *et al.* 1978, 1980; Boschi 2000). In the present report, we have adopted the classification proposal by Coelho & Ramos (1972), which divided the region in two provinces: Guyanas and Brazilian. The former extends from the Orinoco River delta, Venezuela, to Maranhão State, Brazil, and is mainly characterized by muddy and sandy bottoms and by the influence of equatorial rivers (e.g., Orinoco, Amazon, and Tocantins). The latter extends from Maranhão to Rio de Janeiro State, Brazil, being characterized, in a major part, by calcareous algae bottom and the river discharge does not present an important influence for coastal habitats (Coelho 1969; Coelho & Ramos 1972).

Method procedure

Records in the present contribution were derived from the review of literature dealing with the decapod crustaceans from the north and northeast Brazil (e.g., Smith 1869; Bate 1888; Henderson 1888; Pocock 1890; Rathbun 1900; Forest & de Saint Laurent 1967; Coelho & Ramos 1972; Young 1998; Melo 1999) and from specimens deposited in the crustacean collection at the Departamento de Oceanografia da Universidade Federal de Pernambuco (DOCEAN). A data bank stores the entire acquired information including all the consulted references from the last decades to the present moment. The list of species is presented in a table. References to the first record and locality, and distribution by state from northern and northeastern Brazilian regions are also provided.

Classification of the species in families and higher taxa are based on Martin & Davis' (2001) proposal. However, this classification differs in some aspects from the one in Catalogue of Crustacea of Brazil (Young

1998). To make it viable to compare the numerical data from 1998 and the current, we adapted the classification of the Catalogue to the proposal in Martin & Davis (2001).

The following abbreviations are used: States of North Region: Amapá (AP) and Pará (PA); States of Northeast Region: Maranhão (MA), Piauí (PI), Ceará (CE), Rio Grande do Norte (RN), Paraíba (PB), Pernambuco (PE), Alagoas (AL), Sergipe (SE), Bahia (BA), oceanic islands and banks (IB).

FIGURE 1. The study area. Abbreviations: Amapá (AP), Pará (PA), Maranhão (MA), Piauí (PI), Ceará (CE), Rio Grande do Norte (RN), Paraíba (PB), Pernambuco (PE), Alagoas (AL), Sergipe (SE), and Bahia (BA).

Results

A list of reported species in the study area, including the species distribution by state, is shown in Tables 1–4.

The largest infraorder concerning number of species is Anomura, represented in N/NE Brazil by 90 species and 10 families, followed by Thalassinidea, with 36 species and 6 families, Palinura, with 14 species and 4 families, Astacidea, which comprises 6 species and 2 families, and, finally, Polychelida, with 2 species and 1 family. Families with highest species richness were Porcellanidae (20), Diogenidae (19), Paguridae (18) and Galatheidae (15), all of them included in the infraorder Anomura.

Occurrence of the infraorder Astacidea in the N/NE Brazil was not mentioned prior to 1998 (Tavares 1998). Recently, Tavares & Young (2002) and Silva *et al.* (2003) have reported five species of the family Nephropidae. The family Enoplometopidae, although known to northeast Brazil since the contributions made by Fausto Filho (1970) and Coelho & Ramos (1972), was not cited by Tavares (1998) among the marine Brazilian astacideans.

TABLE 1. Species of the infraorder Astacidea Latreille, 1802 from north and northeast Brazilian coast. Abbreviations: Amapá (AP), Pará (PA), Maranhão (MA), Piauí (PI), Ceará (CE), Rio Grande do Norte (RN), Paraíba (PB), Pernambuco (PE), Alagoas (AL), Sergipe (SE), Bahia (BA), Oceanic Islands and Banks (IB). (X) first record, (+) further record (s).

Taxa	First record	AP	PA	MA	PI	CE	RN	PB	PE	AL	SE	BA	IB
Superfamily Enoplometopoidea de Saint Laurent, 1988													
Family Enoplometopidae de Saint Laurent, 1988													
Enoplometopus antillensis Lütken, 1865	Fausto Filho (1970)	-	-	-	-	+	X	-	+	-	-	-	+
Superfamily Nephropoidea Dana, 1852													
Family Nephropidae Dana, 1852													
Subfamily Neophoberinae Glaessner, 1969													
Acanthacaris caeca (A. Milne Edwards, 1881)	Tavares & Young (2002)	+	-	-	-	-	-	-	-	-	-	X	-
Nephropsis aculeata Smith, 1881	Silva *et al*. (2003)	-	X	-	-	-	-	-	-	-	-	-	-
Nephropsis agassizii A. Milne Edwards, 1880	Tavares & Young (2002)	-	-	-	-	-	-	-	-	-	-	X	-
Nephropsis neglecta Holthuis, 1975	Tavares & Young (2002)	-	-	-	-	-	-	-	-	-	-	X	-
Nephropsis rosea Bate, 1888	Silva *et al.* (2003)	X	-	-	-	-	-	-	-	-	-	-	-

Regarding the infraorder Thalassinidea, 13 species have been recorded since the work carried out by Rodrigues & Shimizu (1998). These authors have recorded six species of the family Callianassidae from N/NE Brazil, while in the present checklist the number of callianassid species is increased to 12. According to Coelho, P.A. and Ramos-Porto, M. (2006, pers. com.), *Calastacus angulatus* Coelho, 1973 and *C. spinosus* Coelho, 1973 should be known as *Acanthaxius angulata* (Coelho, 1973) and *Calaxius spinosus* (Coelho, 1973), respectively, both assigned to the family Axiidae.

With respect to the superfamily Palinuroidea, among the 13 species recorded from Brazil by Coelho & Ramos-Porto (1998), 12 have been reported in N/NE Brazil. Since then, no additional records of palinuroids have been reported from the study area. Records of the infraorder Polychelida are recent and restricted to the present moment to Pará State (Ramos-Porto *et al.* 2000b; Silva *et al.* 2003). This material was collected during the activities of the REVIZEE program in the northern Brazilian coast.

Regarding the Anomura, a remarkable increase of 17 species has been registered since 1998 (Calado 1998; Melo-Filho 1998; Rieger 1998; Veloso 1998). The family Lithodidae is currently represented by 4 species in the Brazilian N/NE (Melo 1999; Serejo *et al.* 2006).

TABLE 2. Species of the infraorder Thalassinidea Latreille, 1831 from north and northeast Brazilian coast. Abbreviations: Amapá (AP), Pará (PA), Maranhão (MA), Piauí (PI), Ceará (CE), Rio Grande do Norte (RN), Paraíba (PB), Pernambuco (PE), Alagoas (AL), Sergipe (SE), Bahia (BA), Oceanic Islands and Banks (IB). (X) First record, (+) further record (s).

Taxa	First record	AP	PA	MA	PI	CE	RN	PB	PE	AL	SE	BA	IB
Superfamily Callianassoidea Dana, 1852													
Family Callianassidae Dana, 1852													
Subfamily Callianassinae Dana, 1852													
Biffarius biformis (Biffar, 1971)	Coelho (1997)	-	-	-	-	-	-	-	X	-	-	-	-
Biffarius fragilis (Biffar, 1971)	Coelho (1997)	-	-	-	-	-	-	-	X	-	-	-	-
Subfamily Callichirinae Manning & Felder, 1991													
Callichirus major (Say, 1818)	Coelho & Coelho-Santos (1993)	-	-	-	-	+	+	-	X	+	-	-	-
Corallianassa hartmeyeri (Schmitt, 1935)	Coelho (1997)	-	-	-	-	-	-	-	-	X	-	-	-
Corallianassa longiventris (A. Milne Edwards, 1870)	Coelho (1997)	-	X	-	-	-	-	-	-	-	-	-	X
Lepidophthalmus siriboia Felder & Rodrigues, 1993	Rodrigues (1971), as *Callianassa (Callichirus) jamaicensis*	-	X	+	-	-	-	+	+	+	-	X	-
Neocallichirus grandimana (Gibbes, 1850)	Rathbun (1900), as *Glypturus branneri*	-	-	-	-	+	-	X	+	-	-	-	-
Neocallichirus maryae Karasawa, 2004	Botter-Carvalho *et al.* (1995), as *N. rathbunae*	-	-	-	-	-	-	-	X	-	-	-	-
Sergio guara (Rodrigues, 1971)	Coelho (1969), as *Callianassa guara*	-	+	X	-	+	-	-	+	+	-	-	-
Sergio guassutinga (Rodrigues, 1971)	Rodrigues (1971), as *Callianassa (Callichirus) guassutinga*	-	-	-	-	-	-	+	+	-	+	X	-
Sergio mirim (Rodrigues, 1971)	Rodrigues (1971), as *Callianassa (Callichirus) mirim*	-	-	-	-	-	-	-	-	-	-	X	-
Subfamily Cheraminae Manning & Felder, 1991													
Cheramus marginatus (Rathbun, 1901)	Coelho & Ramos (1972)	+	-	X	+	+	-	-	-	+	-	-	-
Family Ctenochelidae Manning & Felder, 1991													
Subfamily Ctenochelinae Manning & Felder, 1991													
Ctenocheles holthuisi Rodrigues, 1978	Coelho & Ramos (1972), as *Ctenocheles* sp.	-	-	-	-	-	-	-	-	X	-	-	-
Subfamily Eucalliacinae Manning & Felder, 1991													
Eucalliax cearensis Rodrigues & Manning, 1992	Rodrigues & Manning (1992)	-	-	-	-	X	-	-	-	-	-	-	-
Subfamily Gourretiinae Sakai, 1999													
Dawsonius latispina (Dawson, 1967)	Coelho (1997), as *Callianassa latispina*	X	X	-	-	-	-	-	-	X	-	-	-
Family Laomediidae Borradaile, 1903													
Axianassa australis Rodrigues & Shimizu, 1992	Rodrigues & Shimizu (1992)	-	-	-	-	-	-	-	+	-	-	X	-

to be continued.

TABLE 2. (continued)

Taxa	First record	AP	PA	MA	PI	CE	RN	PB	PE	AL	SE	BA	IB
Family Upogebiidae Borradaile, 1903													
Pomatogebia operculata (Schmitt, 1924)	Coelho (1969), as *Upogebia (Calliadne) operculata*	-	-	-	-	X	+	-	+	-	-	+	-
Upogebia acanthura Coelho, 1973	Coelho & Ramos-Porto (1987)	-	X	-	-	+	-	-	X	-	-	-	+
Upogebia brasiliensis Holthuis, 1956	Gomes Corrêa (1968a)	-	X	X	-	-	+	+	+	-	-	+	-
Upogebia careospina Williams, 1993	Williams (1993)	-	-	-	-	X	-	-	-	-	-	-	-
Upogebia marina Coelho, 1973	Coelho (1973)	-	+	-	+	+	X	+	+	+	+	-	-
Upogebia noronhensis Fausto Filho, 1969	Pocock (1890), as *Gebia spinigera*	-	-	+	-	-	+	-	+	+	-	-	X
Upogebia omissa Corrêa, 1968	Coelho (1966a), as *Upogebia* sp.	-	-	+	-	+	+	+	X	+		+	-
Upogebia omissago Williams, 1993	Williams (1993)	-	-	-	X	-	-	-	-	-	-	-	-
Upogebia paraffinis Williams, 1993	Rathbun (1900), as *Upogebia affinis*	-	-	-	-	+	-	X	-	X	-	-	-
Upogebia vasquezi Ngoc-Ho, 1989	Williams (1993)	-	-	+	-	+	X	X	-	-	-	X	-
Superfamily Axioidea Huxley, 1879													
Family Axiidae Huxley, 1879													
Subfamily Axiinae Huxley, 1879													
Axiopsis brasiliensis Coelho & Ramos-Porto, 1985	Coelho & Ramos (1972), as *A. (Axiopsis)* sp.	-	-	-	-	X	X	-	+	+	-	-	+
Axiopsis serratifrons (A. Milne Edwards, 1873)	Rodrigues & Kensley (1991)	-	-	-	-	-	-	X	-	-	-	X	-
Axiorygma nethertoni Kensley & Simmons Jr., 1988	Coelho & Ramos-Porto (1985), as *Axiopsis (Axiopsis)* sp.	X	-	-	-	-	-	-	-	-	-	-	-
Paraxiopsis defensa (Rathbun, 1901)	Coelho & Ramos-Porto (1985), as *Axiopsis (Paraxiopsis) defensa*	-	-	-	-	-	-	-	X	-	-	-	-
Paraxiopsis vicina (Coelho & Ramos-Porto, 1985)	Coelho & Ramos-Porto (1985), as *Axiopsis (Paraxiopsis)* sp. A	-	-	-	-	X	-	-	-	-	-	-	-
Subfamily Coralaxiinae Sakai, 1989													
Coralaxius nodulosus (Meinert, 1987)	Coelho & Ramos-Porto (1985), as *C. abelei*	-	-	-	-	-	-	-	-	-	-	X	X
Family Calocarididae Ortmann, 1891													
Acanthaxius angulatus Coelho, 1973	Coelho (1973), as *Calastacus angulatus*	X	-	-	-	-	-	-	-	-	-	-	-
Calaxius spinosus Coelho, 1973	Coelho (1969), as *Axiopsis* sp. C	X	-	-	-	-	-	-	-	-	-	-	-
Family Micheleidae Sakai, 1992													
Marcusiaxius lemoscastroi Rodrigues & Carvalho, 1972	Rodrigues & Carvalho (1972)	X	+	-	-	-	-	-	-	-	-	-	-
Marcusiaxius minutus (Coelho, 1973)	Coelho (1973), as *Meticonaxius minutus*	X	-	+	-	-	-	-	-	-	-	-	-

TABLE 3. Species of the infraorders Polychelida de Haan 1841 and Palinura Latreille, 1802 from north and northeast Brazilian coast. Abbreviations: Amapá (AP), Pará (PA), Maranhão (MA), Piauí (PI), Ceará (CE), Rio Grande do Norte (RN), Paraíba (PB), Pernambuco (PE), Alagoas (AL), Sergipe (SE), Bahia (BA), Oceanic Islands and Banks (IB). (X) First record, (+) further record (s).

Taxa	First record	AP	PA	MA	PI	CE	RN	PB	PE	AL	SE	BA	IB
Infraorder Polychelida de Haan 1841													
Superfamily Eryonoidea de Haan, 1841													
Family Polychelidae Wood-Mason, 1875													
Polycheles typhlops Heller, 1862	Silva *et al.* (2003)	-	X	-	-	-	-	-	-	-	-	-	-
Polycheles sculptus Smith, 1880	Ramos-Porto *et al.* (2000), as *Stereomastis sculpta*	-	X	-	-	-	-	-	-	-	-	-	-
Infraorder Palinura Latreille, 1802													
Superfamily Palinuroidea Latreille, 1802													
Family Palinuroidea Latreille, 1802													
Family Palinuridae Latreille, 1803													
Justitia longimana (Milne Edwards, 1837)	Coelho & Vasconcelos (1993)	-	-	-	-	-	X	-	-	-	-	-	+
Palinustus truncatus (Milne Edwards, 1880)	Fausto Filho (1977)	+	X	-	-	-	-	-	-	-	-	-	-
Panulirus argus (Latreille, 1804)	White (1847)	-	+	+	+	+	+	+	+	+	+	X	+
Panulirus echinatus (Smith, 1869)	Smith (1869)	-	-	-	-	X	+	+	+	+	-	+	+
Panulirus laevicauda (Latreille, 1817)	Pocock (1890), as *P. ornatus*	-	-	+	-	+	+	+	+	-	+	+	X
Family Scyllaridae Latreille, 1825													
Subfamily Ibacinae Holthuis, 1985		-	-	-	-	-	-	-	-	-	-	-	-
Parribacus antarcticus (Lund, 1793)	Matthews (1926)	+	+	-	-	+	+	-	X	+	-	+	-
Subfamily Scyllarinae Latreille, 1825		-	-	-	-	-	-	-	-	-	-	-	-
Scyllarides brasiliensis Rathbun, 1906	Smith (1869), as *Scyllarus aequinoxialis*	-	-	-	-	+	+	-	+	-	+	X	-
Scyllarides delfosi Holthuis, 1960	Fausto Filho *et al.* (1966)	+	+	-	-	X	-	-	-	-	-	-	-
Scyllarus americanus (Smith, 1869)	Bullis & Thompson (1965)	+	X	-	-	-	-	+	+	-	-	-	-
Scyllarus chacei Holthuis, 1960	Coelho (1966b)	-	+	-	-	+	+	+	+	X	X	+	-
Scyllarus depressus (Smith, 1881)	Coelho & Ramos-Porto (1998)	-	X	-	-	-	-	-	-	-	-	-	-
Family Synaxidae Bate, 1881													
Palinurellus gundlachi von Martens, 1878	Coelho (1969)	-	-	-	-	+	-	-	X	-	-	-	-

TABLE 4. Species of the infraorder Anomura MacLeay, 1838 from north and northeast Brazilian coast. Abbreviations: Amapá (AP), Pará (PA), Maranhão (MA), Piauí (PI), Ceará (CE), Rio Grande do Norte (RN), Paraíba (PB), Pernambuco (PE), Alagoas (AL), Sergipe (SE), Bahia (BA), Oceanic Islands and Banks (IB). (X) First record, (+) further record (s).

Taxa	First record	AP	PA	MA	PI	CE	RN	PB	PE	AL	SE	BA	IB
Superfamily Galatheoidea Samouelle, 1819													
Family Chirostylidae Ortmann, 1892													
Uroptychus minutus Benedict, 1902	Coelho (1969)	X	-	-	-	-	-	-	-	-	-	-	-
Uroptychus nitidus (A. Milne Edwards, 1880)	Melo (1999)	-	-	-	-	-	-	-	X	-	-	-	-
Uroptychus uncifer (A. Milne Edwards, 1880)	Bullis & Thompson (1965)	-	X	-	-	-	-	-	-	-	-	-	-
Family Galatheidae Samouelle, 1819													
Munida angulata Benedict, 1902	Coelho & Ramos-Porto (1995)	-	-	+	-	+	+	-	X	-	-	-	+
Munida atlantica Melo-Filho & Melo, 1994	Melo-Filho & Melo (1994)	-	-	-	-	+	-	-	-	-	-	-	-
Munida constricta A. Milne Edwards, 1880	Henderson (1888), as *M. miles* (in part)	-	-	-	-	-	-	-	-	X	-	-	-
Munida flinti Benedict, 1902	Henderson (1888), as *M. stimpsoni*	-	-	-	-	-	-	-	-	X	-	-	-
Munida forceps A. Milne Edwards, 1880	Henderson (1888), as *M. miles* (in part)	-	-	-	-	-	-	-	-	X	-	-	-
Munida iris A Milne Edwards, 1880	Coelho *et al.* (1983)	+	+	+	-	-	-	-	-	X	-	-	-
Munida irrasa A. Milne Edwards, 1880	Melo-Filho & Melo (2001)	X	X	X	-	-	-	-	-	-	-	-	-
Munida petronioi Melo-Filho & Melo, 1994	Melo-Filho & Melo (1994)	-	-	-	-	-	+	-	-	-	-	-	-
Munida pusilla Benedict, 1902	Melo-Filho & Melo (2001)	X	-	-	-	+	-	-	-	-	-	-	-
Munida sanctipauli Henderson, 1885	Henderson (1888)	-	-	-	-	-	-	-	-	-	-	-	X
Munida simplex Benedict, 1903	Calado (1996)	-	-	X	-	-	-	-	-	-	-	-	-
Munida spinifrons Henderson, 1885	Henderson (1888)	+	-	-	-	+	+	-	+	-	-	-	X
Munida valida Smith, 1883	Henderson (1888), as *M. miles* (in part)	+	+	-	-	-	-	-	-	X	-	-	-
Munidopsis barbarae (Boone, 1927)	Coelho & Ramos-Porto (1995)	-	-	-	-	-	-	-	X	-	-	-	-
Munidopsis erinacea (A. Milne Edwards, 1880)	Henderson (1888)	-	-	-	-	-	-	-	+	X	-	-	-
Family Porcellanidae Haworth, 1825													
Megalobrachium mortenseni Haig, 1962	Coelho (1969)	-	X	-	X	-	+	+	+	+	-	+	-
Megalobrachium poeyi (Guérin, 1855)	Calado (1996)	-	-	-	-	-	-	-	X	-	-	-	-
Megalobrachium roseum (Rathbun, 1900)	Rathbun (1900), as *Porcellana rosea*	-	-	+	-	+	+	X	X	+	-	+	-
Megalobrachium soriatum (Say, 1818)	Haig (1966)	-	-	-	-	+	-	+	+	X	-	+	-
Minyocerus angustus (Dana, 1852)	Rathbun (1900)	-	+	+	-	+	+	X	+	+	+	-	-
Pachycheles ackleyanus A. Milne Edwards, 1880	Coelho (1964a)	-	-	+	-	+	+	+	X	+	+	+	-
Pachycheles chacei Haig, 1956	Melo (1999)	-	-	-	-	-	-	-	-	X	-	-	-
Pachycheles greeleyi (Rathbun, 1900)	Rathbun (1900), as *Pisosoma riisei*	-	+	+	+	+	+	+	+	X	-	+	-
Pachycheles laevidactylus Ortmann, 1892	Rodrigues da Costa (1960), as *P. haigae*	-	-	+	-	-	-	-	X	-	-	+	-
Pachycheles monilifer (Dana, 1852)	Cano (1889), as *P. moniliferus*	-	-	-	-	-	+	+	X	+	-	+	-
Pachycheles riisei (Stimpson, 1858)	Rathbun (1900), as *Pisosoma riisei*	-	-	-	-	-	-	+	+	X	-	-	+

to be continued..

TABLE 4. (continued)

Taxa	First record	AP	PA	MA	PI	CE	RN	PB	PE	AL	SE	BA	IB
Pachycheles rugimanus A. Milne Edwards, 1880	Coelho (1964a)	+	-	-	-	-	-	+	X	-	-	-	-
Petrolisthes amoenus (Guérin, 1855)	Henderson (1888), as *P. serratus*	-	-	-	-	+	+	+	+	+	-	X	+
Petrolisthes armatus (Gibbes, 1850)	Pocock (1890), as *P. marginatus*	-	-	+	-	+	+	+	+	+	-	+	X
Petrolisthes costai Haig, 1968	Haig (1968) *in* Rodrigues da Costa, 1968	-	-	-	-	-	-	-	-	-	-	X	-
Petrolisthes galathinus (Bosc, 1802)	Cano (1889), as *P. brasiliensis*	-	+	+	+	+	+	+	X	+	+	+	-
Petrolisthes marginatus Stimpson, 1859	Pocock (1890)	-	-	+	-	-	-	-	-	-	-	-	X
Petrolisthes rosariensis Werding, 1978	Coelho *et al.* (1990)	-	-	-	-	-	-	+	+	X	-	+	-
Pisidia brasiliensis Haig, 1968	Coelho (1964a), as *Megalobrachium poeyi*	-	+	+	-	+	+	X	+	-	+	+	-
Polyonyx gibbesi Haig, 1956	Veloso & Melo (1993)	-	-	-	-	X	-	-	X	-	-	X	-
Porcellana sayana (Leach, 1820)	Coelho (1964a)	+	+	-	-	+	+	+	X	+	-	+	-
Porcellana sigsbeiana A. Milne Edwards, 1880	Veloso & Melo (1993)	-	X	X	-	-	-	-	-	-	-	-	-
Superfamily Hippoidea Latreille, 1825													
Family Albuneidae Stimpson, 1858													
Albunea gibbesii Stimpson, 1859	Coelho & Ramos (1972)	-	-	-	-	-	-	-	+	X	-	-	-
Albunea paretii Guérin-Méneville, 1853	Coelho (1969	+	X	X	X	+	-	+	-	+	-	+	-
Lepidopa distincta Gomes Corrêa, 1968	Fausto Filho (1968); Gomes Corrêa (1968b)	-	-	-	-	X	-	-	+	X	-	-	-
Lepidopa richmondi Benedict, 1903	Fausto Filho (1979)	-	-	-	-	-	X	+	-	-	-	-	-
Lepidopa venusta Stimpson,1860	Melo (1999)	-	-	-	-	-	-	-	-	-	-	X	-
Zygopa michaelis Holthuis, 1960	Calado *et al.* (1990)	-	-	X	-	X	-	-	-	-	-	-	-
Family Hippidae Latreille, 1825													
Emerita portoricensis Schmitt, 1935	Rodrigues da Costa (1962)	-	-	+	-	X	+	+	+	-	+	+	-
Hippa testudinaria (Herbst , 1791)	Pocock (1890), as *Remipes scutellatus*	-	-	-	-	+	+	+	+	-	-	+	X
Superfamily Paguroidea Latreille, 1802													
Family Diogenidae Ortmann, 1892													
Calcinus tibicen (Herbst, 1791)	Smith (1869), as *C. sulcatus*	-	-	-	-	+	-	+	+	+	-	X	+
Cancellus ornatus Benedict, 1901	Forest & de Saint Laurent (1967)	-	-	-	-	-	-	-	+	-	-	X	-
Clibanarius antillensis Stimpson, 1859	Smith (1869)	-	-	-	-	+	+	+	+	+	-	X	+
Clibanarius foresti Holthuis, 1959	Coelho (1969)	X	X	X	-	-	-	-	-	-	-	-	-
Clibanarius sclopetarius (Herbst, 1796)	Smith (1869)	-	-	-	-	+	+	+	+	-	-	X	-
Clibanarius tricolor (Gibbes, 1850)	Coelho (1964b)	-	-	-	-	-	-	-	-	-	-	-	X
Clibanarius vittatus (Bosc, 1802)	Smith (1869)	-	-	+	-	+	+	+	+	-	+	X	-
Dardanus fucosus Biffar & Provenzano, 1972	Coelho (1969), as *Dardanus* sp.	X	X	-	-	-	-	-	-	-	-	-	-
Dardanus venosus (Milne Edwards, 1848)	Rathbun (1900), as *Petrochirus insignis*	-	+	+	+	+	+	+	X	X	+	+	+
Isocheles sawayai Forest & de Saint Laurent, 1967	Fausto Filho (1966), as *I. wurdemanni*	-	-	-	-	X	-	-	+	+	-	-	-
Paguristes angustitheca McLaughlin & Provenzano, 1974	McLaughlin & Provenzano (1974)	X	-	-	-	-	-	-	-	-	-	-	-
Paguristes calliopsis Forest & de Saint Laurent, 1967	Forest & de Saint Laurent (1967)	-	-	-	-	-	-	-	-	-	-	X	-

to be continued.

TABLE 4. (contiuned)

Taxa	First record	AP	PA	MA	PI	CE	RN	PB	PE	AL	SE	BA	IB
Paguristes erythrops A.Milne Edwards, 1880	Forest & de Saint Laurent (1967)	-	-	+	+	-	+	+	X	X	X	X	-
Paguristes oxyophthalmus Holthuis, 1959	Calado (1996)	-	X	-	-	-	-	-	-	-	-	-	-
Paguristes perplexus McLaughlin & Provenzano, 1974	Forest & de Saint Laurent (1967), as *P. tortugae*	-	-	-	-	+	-	-	X	-	-	X	-
Paguristes spinipes A. Milne Edwards, 1880	Henderson (1888), as *P. visor*	-	-	+	-	+	-	+	-	X	-	-	-
Paguristes tortugae Schmitt, 1933	McLaughlin & Provenzano (1974)	-	X	-	-	+	-	-	-	-	-	-	+
Paguristes triangulopsis Forest & de Saint Laurent, 1967	Forest & de Saint Laurent (1967)	-	-	-	-	-	-	-	-	-	X	X	-
Petrochirus diogenes (Linnaeus, 1758)	Smith (1869), as *P. granulatus*	+	-	+	-	+	+	-	+	+	+	X	-
Family Lithodidae Samouelle, 1819													
Lithodes manningi Macpherson, 1988	Young & Serejo (2002)	-	-	-	-	-	-	-	-	-	-	X	-
Neolithodes agassizii (Smith, 1882)	Young & Serejo (2002)	-	-	-	-	-	-	-	-	-	-	X	-
Paralomis cubensis Chace, 1939	Melo (1999)	-	X	-	-	-	-	-	-	-	-	-	-
Paralomis formosa Henderson, 1888	Young & Serejo (2002)	-	-	-	-	-	-	-	-	-	-	X	-
Family Paguridae Latreille, 1803													
Agaricochirus gibbosimanus (A. Milne Edwards, 1880)	Bullis & Thompson (1965)	-	X	-	-	-	-	-	-	-	-	-	-
Anisopagurus bartletti (A. Milne Edwards, 1880)	Bullis & Thompson (1965)	-	X	-	-	-	-	-	-	-	-	-	-
Iridopagurus dispar (Stimpson, 1859)	Coelho *et al.* (1983)	-	-	-	-	-	-	-	-	X	-	-	-
Iridopagurus iris (A. Milne Edwards, 1880)	Coelho & Ramos-Porto (1986)	X	-	-	-	-	-	-	-	-	-	-	-
Iridopagurus reticulatus García-Goméz, 1983	Coelho *et al.* (1990)	-	-	-	-	-	-	-	-	X	-	-	-
Iridopagurus violaceus de Saint Laurent, 1966	Forest & de Saint Laurent (1967)	-	+	+	+	+	+	-	X	+	X	X	X
Nematopaguroides fagei Forest & de Saint Laurent, 1967	Forest & de Saint Laurent (1967)	-	-	-	-	-	-	-	X	-	-	+	-
Nematopaguroides? pusillus Forest & de S. Laurent, 1967	Forest & de Saint Laurent (1967)	-	-	-	-	-	-	-	X	-	-	-	-
Pagurus brevidactylus (Stimpson, 1859)	Coelho (1964b)	-	-	-	-	-	-	-	X	+	-	+	+
Pagurus criniticornis (Dana, 1852)	Forest & de Saint Laurent (1967)	-	-	-	-	+	+	-	+	+	-	X	+
Pagurus leptonyx Forest & de Saint Laurent, 1967	Fausto Filho (1970)	-	-	-	-	X	-	-	-	+	+	-	-
Pagurus limatulus Fausto Filho, 1970	Fausto Filho (1970)	-	-	-	-	X	+	-	-	-	-	-	-
Pagurus longimanus Wass, 1963	Coelho (1969)	X	-	-	-	-	-	-	-	-	-	-	-
Pagurus provenzanoi Forest & de Saint Laurent, 1967	Forest & de Saint Laurent (1967)	+	-	-	-	-	+	+	X	+	+	X	X
Phimochirus holthuisi (Provenzano, 1961)	Coelho & Ramos (1972)	-	X	-	-	-	-	-	+	-	-	+	-
Phimochirus occlusus (Henderson, 1888)	Henderson (1888)	-	-	-	-	-	-	-	X	-	-	-	-
Pylopagurus discoidalis (A.Milne Edwards, 1880)	Bullis & Thompson (1965)	+	X	-	-	-	-	-	-	-	-	-	-
Tomopagurus wassi McLaughlin, 1981	McLaughlin (1981)	-	-	X	-	-	-	-	-	-	-	-	-
Family Parapaguridae Smith, 1882													
Oncopagurus bicristatus (A. Milne Edwards, 1880)	Lemaitre (1989), as *Sympagurus bicristatus*	X	-	X	-	-	-	-	-	-	-	-	-
Oncopagurus gracilis (Henderson, 1888)	Henderson (1888), as *Parapagurus gracilis*	-	-	+	-	-	-	-	X	-	-		-
Family Pylochelidae Bate, 1888													
Mixtopagurus paradoxus A. Milne Edwards, 1880	Bullis & Thompson (1965)	+	X	-	-	-	-	-	-	-	-	-	-

Discussion

In Paulo S. Young's Catalogue of Crustacea of Brazil (Young 1998), a total of 140 species belonging to the studied groups are cited from Brazil, with 110 assigned to the northern and/or northeastern Brazilian coast. In the present contribution we report a total of 146 species, which amounts to an increase of 32.7% since 1998. Regarding the higher taxa, the number of families and superfamilies in this portion of the Brazilian coast rose from 6 to 9 and from 18 to 23, respectively, between 1998 and 2006. The bulk of new records for the study area can be attributed to the material collected by the REVIZEE project (Tavares & Young 2002, Ramos-Porto *et al.* 2000b, Serejo *et al.* 2006; Silva *et al.* 2003).

Boschi (2000), studying the decapod crustacean distribution in the South American marine zoogeographic provinces, recorded a total of 153 species between the Orinoco River delta (Venezuela, 08°56'N, 60°47'W) and Cape Frio (Brazil, 22°53'S, 42°02'W). This zoogeographic area is said to comprise the Brazilian Province, a more extensive area than the N/NE Brazilian coast, but less representative, since 146 species are reported in this contribution. Campos *et al.* (2003) mentioned 172 species from the Caribbean coast of Colombia, an area with a high diversity of coastal habitats, but is shorter than the N/NE Brazil coast. With these data, it is possible to conclude that the number of species from this part of the Brazilian littoral zone is still poorly known.

Analysis of the currently known distribution of the species reported herein, based on Melo (1985), allows identification of four patterns of longitudinal distribution: western Atlantic species, Amphi-Atlantic species, Amphi-American species, and circum-tropical species.

The first group comprises species endemic to the western Atlantic, with 126 species. Most of the species have a wide latitudinal distribution, occurring along merely the entire coast of the Americas, spanning more than one zoogeographic province, including tropical and temperate provinces. However, some species range from North America to the area under influence of the Amazon´s Rivers (e.g., *Axiorygma nethertoni*, *Palinustus truncatus*, *Dardanus fucosus*, and *Paguristes angustitheca*). Yet, other species seem to have a disjunct distribution, occurring from North America to southern South America, but not in the area under influence of the Amazon´s Rivers (e.g., *Albunea gibbesi*, *Calcinus tibicen*, *Pagurus brevidactylus*, and *Emerita portoricensis*). However, it is important to keep in mind that some of these species could be 'absent' due to the lack of collection effort.

Among the 126 species, 28 species have a distribution restricted to the Guyanas and/or Brazilian provinces. *Acanthaxius angulata*, *Calaxius spinosus*, *Marcusiaxius minutus*, *Clibanarius foresti*, *Paguristes oxyophthalmus*, and *Pagurus longimanus* are endemic to the Guyanas province, an area characterized by soft bottoms and influenced by the Amazon´s Rivers discharge. Another group is known to be endemic of the Brazilian province, *Ctenocheles holthuisi*, *Eucalliax cearensis*, *Axianassa australis*, *Upogebia careospina*, *U. noronhesis*, *U. omissago*, *U. paraffinis*, *Axiopsis brasiliensis*, *Paraxiopsis vicina*, *Munida atlantica*, *M. petronioi*, *Paguristes triangulopsis*, *Nematopaguroides fagei*, *N. pusillus*, and *Pagurus limatulus*. Among them, *A. australis*, *U. paraffinis*, and *N. fagei* ranges to the southeast Brazilian coast, which is considered by some authors as a region of peculiar hydrological features and a zoogeographical transition zone between tropical and temperate faunas (Coelho *et al.* 1978; Melo 1990; Melo-Filho 2006), recognized by several authors as the Paulista province (Coelho & Ramos 1972; Coelho *et al.* 1978; Palacio 1982). Finally, the species *Sergio guara*, *Scyllarides delfosi*, *Pachycheles greeleyi*, *Pisidia brasiliensis*, *Paguristes calliopsis*, *P. erythrops*, and *Iridopagurus violaceus* are common to the Guyanas and Brazilian provinces, although the distribution could be extended to the Caribbean or Paulista provinces.

The second group is formed by the astacid *Enoplometopus antillensis*, the palinurans *Panulirus argus* and *P. echinatus*, and the anomurans, *Munida iris*, *M. sanctipauli*, *Petrolisthes marginatus*, *Albunea paretti*, *Oncopagurus bicristatus*, and *O. gracilis*, which are represented in both western and eastern Atlantic. The third group comprises the thalassinid *Neocallichirus grandimana* and the anomurans *Megalobrachium mortenseni*,

M. roseum, *M. soriatum*, *Pachycheles ackleianus*, *P. chacei*, and *P. monilifer* which are represented in both sides of South America.

Finally, the last group is composed of species with circum-tropical distribution, which include the thalassinid *Axiopsis serratifrons*, the palinuran *Parribacus antarcticus*, and the anomurans *Petrolisthes armatus* and *P. galathinus*. These porcellanids are widely distributed, but are absent from the Indo-West Pacific (Melo 1999). Both are morphologically variable *taxa*, believed to represent species complexes (Werding *et al.* 2003; Rodriguez *et al.* 2005).

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Note: Recently, the species *Munida coltroi* was described by Melo-Filho & Melo (2006) from Ceará State coast, adding a new species to the study area.

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