

The Brazilian northernmost record of coral crab *Carpilius corallinus* (Herbst, 1783) (Decapoda: Carpiliidae) collected as bycatch in the Great Amazon reef system

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ABSTRACT

The coral crab *Carpilius corallinus* (Herbst, 1783) is popularly known in Brazil as “Guajá”, which is widely distributed in tropical marine areas, associated with coral reefs in coastal zones. *C. corallinus* occurs in Brazilian waters with disjunct distribution, covering the States from Ceará to Alagoas, with specific records in States of Bahia, São Paulo, Fernando de Noronha Archipelago and Rocas Atoll. Here, we report the northernmost record of *C. corallinus*, from State of Pará with its occurrence on Great Amazon Reef System (GARS). Was collected one male specimen as bycatch in artisanal fisheries on Amazon River Mouth (01°24'55.008"N; 046°39'58.86"W) at depth of 76.2 m. This record fills the gap on distribution of *C. corallinus* in Brazil, and increase number of crabs species occurring in the Great Amazon Reef System (Pará).

Keywords: Amazon River Mouth; Coral associated crab; North coast; State of Pará; Artisanal Fisheries.

O registro mais ao norte do Brasil do caranguejo de coral *Carpilius corallinus* (Herbst, 1783) (Decapoda: Carpiliidae) coletado como fauna acompanhante no Grande Sistema de Recifes Amazônicos

RESUMO

O caranguejo de coral *Carpilius corallinus* (Herbst, 1783) é popularmente conhecido no Brasil como “Guajá”, o qual é amplamente distribuído em áreas marinhas tropicais, associados com recifes de corais em zonas costeiras. *C. corallinus* ocorre em águas Brasileiras com distribuição disjunta, cobrindo os Estados do Ceará a Alagoas, com registros específicos nos Estados da Bahia, São Paulo, Arquipélago de Fernando de Noronha e Atol das Rocas. Aqui, nós reportamos o registro mais ao norte do *C. corallinus* para o Estado do Pará com sua ocorrência no Grande Sistema de Recifes da Amazônia (GSRA). Foi coletado um espécime macho como fauna acompanhante da pesca artesanal na Boca do Rio Amazonas (01°24'55.008"N; 046°39'58.86"W) na profundidade de 76.2 m. Esse registro preenche a lacuna de distribuição do *C. corallinus* no Brasil, e aumenta o número de espécies de caranguejo ocorrendo no Grande Sistema de Recifes da Amazônia (Pará).

Palavras-Chaves: Boca do Rio Amazonas, Caranguejo associado a coral, Costa Norte, Estado do Pará, Pesca Artesanal.

The family Carpiliidae Ortmann, 1893 contain only one genus *Carpilius* Desmarest, 1823 which is composed by three valid species: *C. corallinus* (Herbst, 1783) with wide distribution in Western Atlantic, *C. convexus* (Forsk., 1775) and *C. maculatus* (Linnaeus, 1758) both with several records in Red Sea and Indo-Pacific Oceans (WETZER et al., 2003; NG et al., 2008; CARQUEIJA; SILVA, 2012). The coral crab *C. corallinus* is the only one species occurring in Brazilian waters, in coastal zones associated with coral reefs from intertidal zones to 50 m of depth (LAUGHLIN, 1982; COELHO; RAMOS-PORTO, 1995; MELO, 1996; CARQUEIJA; SILVA, 2012).

In Brazil, the *C. corallinus* is popularly known as “Guajá”, which is used as a food source, becoming a potential target of coastal fisheries in environments as rock shores, beachrocks and intertidal reefs, due its easy capture and expensive price in market. According to PINHEIRO et al. (2016) in Brazil there are no protective actions for preservation of this species, whereas these actions are common in others crustacean species such as *Ucides cordatus* (Linnaeus, 1763) and *Cardisoma guanhumi* Latreille, 1828, which there are management strategies as, for example, non capture of individuals in reproductive periods.

Despite its broad distribution in western Atlantic, in Brazilian coast the *C. corallinus* has been recorded only in few regions, with disjunct distribution covering the States of Ceará to Alagoas, with specific records in States of Bahia, São Paulo, Fernando de Noronha Archipelago and Rocas

Atoll (LAUGHLIN, 1982; COELHO; RAMOS-PORTO, 1995; MELO, 1996; CARQUEIJA; SILVA, 2012). However, there no previous report of this species in North region, especially in marine areas under the influence of Amazon River Mouth, corroborating with the Brazilian biogeography province delimiting the distribution only in northeastern and southeastern regions by COELHO; COELHO-FILHO (1993) and COELHO et al. (2008). Thus, herein we provided an unexpected record of *Carpilius corallinus* (Herbst, 1783), associated with the recent discovery Amazon Reef System in State of Pará, Brazil.

The specimen of *C. corallinus* was collected as bycatch through lobster fishing (cacoeira method) under supervision of Center for Research and Management of Fisheries Resources of the North Coast (CEPNOR) (SISBIO Number: 44915-3), along continental shelf in State of Pará (Fig.1), with depths between 16 and 97 m in October of 2019 on the Great Amazon Reef System (GARS). According to COLLETTE; RUETZLER (1977) and MOURA et al. (2016) this area has an extensive reef system recently discovered, covering approximately 9.500 km² forming mesophotic reefs between 70 and 220m of depth and containing an unknown biodiversity. After sampling, the individual was sorted out, identified according to MELO (1996) and measured in Carapace Length- CL with digital caliper (cm) in Carcinology Laboratory (CEPNOR/IBAMA) preserved in 70% ethyl alcohol and stored in carcinological collection at *Federal Rural University of Amazonia*.

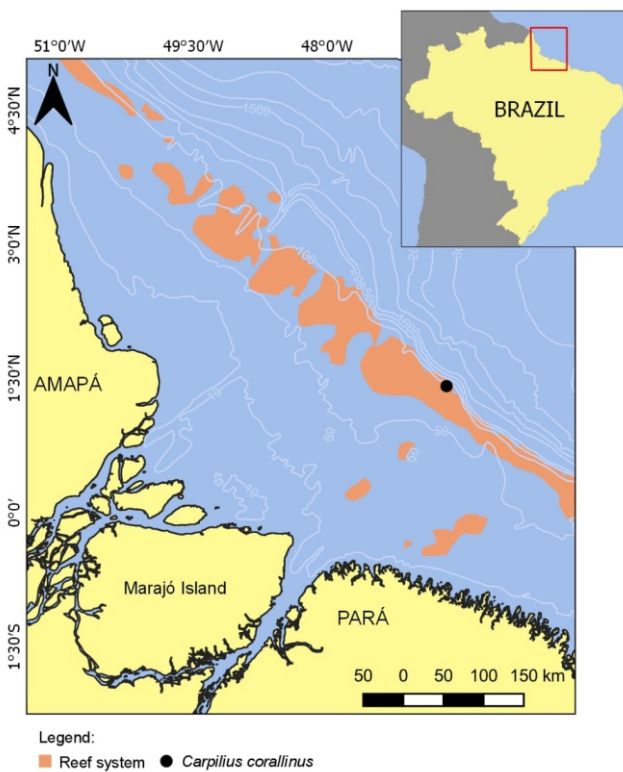


Figure 1. *Carpilius corallinus* (Herbst, 1783) collected in Great Amazon Reef System (Black circle = New occurrence) from State of Pará, Brazil. / **Figura 1.** *Carpilius corallinus* (Herbst, 1783) coletado no Grande Sistema de Recifes da Amazônia (Círculo negro = Nova ocorrência) para o Estado do Pará, Brasil.

The male specimen of *C. corallinus* (CL: 14.2 cm) (voucher number: 17.1.1 A) (Fig.2) was collected in 16.x.2019 associated with the Great Amazon Reef System, State of Pará (01°24'55.008"N; 046°39'58.86"W) (Fig.1), at depth of 76.2 m, in bottoms of gravel and corals fragments. The occurrence of *C. corallinus* in State of Pará can be associated with the Amazon Reefs, which extensive coral reefs act as substrate (habitat) for species dynamics as: feeding (mollusks, echinoderms and polychaetes), reproduction and protection (see COLINS; MORRIS, 1973). According to FAUSTO-FILHO (1966) and PINHEIRO et al. (2016), *C. corallinus* can be found in bottoms of gravel and corals fragments, similar areas related to occurrence of species that belongs to genus *Panulirus* White, 1847, corroborating with this new observation.



Figure 2. *Carpilius corallinus* (Herbst, 1783) (male: CL: 14.2 cm) (Voucher Number: 17.1.1 A), collected as bycatch in Amazon Reef System, located in State of Pará, Brazil. / **Figura 2.** *Carpilius corallinus* (Herbst, 1783) (macho: CC: 14.2 cm) (Número de tombo: 17.1.1 A), coletado como fauna acompanhante no Sistema de Recifes da Amazônia, localizado no Estado do Pará, Brasil.

The geographic distribution of *C. corallinus* comprises of United States (Florida), Gulf of Mexico, Caribbean Sea, Bermudas, Bahamas, Antilles, Guana Island, Navassa Island, Panama, Dominican Republic, Colombia, Venezuela and in Brazil: **Pará (present study)**, Ceará, Rio Grande do Norte,

Paraíba, Pernambuco, Fernando de Noronha Archipelago, Rocas Atoll, Alagoas, Bahia, São Paulo (RATHBUN, 1930; FAUSTO-FILHO et al., 1974; ABELE; KIM, 1986; CHACE et al., 1986;; LEMAITRE, 1981; MELO, 1996; MELO et al., 1998; WETZER et al., 2003; COELHO et al., 2008; CARQUEIJA; SILVA, 2012; PINHEIRO et al., 2016).

Despite the Amazon River Plume influence between regions of Pará and Amapá, is possible identified an extensive coral system, which provides substrate for existence of several species under Amazon River Plume (COLLETTE; RUETZLER, 1977; MOURA et al., 2016). This region has a great potential for new observations of species associated with Amazon corals, being possible identification of a biodiversity no previously recorded from North region, however widely distributed in Brazilian waters. Thus, this new record of *C. corallinus* increases the crustacean diversity from the North coast of Brazil (State of Pará) and expands knowledge about the Great Amazon Reef System biodiversity.

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