Thalassinideans new to the fauna of Bermuda and the Cape Verde Islands

D. Abed-Navandi*

Abstract

Neocallichirus rathbunae, a thalassinidean common in the western Atlantic, is first recorded for Bermuda from two subtidal habitats. Corallianassa intesi comb.n. and Axiopsis serratifrons are recorded for the first time from inter- and subtidal sediments of the Cape Verde Islands. Based on morphological and ecological traits, Corallianassa intesi is transferred from its former genus Glypturus STIMPSON, 1866 to the genus Corallianassa MANNING, 1987.

Key words: Neocallichirus rathbunae, Corallianassa intesi comb.n., Axiopsis serratifrons, Crustacea, Decapoda, Thalassinidea, tropical Atlantic Ocean, first records, Bermuda, Cape Verde Islands.

Introduction


Neocallichirus rathbunae (SCHMITT, 1935) is widely distributed in the subtropical and tropical western Atlantic. A faunistic search of sediment bottoms on the Bermuda Islands in 1998 revealed several specimens of N. rathbunae; the tabulation of the Crustacea Decapoda of Bermuda (MARKHAM & McDERMOTT 1980) does not list this species. This is the northernmost record of N. rathbunae.

Corallianassa intesi (DE SAINT LAURENT & LE LOEUFF, 1979) is a callianassid species inhabiting the tropical Eastern Atlantic, its sole record is from the Senegal coast. During a search survey for thalassinideans on the Cape Verde Islands in 1999, this species was caught on two islands in different habitats.

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**Material & Methods**

The sampling sites of *Neocallichirus rathbunae* are in Harrington Sound (Bermuda), west of Trunk Island (32°20'00"N, 64°43'35"W). In 3 m depth of this very protected marine lake the bottom consists of medium fine carbonate sand. Mounds up to 40 cm high with adjacent funnels indicate the burrows of this callianassid (Fig. 1). Syntopic macrofauna elements were the Calico clam *Macrocallista maculata* (Linnaeus, 1758), the spotted eagle ray *Aetobatus narinari* (Euphrasen, 1790) and the upside-down jellyfish *Cassiopeia xamachana* Bigelow, 1892. Another specimen was caught on the west coast of Bermuda, 200 m offshore of Pompano Beach Club (32°15'36"N, 64°52'42"W). In 2.5 m depth, the bottom also consisted of medium fine carbonate sand and was interspersed with coral heads. A population of a syntopic callianassid, *Corallianassa longiventris* (A. Milne-Edwards, 1870) had its shoreward distribution limit there. A steel yabby pump was used for sampling while snorkeling in October 1998.

On the Cape Verde Islands, *Corallianassa intesi* was collected on a tidal flat north of the village Moia-Moia (15°2'40"N, 23°27'30"W) on the Ilha de Santiago. The sediment in this very protected bay consisted of black fine sand of volcanic origin (Fig. 2). At low tide, the lebensspuren of this ghost shrimp were round holes in the sand surface. Syntopic macrofauna included an unidentified large stomatopod, the callianassid *Neocallichirus pachydactylus* (A. Milne-Edwards, 1870), two new species of alpheids (Dworschak & al. 2000) and cows. A yabby pump was used for collection during low tide; the residents of Moia-Moia thankworthy helped spot the lebensspuren of the animals in September 1999.
On the Ilha da Boavista, *Corallianassa intesi* was caught on a beach on the northeastern coast of the Ilheu de Sal-Rei (16°10'00"N, 22°55'50"W). In 2 m depth the sediment consisted of medium fine carbonate sand and was interspersed with rubble originating from the coral heads nearby. In addition, *Corallianassa intesi* was observed 5 km offshore the northeastern coast of the Ilha da Boavista (16°10'00"N, 22°55'50"W) in 17 m depth and on the Ilha do Maio, 4.5 km offshore north of Punta Cais in 16 m depth. At these locations, the burrow openings were also round holes in the sand surface; the sediment was a medium carbonate sand between coral heads. *Axiopsis serratifrons* was found with *Corallianassa intesi* in the above described habitats on the Ilheu de Sal-Rei and on the Ilha do Maio; seagrass leaves and algae were used to lure both species to the sediment surface in September 1999.

**Abbreviations**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>BAMZ</td>
<td>Bermuda Aquarium, Museum and Zoo</td>
</tr>
<tr>
<td>NHMW</td>
<td>Naturhistorisches Museum Wien</td>
</tr>
<tr>
<td>TL</td>
<td>total length in mm</td>
</tr>
<tr>
<td>CL</td>
<td>carapace length in mm</td>
</tr>
<tr>
<td>P2L, P6L</td>
<td>length of second or sixth pleomere in mm</td>
</tr>
<tr>
<td>TNL</td>
<td>telson length in mm</td>
</tr>
<tr>
<td>na</td>
<td>not available</td>
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</tbody>
</table>
**Neocallichirus rathbunae** (SCHMITT, 1935)


**Material:**

Coloration: All specimens were faintly pink; the uropods of smaller specimens had yellow fringes.

This species was described as *Callianassa (Callichirus) rathbunae* from a ghost shrimp washed ashore after a storm in Bluefields, Jamaica in 1899 (SCHMITT 1935). The first sampling from its habitat was made by BIFFAR (1971) while dredging sandy bottoms in Key Biscayne, Florida. Further sampling with a yabby pump in this region by MANNING & HEARD (1986) yielded findings on intertidal sand flats in the Indian River, Florida and on 3-5 m deep silty, coralline sand bottoms at Bimini, Bahamas. Extensions of the species' geographical range are due to the findings of SUCHANEK (1983) in St. Croix, Virgin Island in depths down to 40 m and DWORSCHAK (1992) on the Belize Barrier Reef. Recent reports for the southern Caribbean coast are from SAKAI (1999) for sand bottoms in 15 m depth near Santa Marta, Colombia and by BLANCO-RAMBLA (1999) for the region near Cumana, Venezuela. The southernmost reports are from Pernambuco, Brazil (COELHO 1997) (Fig. 3).

Two previous studies on the ecology of a Bermudian callianassid in "Coot Pond", a protected bay (WASLENCHUK & al. 1983, BIANCHI 1991), assume *Neocallichirus grandimanus* (GIBBES, 1850) to be the species creating the large sublittoral burrow mounds. Unfortunately, no specimens were obtained during these studies. The only habitat where this species was caught on Bermuda is the eulittoral of a very protected bay, "Tucker's Town Cove"; *Neocallichirus grandimanus* does not build mounds there (pers. obs.). A previous study on the burrow morphology of this species on the Belize Barrier reef never encountered large mounds (DWORSCHAK & OTT 1993); the burrow opening is usually characterised by a simple round hole at the sediment surface, sometimes by a small mound. *Neocallichirus rathbunae* (SCHMITT, 1935), a large mound builder (SUCHANEK 1983), is probably the species studied in WASLENCHUK & al. (1983) and BIANCHI (1991).

**Corallianassa intesi** (DE SAINT LAURENT & LE LOEUFF, 1979) comb.n.

*Callichirus intesi* DE SAINT LAURENT & LE LOEUFF, 1979: 69, figs. 14g, 16c, 17b, 18b, 19g, 21a,c, 23j-m; TUDGE & al., 2000: 144.


**Material:**
- NHMW 18800, 1 male (TL = 28, CL = 8, P2L = 5.4, P6L = 4.2, TNL = 1.4), Cabo Verde Arquipelago, D. Abed-Navandi coll., Ilha do Sao Tiago, NE coast, tidal flat at Moia-Moia, fine sand, AN.

Coloration: All animals showed orange markings on the merus, carpus, propodus and dactylus of the first pereiopod.

De Saint Laurent & Le Loeuff (1979) described this species as Callichirus intesi from material collected by the Calypso Expeditions to western Africa 1951-1957. Sampling sites were bottoms from 5-15 m depth near Gorée and Dakar, Senegal (Fig. 3). No further findings were reported in the literature.

This species was later placed in the genus Glypturus Stimpson, 1866 (Manning 1987). The genus Corallianassa Manning, 1987 was synonymized with the genus Glypturus Stimpson, 1866 by Sakai (1999), this synonymy, however, was not supported by a recent multivariate phylogenetic analysis based on 93 morphological characters (Tudge & al. 2000).

Several features of this species, including ecological traits, justify a transfer to the genus Corallianassa Manning, 1987:

The carapace shows a straight rostrum and two spines that are separated from the carapace by a decalcified membrane. The eyes of the three examined specimens show variations from a medium-sized subterminal subglobular cornea to a large terminal globular one; two specimens of Corallianassa borradailei (De Man, 1928) from Fiji and Hawaii show similar variations (Manning 1987, Figs. 8a, 9a).

The pleomeres are quite slender with the second pleomere being the longest; the major cheliped shows just one rather blunt terminal spine on the dorsal margin of its palm. The vivid colouration similar to that of Corallianassa longiventris (A. Milne-Edwards, 1870) may be characteristic for the genus Corallianassa according to Manning (1987).

The burrow entrance is always flush with the sediment surface; at least the upper portion of the burrow is lined with fine sand. The animals appear at the burrow entrance, where they can be baited with seagrass and algae; they dwell in sediments between coral heads. Corallianassa intesi also shares this specific burrow morphology, behaviour and ecological demands with its congener Corallianassa longiventris (Manning 1987, Dworschak & Ott 1993, Abed-Navandi, pers.obs., Dworschak, pers.comm.).

Axiopsis serratifrons (A. Milne-Edwards, 1873)

Axiopsis serratifrons A. Milne-Edwards, 1873: 11, pl. 2, fig. 6.
Axius affinis De Man, 1888: 469, pl. 20, fig. 1.
Axius spinipes De Man 1888: 464, pl. 19, fig. 6.
Axiopsis (Axioposis) serratifrons Kensley, 1980: 1253, figs 1-5

Fig. 3: Distribution map of thalassinideans:

Sampling sites of *Neocallichirus rathbunae*: (1) Bluefields, Jamaica (Schmitt 1935), (2) Key Biscayne, Florida (Biffar 1971), Indian River, Florida; Bimini, Bahamas (Manning & Heard 1986), (3) St. Croix, Virgin Islands (Suchanek 1983), (4) Belize Barrier Reef (Dworshak 1992), (5) Pernambuco, Brazil (Coelho 1997), (6) Santa Marta, Colombia (Sakai 1999), (7) Cumana, Venezuela (Blanco-Rambla, 1999) and (8) Bermuda (this study);

Sampling sites of *Corallianassa intesi*: (9) Gorée and Dakar, Senegal (De Saint Laurent & Le Loëuff 1979), (10) Ilha da Boavista, Cape Verde and (11) Ilha do Maio and Ilha de Santiago, Cape Verde (this study);


Findings of this species for the Atlantic Ocean are reported from Ascension (Manning & Chace 1990), the Caribbean coast of Columbia (Werding & Müller 1989), Curacao (Rodrigues 1994), the Belize Barrier Reef (Kensley 1980, Dworschak 1992, Dworschak & Ott 1993), Florida (Kensley 1980) and Bermuda (Chace & al. 1986) (Fig. 3).

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References


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