

Occurrence Records of *Hoplosternum littorale* (Hancock, 1828) (Siluriformes: Callichthyidae) in the Salgado River basin in the South of Ceará-Brazil

Francisco Ronaldo Vieira Freitas^{1*}
Damares Ribeiro Alencar¹
Whanderson Machado do Nascimento¹
Wellington Soares Feitosa¹
Allysson Pontes Pinheiro¹

1. Laboratório de Crustáceos do Semiárido (LACRUSE), Universidade Regional do Cariri (URCA). Street: Cel. Antônio Luiz Pimenta 1161, CEP 63105-000, Crato, Ceará, Brazil.
*Corresponding author: E-mail: ronaldofreita@hotmail.com.

ABSTRACT

The current paper had as objective to record the occurrence of *H. littorale* in the Salgado River basin, Juazeiro do Norte municipality, in the southern region of Ceará, based on the collection of 12 specimens, made with the use of appropriate tools with a thickness of 0.5 cm, the fishes were captured on the Carás River and the São José River, effluents of the Salgado River. With larger sizes and weights, the fishes collected in São José River seem to have adapted to the pollution, since the river receives sanitary sewage from the surrounding neighborhoods and in the dry season is its only source of water. The Carás River does not have sanitary sewage, but its banks have been deforested with several silted places. By demonstrating an ease of adjusting better to a polluted environment and with low oxygen content, the species characterizes an invasive profile.

Keywords: Biodiversity; Ichthyofauna; Semi-arid; Tamoatá.

Registro de ocorrência do *Hoplosternum littorale* (Hancock, 1828) (Siluriformes: Callichthyidae) na bacia do Rio Salgado no Sul do Ceará-Brasil

RESUMO

O presente trabalho teve como objetivo registrar a ocorrência do *H. littorale* na bacia do rio Salgado na região Sul do Ceará, município de Juazeiro do Norte, baseado na coleta de 12 espécimes, feita com a utilização de tarrafas com malha de espessura 0,5 cm, foram capturados no rio Carás e no riacho São José, afluentes do rio Salgado. Com tamanhos e pesos maiores, os peixes coletados no riacho São José, parecem ter se adaptado à poluição, visto que o riacho recebe esgotos sanitários dos bairros circunvizinhos e no período de estiagem é sua única fonte de água. Já o rio Carás não apresenta esgotos sanitários, porém têm suas margens desmatadas com vários locais assoreados. Por demonstrar uma facilidade de se ajustar melhor a um ambiente poluído e com pouco teor de oxigênio, a espécie caracteriza um perfil de invasora.

Palavras-chave: Biodiversidade, Ictiofauna, Semiárido, Tamoatá.

Popularly known as tamoatá, camboatá, camboge, caboja or caboge, depending on the region where they are. The *Hoplosternum littorale* is a species of the family Callichthyidae, order Siluriformes, widely distributed in South America (MENEZES et al., 2007). Distributed e registered in basin the Amazonas, Araguaia, Paraguay, Uruguay, San Francisco, Paraíba do Sul, Paraná and eastern littoral basins of South America (BRITTO et al., 2007).

The species lives in streams, ponds and small rivers, usually in areas where the water stream is moderate. They have aerial respiration and are not considered endangered (MENEZES et al., 2007). The species has some peculiarities, such as accessory breathing that makes it apt to live in oxygen-poor marshy areas (HOSTACHE; MOL, 1998; BRAUNER et al., 1999). Generally associated to rivers and flooded areas (BURGESS, 1989).

During the rainy season, adults consume a great quantity of chironomids associated with detritus. During the dry season, they feed mostly on terrestrial insects, micro-crustaceans, aquatic Diptera, and detritus. Absorbs a great quantity of anaerobic bacteria from the substrate (BOUJARD et al., 1997). First reproduction occurs after one year (LE BAIL et al., 2000). Used to be cultured commercially in Guyana (FAO, 1993). Cultured in Trinidad on a semi-commercial scale (KENNY, 1995). But in the northeastern region of Brazil they can be found in fish shops.

Morphologically, the *H. littorale* can be characterized by its series of plaques on each side of the body in the form of zigzag. Besides to having a small terminal mouth, projected forward, and a pair of barbels in each rictus (SANTOS et al., 1984). In addition to these peculiar characteristics, the species presents skeletal bones, fusiform body, fins arranged in pairs with pointed pectorals, aerial respiration, mouth of sub-bottom origin and with ferigiano teeth that facilitate in the crushing of the food, well developed jaws and jaws articulated with the skull, eyes large without eyelids, according to Hildebrand & Goslow (2006).

This research aims to report the occurrence of *H. littorale*, in the Salgado River basin, located in the southern region of Ceará, Brazil.

The specimens were collected in the Carás river (07°08'52.0"S - 039°16'44.0"W), in the municipality of Juazeiro do Norte, and on the São José river, (07°13'52.99"S - 039°21'34.18"W) in the stretch located near the banks of the highway CE 292, which interconnects the municipalities of Crato and Juazeiro do Norte (Figure 01), both are temporary stream during the rainy season, with little vegetation on the shores and shallow.

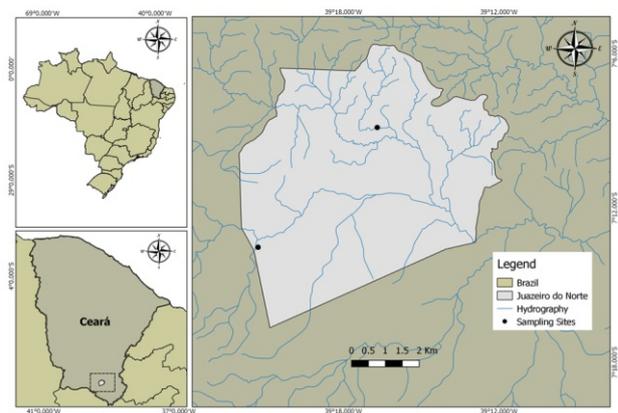


Figure 01. Map of the city of Juazeiro do Norte, Ceará - Brazil, highlighting the collection spot.

Both river presented muddy bottoms and murky waters, with remains of foliage, and partly preserved marginal vegetation. The material was collected in the rainy season with the aid of traps in four different collection points in the São José river (May 2015) and one in the Carás river (June 2014).

Immediately after the samples, the specimens was carried out to the laboratory and placed on the ice for later identification of the species (Figure 02), and the samples were duly labeled and placed in 70% alcohol glass bottles and some were shipped to the fish laboratory at UFRN, for confirmation of the species.



Figure 02. Specimen of *H. littorale* (male). Scale of 1.0 cm.

The fishes were collected in both standing and running water, clean and polluted, demonstrating the ability and adaptability of the species. Six male and five female specimens, both of different sizes, were captured at the Carás River. The largest male presented 29.67 g and 12.6 cm of total length, while the largest female presented 19.68 g and 10.63 cm of total length, in general the average weight and length of the specimens collected were respectively 16 g and 9.92 cm (Table 01). In the São José River, six specimens were also collected, all females, with the largest individual measuring 77.42 g in weight and 16.35 cm in length, with a mean weight of 37.45 g and a length of 12.88 cm (Table 01).

Table 01. Relationship of weights (g) and total length (cm) of fish collected in the Carás River basin and São José Creek.

Carás River			São José River		
Sex	Weight	Length	Sex	Weight	Length
Female	6.76	7.92	Female	24.74	11.82
Female	11.43	9.41	Female	27.52	11.51
Female	11.59	9.29	Female	29.73	12.17
Female	16.91	9.70	Female	29.99	12.35
Female	19.68	10.63	Female	35.32	13.09
Male	29.67	12.60	Female	77.42	16.35
Average	16.00	9.92		37.45	12.88

With larger sizes and weights, the fishes collected in São José River do not seem to suffer from pollution, since it receives sanitary sewage from surrounding neighborhoods. It seems that the species comes out on top of the others precisely because it has a facility of adjusting better to a polluted environment with low oxygen content according to the statement by Hostache & Mol (1998) and Brauner et al. (1999). As already described by Duxbury et al. (2010), the presence of this species into the environment probably seems to have little or no direct impact on native ichthyofauna. In invertebrates, a decline of 30% of the local community may occur.

In conclusion, the present study offers unpublished information on the occurrence of *H. littorale*, to the south of Ceará that may support other works on the species. Since the species does not have difficulty adjusting to polluted environments, such as the São José River, which receives untreated sewage from the nearby dwellings, and precisely in this environment the tamoatás were found with the highest averages in weight and size, indicating their satisfactory adaptation to the environment in which they are inserted.

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