

NOTE**NEW AREA OF OCCURRENCE TO *Acestrorhynchus pantaneiro* (MENEZES, 1992) (CHARACIFORMES, ACESTRORHYNCHIDAE) IN THE CHASQUEIRO STREAM BASIN, PATOS-MIRIM SYSTEM, RIO GRANDE DO SUL, BRAZIL**

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ABSTRACT

The present paper describes a new area of occurrence of the species *Acestrorhynchus pantaneiro* (Menezes, 1992) in the Mirim Lagoon basin, state of Rio Grande do Sul, Brazil. The specimen was collected in an artificial channel used for irrigation of rice fields. This record indicates the arrival of this exotic species to the aquatic environments of the Mirim Lagoon basin

Key words: Characiformes, dispersal, new record, neotropical region

RESUMEN

Nueva área de ocurrencia de *Acestrorhynchus pantaneiro* (Menezes, 1992) (Characiformes, Acestrorhynchidae) em la cuenca del arroyo Chasqueiro, Sistema Patos-Merín, Rio Grande do Sul, Brasil. El presente trabajo describe una nueva área de ocurrencia de la especie *Acestrorhynchus pantaneiro* (Menezes, 1992) en el sistema lacunar Patos-Merín, Rio Grande do Sul, Brasil. El ejemplar fue capturado en un canal artificial utilizado para irrigar cultivos de arroz. Este registro indica el arribo de esta especie exótica a los ambientes acuáticos de la cuenca de la Laguna Merín.

Palabras clave: Characiformes, dispersión, nuevo registro, región neotropical

Biotic invasions are related to the transport of organisms to a new environment, in which the establishment and spread of their descendants may occur. Only a limited number of habitats, so much terrestrial or aquatic, can be considered immune to introduced species. Especially, those with great wealth of native that, according to the theory Elton (1958) provide increased resistance to biotic invasions. These dispersions have been growing strongly in recent years, caused consequences which can alter the fundamental ecological properties of a given ecosystem (Mack *et al.*, 2000). The introductions can alter the trophic structure

of an environment, mainly by overlapping ecological niches and competition (Agostinho *et al.*, 1994). The list of species that have established themselves in new habitats after the invasion has been growing in parallel with the effects caused by them, both in ecological as economic level (Vitousek *et al.*, 1997). Among the vertebrate groups, those fishes most groups of aquatic animals placed around the world 624 species, and 91% of sources issues relate to cultivated fish (Gozlan, 2008). The order Characiformes presents wide variety of freshwater fish, comprising a total of 1979 species, 283 genera and 19 families (Eschmeyer & Fong, 2011). The *Acestrorhynchidae* family, is consisted by tree subfamily *Acestrorhynchinae* (14 species), *Roestinae* and *Heterocharacinae* (6 species, respectively) (Eschmeyer, 2013). The family *Acestrorhynchinae* is included *Acestrorhynchus* genus and its species are distributed along the river basins of South America and has mainly carnivore feeding habits (Saccol-Pereira *et al.*, 2006).

Acestrorhynchus pantaneiro (Menezes, 1992), popularly known as dog-fish, is characterized by having a well-rounded humeral spot crisp, compressed and elongated body, pointed snout, small scales, with 93-108 perforated scales in the lateral line and dorsal fin with ii - iii + 9 and the anal rays with v + 21-26 without spines or hooks in males. Are Fish predators, which capturing their prey by persecution with the occurrence of cannibalism (Krinski, 2010). The first record of *A. pantaneiro* for the state of Rio Grande do Sul occurred in the basin of the Uruguay River (Menezes, 2003). Subsequently, Saccol-Pereira *et al.* (2006) and Saccol-Pereira & Fialho (2010) recorded the occurrence of specimens of the species in the of Delta of Jacuí Park, hydrographic system of Patos Lagoon (black dot 1, fig 1 B). Already, Leal *et al.* (2009) observed the presence of the species in the Sinos River basin (black dot 2, fig 1 B), and more recently, *A. pantaneiro* was captured by Rocha & Hartz (2013) and Artioli *et al.* (2013) in Tramandaí River system northern coast of Rio Grande do Sul (black dot 3, fig 1 B). However, there are no studies that refer to the presence of this species in aquatic environments from southern Rio Grande do Sul this sense, the present work aims, registering for the first time, the occurrence of species *Acestrorhynchus pantaneiro* in the watershed of Mirim Lagoon, Rio Grande do Sul state, Brazil.

The specimen of *A. pantaneiro* was collected in the hydrographic basin Chaqueiro stream, Patos-Mirim system (Figure 1), the capture took place in an artificial channel built to irrigate the rice fields. The collection point (32°14'57.66"S/52°49'51.74"W) is located approximately 300 km away in a straight line, the point farthest recorded by Saccol-Pereira & Fialho (2010). The capture was performed using a trawl of m seine dimensions of 6 x 2.5m aperture of 0.5mm, on May 25, 2012 during the execution of the project (*Ichthyofauna the basin of Chasqueiro reservoir, coastal plain of Rio Grande do Sul, Brazil*) under development by the Federal University of Pelotas (license: SISBIO # 34389-1). The captured specimen was fixed in 10% formalin and transported into the Ichthyology Laboratory of the Federal University of Pelotas, where their identification was performed according to Menezes (1992) and morphometric data obtained as Fink & Weitzmann (1974), using caliper accurately 0.05mm . The specimen is preserved in the Laboratory of Ichthyology, University of Rio Grande (CIFURG # 0061) scientific collection. The specimen of *A. pantaneiro* captured Figure 2 has a total length of 131mm and 14.2g total weight, the other morphometric data are shown in Table 1.

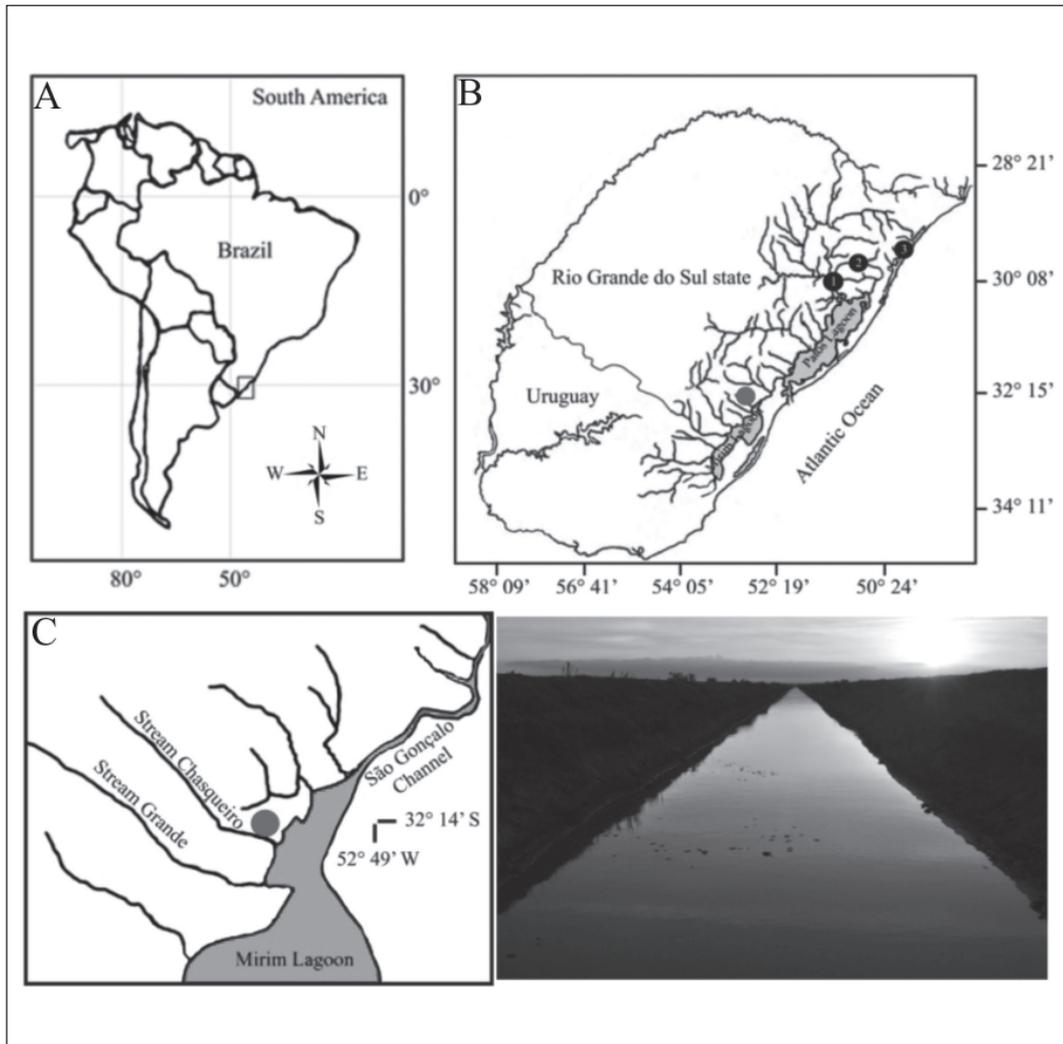


Fig. 1. South America (A). Distribution of *Acestrorhynchus pantaneiro* in the Rio Grande do Sul state, Brazil. Black dots identify the areas of occurrence recorded in the previous papers in Rio Grande do Sul. Dot 1 (Saccol-Pereira et al. 2006 and Saccol - Pereira & Fialho 2010), dot 2 (Leal et al. 2009) and dot 3 (Rock & Hartz 2013 and Artioli et al. 2013) (B). Dot red one represent a new area of occurrence in the hydrographic basin Chasqueiro stream, Patos-Mirim system (C).



Fig. 2. Specimens of *Acestorhynchus pantaneiro* collected in the hydrographic Chasqueiro stream, Patos-Mirim system. (Photo by Fabiano Corrêa).

Despite having been captured only one specimen of this new record may represent the beginning of its arrival in the river systems of the Mirim Lagoon basin. The mechanism of dispersion of the species to the area in which it is found unknown, however, *A. pantaneiro* may have come to the region of Mirim Lagoon by natural dispersion, stemmed hydrographic basin located further north. Garcia *et al.* (2003) stated that species of fishes that inhabit the northern region of the Patos Lagoon, may move to lower areas, by means of large discharges of fresh water due to heavy rainfalls. In fact, species like *Trachelyopterus lucenai* and *Pachyurus bonariensis* were recorded primarily in the northern portion of the Patos Lagoon and currently are scattered throughout system (Becker, 2001; Dufech & Fialho, 2007; Volcan *et al.*, 2012). The hypothesis that the sample is related to leaks fish farming was discarded because no records of this species in cultivation around the natural environments of the region. Although *A. pantaneiro* not be proven, established in the region, some characteristics of the species, as extended playback with multiple spawning during the reproductive cycle (Meurer & Zaniboni-Filho, 2012), coupled with the ability of changing eating habits (Cantanhêde *et al.*, 2008), may promote their success dispersion in Mirim Lagoon and its drainage systems. Being a carnivore species, intraspecific competition may in future occur native species, for example *Hoplias aff. malabaricus* caused unbalance in food webs. Corrêa *et al.* (2012) describes which, native species have an important ecological role in the community structure and in fact can be altered by non-native species. In addition, geomorphologic formations around the Mirim Lagoon can also help the spread of *A. pantaneiro* between different aquatic environments in the region channels areas the connection. However, the introduction of non-native species can cause serious negative the whole ecosystem. According to Gozlan *et al.* (2010) when a species is introduced, results potential adverse effects to native species and ecosystem functioning, considered a leading

Table 1. Morphometric data for *Acestrorhynchus pantaneiro* collected in the hydrographic basin system of Mirim Lagoon in southern Rio Grande do Sul state, Brazil. Total weight (g) and other characters (mm) expressed to an accuracy of 0.05mm.

Total weight	14.2
Total length	131.0
Stander length	111.0
Predorsal distance	69.2
Prepelvic distance	59.1
Preanal distance	82.4
Prenasal distance	11.7
Orbital diameter	6.9
Orbital distance	7.4
Maximum body height	22.4
Heigth caudal peduncle	7.1
Head height	18.4
Head length	32.7
Pelvic fin length	17.2
Dorsal fin length	24.6
Anal fin length	18.8
Caudal peduncle length	11.1

grams (g) and millimeter (mm)

cause in relation to loss of biodiversity and competition. The record of *Acestrorhynchus pantaneiro* in this important ecosystem southern Brazil emphasizes the importance of studies on the fish fauna of the region, as well as monitoring of invasive species that can cause serious impacts to native communities, for example, competition with top predator this case *Hoplias aff. malabaricus* and other species as *Oligosarcus robustus* and *O. jenynsii* as well as reproduction location and possible introduction of parasites.

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