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Scientific Note

First record of the non-native species *Acestrorhynchus pantaneiro* Menezes, 1992 (Characiformes, Acestrorhynchidae) in the Tramandaí River system, Rio Grande do Sul, Brazil

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Abstract. We report the first record of *Acestrorhynchus pantaneiro* in the Tramandaí River system, Rio Grande do Sul, Brazil.

Key words: neotropical coastal lagoons, dispersal, piscivorous fish

Resumo. **Primeiro registro da espécie não-nativa *Acestrorhynchus pantaneiro* Menezes, 1992 (Characiformes, Acestrorhynchidae) no sistema do rio Tramandaí, Rio Grande do Sul, Brasil.** Relatamos o primeiro registro de *Acestrorhynchus pantaneiro* no sistema do rio Tramandaí, Rio Grande do Sul, Brasil.

Palavras chave: lagoas costeiras neotropicais, dispersão, piscívoros

In the state of Rio Grande do Sul, *Acestrorhynchus pantaneiro* Menezes, 1992 was first reported in the Uruguay River basin (Menezes 2003), where it was found in different localities including the Taquarembó stream (Machado 2008) and the Jaguari River (Copatti *et al*. 2009). In 2006, the species was recorded in the Patos Lagoon basin in the Parque Estadual do Delta do rio Jacuí (Saccol-Pereira *et al*. 2006). Here we report the first record of *A. pantaneiro* in the Tramandaí River system.

The Tramandaí River system, located between 29°12' and 33°48'S, was formed relatively recently (5000 years) (Schwarzbold & Schäfer 1984). On the coastal plain there is a sequence of shallow lagoons, interconnected by small channels, among them the Fortaleza and Malvas lagoons in the Cidreira and Capão da Canoa districts, respectively, located on the northeast of the state of Rio Grande do Sul (Fig. 1). This and the other coastal basins in southern Brazil support a highly endemic fish fauna (Langeani *et al*. 2009).

In the course of a research project conducted by the CECLIMAR-UFRGS and the Secretaria Especial de Aquicultura e Pesca – SEAP, known as the "Monitoring program of water and sediment quality and fish behavior on the northern coast of Rio Grande do Sul, for environmental conservation and professional artisanal fisheries development" ("Monitoramento da qualidade da água e do sedimento e comportamento do pescado no litoral norte do Rio Grande do Sul, com vistas à preservação ambiental e desenvolvimento da pesca profissional artesanal"), samples were taken in Fortaleza Lagoon (30° 09' 13.5"S and 50° 14' 06.8"W) and Malvas Lagoon (29° 47' 19.9"S and 50° 06' 46.7"W). Three specimens of *A. pantaneiro* measuring 166.53, 168.04, and 240 mm in total length (TL) were captured. The specimens were deposited in the fish collection of the Zoology Department, Universidade Federal do Rio Grande do Sul (UFRGS 12066 and 12645).

The specimens have a round black humeral spot and a distinct spot at the base of the caudal fin, the general pattern in the *A. lacustris* species group, which includes *A. pantaneiro*. This species differs from the other of the group in the presence of 31 to

35 longitudinal series of scales around the caudal peduncle, the tip of the pectoral fin not reaching the pelvic fin origin, 25 to 30 longitudinal series of scales between the lateral line and dorsal fin origin, and 15 to 17 series of scales between the lateral line and the anal fin origin (Menezes 1992).

The small number of specimens captured suggests that this species has recently colonized the system, especially considering the recent sampling efforts in coastal lagoons of the Tramandaí system, including Fortaleza and Malvas (monthly sampling has been carried out since November 2008 by the Fisheries Biology Laboratory – CECLIMAR/UFRGS). The finding of specimens about 60 km apart, however, suggests a high dispersal capability of this species in different aquatic environments (canals and lagoons). The high connectivity of the system indicates that the species may occur in other coastal lagoons.

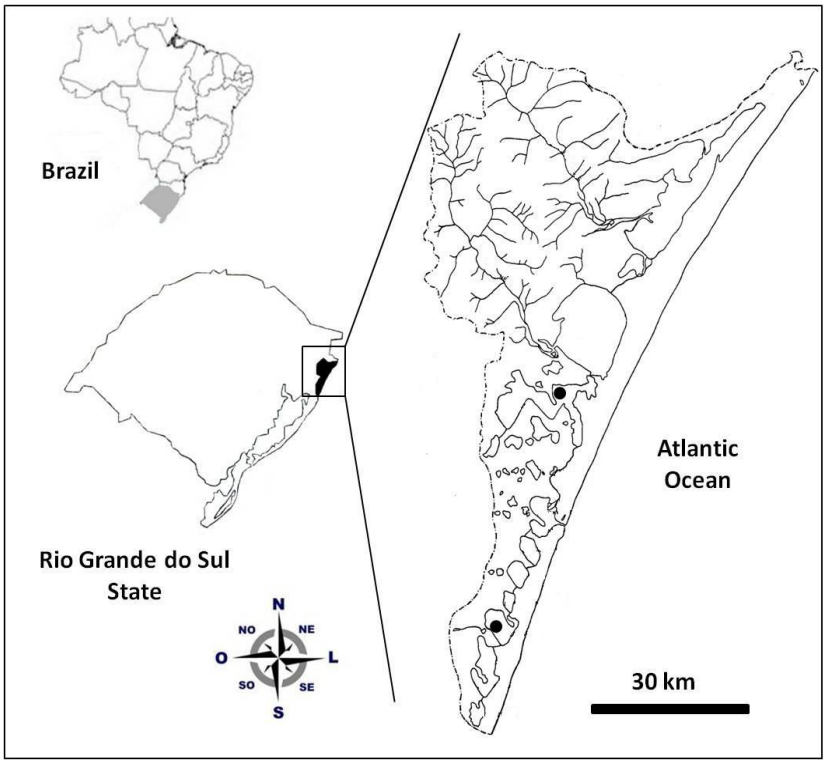

Figure 1. Map illustrating the geographical position of the Tramandaí River system with the sampling points at the Fortaleza lagoon (at south) and Malvas lagoon.

Exotic species have already been introduced into natural environments in the state. In the Patos Lagoon system, for instance, all the species of carps cultivated in the region have been captured in the natural environment (Garcia *et al*. 2004), as well as the African catfish *Clarias gariepinus* (Burchell 1822) (Braun *et al*. 2003), the rainbow trout *Oncorhynchus mykiss* (Walbaum) and the Nile tilapia *Oreochromis niloticus* (L.) (Barletta *et al*. 2010). Species coming from Uruguay River basin, such as *Pachyurus bonariensis* Steindachner 1879, *Trachelyopterus lucenai* Bertoletti, Pezzi da Silva & Pereira 1995, *A. pantaneiro* and *Pseudoplatystoma corruscans* (Agassiz in Spix & Agassiz, 1829) are still present, but the mechanism of introduction in the Patos Lagoon system is unknown. Prevails the hypothesis the relative proximity of the upper Vacacaí (Jacuí Basin) and Ibicuí (Uruguay basin) rivers at an area of intense rice farming, with water pumping and effluent discharged allowed transpose the species for both drainages (Barletta *et al*. 2010).

Regarding the introduction of *A. pantaneiro* into the Tramandaí River system, we discarded the hypothesis of escapes through drainage from culture tanks, as suggested by Saccol-Pereira *et al*. (2006) for the Patos system. An early study did not mention this species as cultivated in the state (Baldisserotto 2009), probably because the low temperatures in winter (Garcia *et al*. 2008) and its piscivorous feeding habit make its production unfeasible. The first record of the *A. pantaneiro* in the Tramandaí River system at Fortaleza lagoon suggests that invasion started by the south, perhaps facilitated by the short distance between the northeast portion at

Patos Lagoon basin and Tramandaí system (Fig. 1). The landscape of this region is characterized by lowlands with large lakes, wetlands, sandy fields, dunes, agriculture, mainly rice cultivation (Becker, *et al*. 2007). In this sense, we favor the hypothesis that geomorphological conditions on the coastal plain (low and flat lands), increasing linkages among tributaries in the rainy season, and the construction of canals for rice farming irrigation, with water pumping and effluent discharged, have all contributed to the dispersal of fish species.

Invasive piscivorous species tend to succeed in a new environment because the prey species have not adjusted to their particular style of predation and so are more vulnerable (Moyle & Light 1996). Studies have shown that the introduction of piscivorous species in tropical lakes is associated with alterations in the trophic cascade and deleterious effects on the assemblages of native fishes (Pompeu & Alves 2003, Latini & Petrere 2004, Pinto-Coelho *et al*. 2008).

Neotropical coastal lagoons harbor a considerable and particular proportion of the inland aquatic biodiversity, and support high productivity and important economic and aesthetic ecosystem benefits such as fisheries and scenic beauty (Esteves *et al*. 2008). Therefore, we stress the need for monitoring programs and quali-quantitative evaluation of the assemblages of native and non-native fishes in the coastal lagoons in the Tramandaí River system, in order to minimize possible negative impacts.

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