Fishes of the Vermelho River, São Lourenço River basin, Mato Grosso State, Brazil

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INTRODUCTION

The Pantanal Mato-grossense is a vast sedimentary floodplain located in the midwest region of Brazil (Britski, et al., 2007). In this floodplain, tributaries of the Paraguay River, which drains the system, are environments that fluctuate seasonally and determine the seasonal changes in food and movement of fish that occupy the lower parts of the floodplain. The Vermelho River starts at Poxoréu city (Mato Grosso State) and it is the main left margin tributary of the São Lourenço River which in turn flows into the northeastern edge of the Pantanal. In recent decades this river has suffered from the constant removal of riparian vegetation causing silting and gradual decrease of the flow of its waters. The Vermelho River is located near the city of Rondonópolis (Mato Grosso State), but it also drains other municipalities.

The number of valid species of fishes in general is over 32,000 (Eschmeyer, 2012). According to Reis et al. (2003) 4,475 valid species of Neotropical freshwater fishes have been recorded. The orders Characiformes and Siluriformes are the most dominant (Britski, 1972). This author emphasizes that the family Characidae is the most representative of freshwater fish in Brazil. For the Pantanal Mato-grossense, Brazil, Britski et al. (2007) list 269 fish species distributed in 36 families. In this case, the Characiformes is dominant with 110 species, being followed by Siluriformes with 105 species. Despite all this information, the ichthyofauna of the Vermelho River is poorly known. Thus, the main objective of this paper is to present information about the fish fauna of this river.

MATERIALS AND METHODS

Samplings were carried out monthly from November 2009 to May 2011 in four sites (Junção, Jurigue, Arareau and Grupo de Artilharia de Campanha - GAC) along the Vermelho River (Figure 1). We determined a...
stretch of Vermelho River between 16°25'/16°30'S and 54°40'20"/54°34'50"W (Figure 1). The predominant climate in the region is Aw (Köppen Climate Classification System) which is characterized by warm wet summers and dry winters with mean annual temperatures exceeding 25.0°C. Precipitation varies between less than 60 mm to 1,566 mm in the region (Orioli et al., 1982).

In littoral areas of river, fish species were collected with 10 m long seine nets (0.5 cm mesh size) during the day. The specimens were preserved in formalin (10%). The sampling work was standardized to a constant time day. The specimens were preserved in formalin (10%).

The sampling work was standardized to a constant time and number of drags employed (two) at each point. Fishes were collected under ICMBio (Instituto Chico Mendes de Conservação da Biodiversidade) permits (21546-1/2009). Fish species from the Vermelho River.

In the laboratory, fishes were identified up to the lowest possible taxonomic level. Identification was initially performed using the identification keys of Britski et al. (2007) and later confirmed by experts.

Voucher are deposited in the fish collections of the Laboratório de Zoologia (LZCUR) of the Universidade Federal de Mato Grosso – campus Rondonópolis and Núcleo de Pesquisas em Limnologia, Ictiologia e Aquicultura of the Universidade Estadual de Maringá (NUP).

**Results and Discussion**

In the Vermelho River 7,653 specimens of fishes were collected, distributed in 38 species, five orders, 11 families and 28 genera. Characiformes are represented by 23 species (60.53%), Siluriformes by 11 (28.95%), Perciformes by two (5.26%), and Gymnotiformes and Pleuronectiformes by a single species each, corresponding to 2.63%. (Table 1)

**Table 1.** Fish species from the Vermelho River.

| TAXON       | VOUCHER  |
|-------------|----------|
| Anostomidae |          |
| Leporinus cf. friderici (Bloch, 1794) | LZCUR 108 |
| Characidae  |          |
| Aphyocharacinae |          |
| Aphyocharax dentatus Eigenmann and Kennedy, 1903 | LZCUR 109 |
| Characinae  |          |
| Phenacogaster juncupa Malabarba and Lu, cena, 1995 | LZCUR 117 |
| Roeboides prognathus Bouleenger, 1895 | NUP 12235 |
| Chirodontinae |          |
| Odontostilbe paraguayensis Eigenmann and Kennedy, 1903 | LZCUR 110 |
| Odontostilbe pequira (Steindachner, 1882) | NUP 12225 |
| Stevandiinae |          |
| Bryconamericus exodon (Eigenmann, 1907) | NUP 12233 |
| Incertae sedis |          |
| Astyanax sp. |          |
| Astyanax marinae Eigenmann, 1911 | NUP 12218 |
| Astyanax asuncionensis Géry, 1972 | LZCUR 112 |
| Astyanax abramis (Jenyns, 1842) | NUP 12236 |
| Bryconops melanurus (Bloch, 1794) | LZCUR 113 |
| Engraulisoma taeniatum (Castro, 1981) | LZCUR 114 |
| Jupiaba achantogaster (Eigenmann, 1911) | LZCUR 115 |
| Moenkhausia bonita Benine, Castro and Sabino, 2004 | NUP 12230 |
| Moenkhausia intermedia Eigenmann, 1908 | LZCUR 116 |

The most frequent species were *Odontostilbe paraguayensis* (Steindachner, 1882) (63.97%), *Aphyocharax dentatus* Eigenmann and Kennedy, 1903 (19.4%), *Steindachnerina nigrotaenia* (Bouleenger, 1902) and *Engraulisoma taeniatum* (Castro, 1981), with 4.43% and 4.39%, respectively, of the total of species caught in the stretch.

Twelve species occurred in all sampling sites: *Aphyocharax dentatus* Eigenmann and Kennedy, 1903, *Odontostilbe paraguayensis* Eigenmann and Kennedy, 1903, *Odontostilbe pequira* (Steindachner, 1882), *Characium aff. zebra* Eigenmann, 1909, *Astyanax marinae* Eigenmann, 1911, *Astyanax asuncionensis* Géry, 1972, *Bryconamericus exodon* (Eigenmann, 1907), *Engraulisoma taeniatum* (Castro, 1981), *Steindachnerina nigrotaenia* (Bouleenger, 1902), *Thoracocharax stellatus* (Kner, 1858), *Apareiodon affinis* (Steindachner, 1879) and *Pimelodella sp.*
The results obtained in this study, with a total of 38 fish species captured, are very modest when compared to surveys presented by Britski et al. (2007), who registered 269 fish species for the Pantanal region, suggesting the need for an increased sampling effort and more detailed taxonomic studies in rivers that form the Pantanal.

However, our results are useful for studies about the distribution of ichthyofauna in tributaries of the Paraguay basin. Future studies with other capture methods must be employed to obtain additional other species to the presented list.

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