



Article

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A new species of annual fish, *Hypsolebias tocantinensis* sp.n. (Cyprinodontiformes: Rivulidae) from the rio Tocantins basin, northeastern Brazil

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Abstract

Hypsolebias tocantinensis n. sp. is described from a temporary pool located in the rio Tocantins basin, Maranhão state Brazil. *Hypsolebias tocantinensis* belongs the *H. flammeus* species-group. It is the first occurrence of genus *Hypsolebias* in Maranhão state. This new species differs from all other species of that group, except *Hypsolebias flammeus* (Costa, 1989), *Hypsolebias multiradiatus* (Costa & Brasil, 1994) and *Hypsolebias brunoi* (Costa, 2003), by male color pattern and by the presence of a metallic blue sheen surrounding the black spots in the female. It differs from *H. flammeus*, *H. multiradiatus* and *H. brunoi* by the shape of the dorsal and anal fins (rounded vs. pointed) and by the orientation of the reddish brown bars in males (diagonal vs. vertical). *Hypsolebias tocantinensis* differs from all other *Hypsolebias* by the presence of, in females, irregular light brown stains on the anal fins and by the pattern of the metallic blue sheen around the black spots (completely surrounding the black spots while in congeners this blue sheen is either absent or present in vertical bars).

Key words: Annual fishes, Neotropical region, temporary pools

Introduction

The systematics of *Simpsonichthys* has substantially changed in the last few years (Costa 1995, 1998, 2006, 2007, 2010). After a phylogenetic analysis based on 116 characters, Costa in 2006 proposed four new taxa as subgenera of *Simpsonichthys* Carvalho, 1959: *Simpsonichthys*, *Hypsolebias*, *Xenurolebias* and *Ophthalmolebias*. *Spectrolebias* Costa & Nielsen, 1997 was also proposed as a subgenus, breaking *Simpsonichthys* into five sub divisions. In 2010 Costa elevated all five subgenera to genus status.

The genus *Hypsolebias* contains four monophyletic groups of species: the *H. notatus* species-group, the *H. magnificus* species-group, the *H. antenori* species-group, and the *H. flammeus* species-group with 42 species currently described (Costa 2012), *Hypsolebias* is now the largest genus of South American annual fishes. They are considered annual fish for living in temporary habitats and resisting desiccation by laying their eggs on the substratum. Annual fish are unique in the fact that their eggs develop very slowly and can go through up to three diapauses, depending on genetic and environmental factors (Myers 1952; Wourms 1972).

Hypsolebias can be found in the Brazilian Cerrado and Caatinga habitats, primarily in the rio São Francisco basin, but with a few species in the rio Jaguaribe and rio Tocantins basins (northeastern Brazil). The species described herein belongs to the *Hypsolebias flammeus* species-group. According to Costa (2007), the *Hypsolebias flammeus* species-group is distinguished from the remaining groups of *Hypsolebias* in having a long posterior process of the supraoccipital (vs. short) and elongated anal fin in females (vs. short).

There are currently eight species described in this group: *Hypsolebias alternatus* (Costa & Brasil, 1994) from temporary pool close to the rio Paracatu, *Hypsolebias brunoi* (Costa, 2003), from the rio Canabrava floodplains,