



## First record of *Heterotilapia buttikoferi* (Hubrecht, 1881) (Perciformes, Cichlidae), from Pentecoste, state of Ceará, Brazil

### Primeiro registro de *Heterotilapia buttikoferi* (Hubrecht, 1881) (Perciformes, Cichlidae), em Pentecoste, estado do Ceará, Brasil

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**Abstract** This note reports the record of the species *Heterotilapia buttikoferi* (Hubrecht, 1881) captured in January 2012 at the Pereira de Miranda reservoir, Pentecoste, Ceará State, Brazil. This is the second documented record of the presence of the species in Brazil and the first for the Northeast of Brazil.

**Keywords:** Pisces, Tilapiini, Exotic species, Pereira de Miranda reservoir.

**Resumo** Esta nota relata o registro da espécie *Heterotilapia buttikoferi* (Hubrecht, 1881) capturada em Janeiro de 2012 no açude Pereira de Miranda, Pentecoste, estado do Ceará, Brasil. Este é o segundo registro documentado da presença da espécie no Brasil e o primeiro para o Nordeste do Brasil.

**Palavras-chave:** Pisces, Tilapiini, espécie exótica, Açude Pereira de Miranda.

### Occurrence of *Heterotilapia buttikoferi*

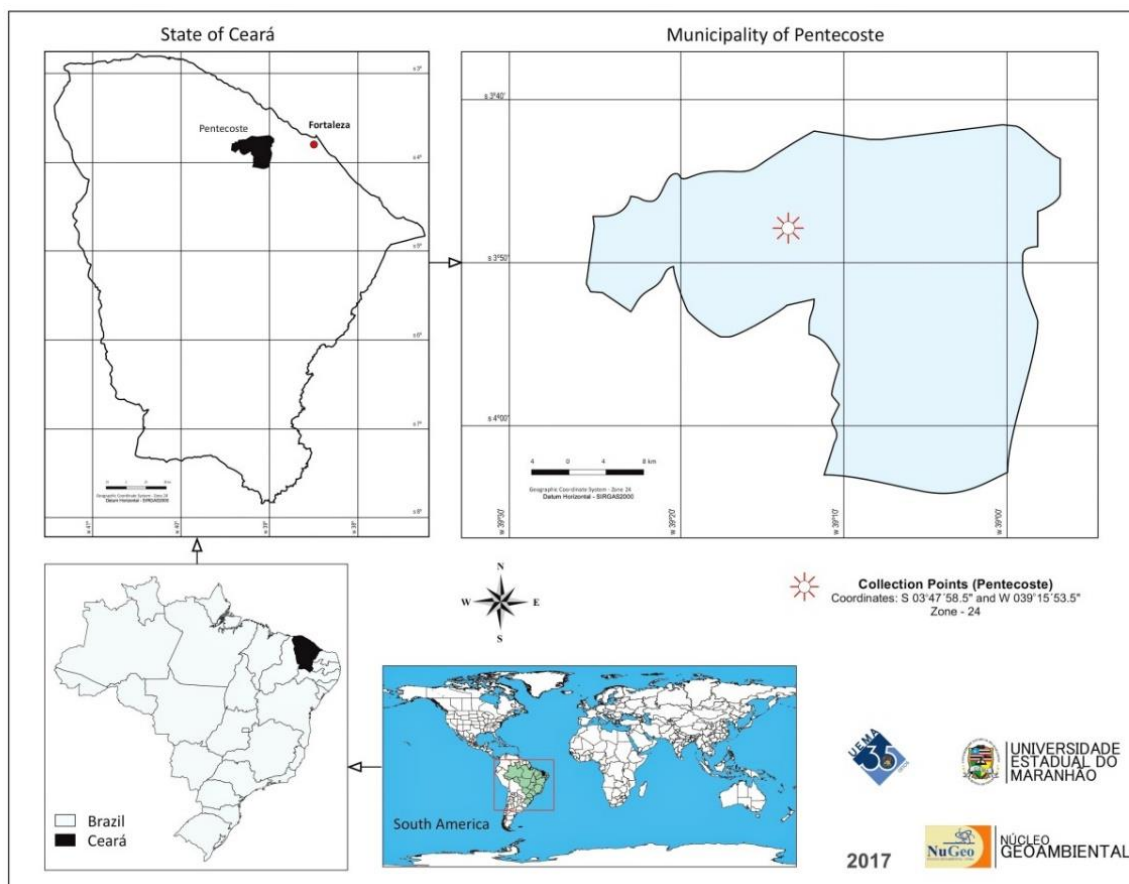
*Heterotilapia buttikoferi* (Hubrecht, 1881) is a freshwater species, belonging to the family Cichlidae and subfamily Pseudocrenilabrinae (Eschmeyer, Fricke & van der Laan, 2017), popularly known in Brazil as "tilápia zebra" or "zebrinha" and globally as "zebra tilapia". It presents distribution in West Africa: Guinea-Bissau and Liberia, in coastal rivers and streams (Teugels & Thys van den Audenaerde, 2003). It is an omnivorous feeding habit and classified as r-strategist and iteropous, presenting high prolificacy, with parcelled spawning, low intra-specific competition, high growth rates and early sexual maturation (Popma & Green, 1990; Yasui, 2007).

The present study records the occurrence of *Heterotilapia buttikoferi* (Hubrecht, 1881) in the Pereira de Miranda reservoir, Pentecoste, state of Ceará, Brazil. The specimen presented 8.9cm of standard length-Ls (Figure 1) was captured during a collection, held in January 2012, in the channel of Pereira de Miranda reservoir (Figure 2) that supplies the hatcheries of the Ichthyological Research Center Rodolph von Ihering of the National Department of Drought Control Works (DNOCS), located in the municipality of Pentecoste, state of Ceará (Figure 3), using a fishing gear called "tarrafa".

**Figure 1.** Side view of *Heterotilapia buttikoferi* (Hubrecht, 1881) captured in a channel of Pereira de Miranda Reservoir, Pentecoste, state of Ceará, Brazil. Standard Length-Ls = 8.9 cm.



**Figure 2.** Images of Pereira de Miranda Reservoir: to the left the section of the channel located in the DNOCS where the specimen was collected, and to the right view of Pereira de Miranda Reservoir.



**Figure 3.** Location of registration of the specimen of *Heterotilapia buttikoferi*, of Pereira de Miranda Reservoir, Pentecoste, State of Ceará, Brazil.

In his original description by Hubrecht (1881) as *Chromis buttikoferi*, *Heterotilapia buttikoferi* is characterized by having eight transverse dark bands in the body, with the first present in the region of the head where the eyes are situated; the second in the region of the operculum; the third originates in the spines of the dorsal and extends to the ventral region; the fourth, fifth and sixth bands originates in the rays of the dorsal fin and extend along the flanks, with the fifth reaching the anterior portion of the anal fin and the sixth covering the posterior half of the anal fin, the seventh and eighth occupy the caudal region. The tip of the pectoral fin does not reach the anal fin.

African ciclids, commonly nominated as tilapia, belonging mainly to the genera *Oreochromis*, *Tilapia*, *Heterotilapia*, *Sarotherodon*, have been introduced all over the world, including in Brazil, since the 1930s, as ornamental fish in aquariums, for biological control of weeds and aquatic insects and for human feeding (Canonico et al. 2005).

The introduction of species into the natural environment is always a very dangerous practice, a rule which applies fully to cichlids. Recently Barbosa & Leitão (2003) identified the presence of the Central American cichlid *Parachromis managuensis* in Brazil, that besides being carnivore also feeds of artificial ration and is highly territorial, what makes potentially dangerous for the environment. His behavior was studied by Barbosa, Mendonça and Ponzi-Junior (2006).

The introduction of fish species conducted by DNOCS in reservoirs in the Brazilian Northeast, particularly in the semi-arid region, aimed to increase fish production in the region (Gurgel & Oliveira, 1987; Attayde et al 2007), with the introduction of Brazilian native fish with potential for cultivation and the exotic *Coptodon rendalli* (redbreast tilapia) introduced in 1953, *Oreochromis urolepis* (wami tilapia) and *Oreochromis niloticus* (Nile tilapia) in 1971 (Nomura, 1984).

Leão, Almeida, Dechoum & Ziller (2011) report freshwater species introduced in the state of Ceará: *Ictalurus punctatus* (channel catfish), *Cyprinus carpio* (common carp) and *Oreochromis niloticus* (Nile tilapia) and non-native piscivorous *Pygocentrus nattereri* (red piranha), *Cichla monoculus* and *Cichla ocellaris* (peacock bass).

The occurrence of the species *H. buttikoferi* has been reported in Japan (Mito & Uesugi, 2004), Tailândia (Nico, Beamish & Musikasinthorn, 2007) and Singapore (Ng & Tan, 2010; Kwik, Kho, Quek, Tan & Yeo, 2013). In America there are records for the states of Florida (USA) (Shafland, Gestring & Stanford, 2008; Fuller, Loftus & Neilson, 2017) and in the Paraná River basin (Brazil) (Sampaio et al, 2017), the single record for Brazil.

Filter omnivorous species such as fish of the genera *Tilapia* and *Heterotilapia* occupy an intermediate position (between the primary producers and piscivorous) in trophic chains of freshwater ecosystems (Attayde et al. 2007). For being species of great rusticity with a high degree of tolerance to the environment variations and high prolificacy, may cause a great imbalance in aquatic ecosystems (Starling et al., 2002). High levels of suspended debris and consumption of phytoplankton and zooplankton may lead to reducing the biomass of juvenile fish that depend on zooplankton as a food resource and fish planktivorous, which feed on zooplankton throughout life (Attayde et al. 2007).

According to Vitousek (1997) and Vitule (2009), the introduction of non-native species in an accidental or intentional way has been one of the great global changes caused by man in the last centuries, as a risk factor for the extinction of native species and consequently a reduction of aquatic biodiversity.

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