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Near Threatened Fishes of the World: *Malapterurus teugelsi* Norris, 2002 (Siluriformes: Malapteruridae)

Felix Koffi KONAN (Corresponding author)
Department of Environment, University Jean Lorougnon Guédé, POB 150 Daloa, Ivory Coast
E-mail: konanfelix@yahoo.fr

Charles Koffi BOUSSOU
Department of Environment, University Jean Lorougnon Guédé, POB 150 Daloa, Ivory Coast
E-mail: bkofficharles@live.fr

Yves Kotchi BONY
Department of Environment, University Jean Lorougnon Guédé, POB 150 Daloa, Ivory Coast
E-mail: bonyves@yahoo.fr

Mexmin Koffi KONAN
Department of Sciences and Environment Managment, University Nangui Abrogoua,
02 POB 801 Abidjan 02, Ivory Coast
E-mail: konanmexmin@hotmail.fr

Edia Oi EDIA
Department of Sciences and Environment Managment, University Nangui Abrogoua,
02 POB 801 Abidjan 02, Ivory Coast
E-mail: square_edia@gmail.com

Boubacar DIALLO
Centre National des Sciences Halieutiques de Boussoura, POB 3738 Conakry, Guinea
E-mail: boubadiallo2011@gmail.com

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Abstract

Malapterurus teugelsi Norris, 2002, an endemic electric catfishes of the Kogon River Basin in Guinea, is assessed as Near Threatened due to its restricted distribution area, fishing pressure, mining activities, loss of habitats and aquatic pollution. This fish has a high cultural representation in the folklore of the local population. Moreover, in addition to its very limited distribution, very little information exists on its reproductive biology and its food ecology. Therefore, singular care must be paid to it for its conservation.

Keywords: *Malapterurus teugelsi*, Malapteruridae, Near Threatened, West Africa

Synonyms

Malapterurus electricus (Gmelin, 1789) (Teugels, 1992).

Common names

Freshwater electric catfish (English). "*Mirimiriwin*" (in Peul, an ethnic group in Guinea).

Taxonomic notes

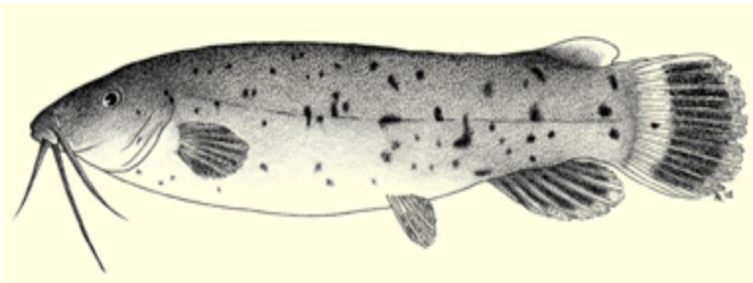
Initially regarded with two species (Teugels et al., 1988; Teugels, 1992), genus *Malapterurus* was reviewed based on morphometric characteristics data by Norris (2002) and Norris (2003) with 16 species in West Africa.

Malapterurus teugelsi were identified in the Kogon River system (Norris, 2002; Norris, 2003; Eschmeyer *et al.*, 2017; Froese & Pauly, 2017). This species is devoid of dorsal fin and has an adipose fin. The anal fin is composed of 8 to 10 soft rays. The number of vertebrae varies from 38 to 40.

Geographic Range Information

Malapterurus teugelsi is endemic to the Kogon River in Guinea (latitude: 1254726.4 / longitude: 554557.1), in west Africa (Norris, 2002; Norris, 2003; Edia et al., 2014). With a length of 379 km, the Kogon River covers a catchment area of 7288 km^2 (Richard et al., 2006). The total range of *M. teugelsi* is considered to be less than 1500 km^2 (Holland et al., 2012; IFC, 2012; IUCN, 2014).

In this study, *Malapterurus teugelsi* (**Figure 1**) was observed in the Ndousihoun stream (latitude: 1227672 / longitude: 632220), a tributary of the Kogon River. It should be noted that this species of electric fish is frequently caught in this river by the riparian populations.



a

b

c

Figure 1. a) Image of *Malapterurus teugelsi* according to Norris (2001); *b*) *M. teugelsi* photography; *c*) caudal saddle and bar patterns of *M. teugelsi* from the Ndousihoun River (tributary of Kogon River in Guinea). Photo Courtesy: Felix Koffi KONAN

Fishery and Populations

Malapterurus teugelsi is sometimes present in artisanal fisheries on the Kogon River basin in Guinea (Norris, 2002; Norris, 2003; Edia et al., 2014). *M. teugelsi* is regularly caught by fish traps, fishing rods and longlines. The two specimens observed during this study were captured at night using fishing rods.

Habitat and Ecology

M. teugelsi is a demersal species that inhabits tropical freshwater. In the Ndousihoun stream where this species was observed during this study, the temperature varies between 24.0 - 27.4 ℃, conductivity between 8.7 – 77.0 µS.cm^{-1}. *M. teugelsi* was encountered in an area characterized by rocks or roots, calm and slow water with canopy cover of around 70%

Biology

There is little information on the biology and ecology of this species. Size at first sexual maturity of *M. teugelsi* is 136 mm in total length (TL) (Froese & Pauly, 2017). The parameters of the allometric length-weight relationship estimated by Froese *et al.* (2013) are a = 0.00389 (0.00180 - 0.00842) and b = 3.12 (2.94 - 3.30). Other population characters and life history information *of M. teugelsi* are following: Trophic level = 3.37; Length to infinity = 223 mm (Froese & Pauly, 2017). According to Cheung et al. (2005), the intrinsic vulnerability to fishing of *M. teugelsi* is estimated at 16% (low vulnerability). Active at night and highly territorial like most of electric catfish (Polle & Gosse, 1969; Belbenoit et al., 1979). *M. teugelsi* is known to feed mainly on fish hunting by stunning its prey with its paralyzing electrical organ (Belbenoit et al., 1979; Froese & Pauly, 2017). Regarding reproductive biology, nothing much information is available in the literature even for species close to the same geographical area (Polle & Gosse, 1969; Froese & Pauly, 2017).

Threats

Kogon River basin suffers from strong anthropogenic pressure mainly related to bauxite mining activities (Edia et al., 2014). This mining activity has led to water pollution, destabilization of riverbanks, modification of the substrate, high noise level and high concentration of suspended solids.

Use and trade

Caught by artisanal fishers on the Kogon Rivers, *M. teugelsi* is much appreciated by the local population. As such, an important source of animal protein and micronutrients in the diet of riparian rural populations.

Moreover, the species belonging to the genus *Malapterurus* have a high cultural representation in the folklore of the local population as well as in many other West African cultures. For example, his skin is used in traditional medicine for the preparation of certain medication. Used as a nesting aid in some rural communities, the skin of this fish helps protect eggs of chickens against rapacious birds.

Conservation actions

Anthropic activities on the Kogon River basin must be regulated, and must respect the Performance Standard 6 (IFC, 2012) concerning the conservation of biodiversity and sustainable management of natural living resources.

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