

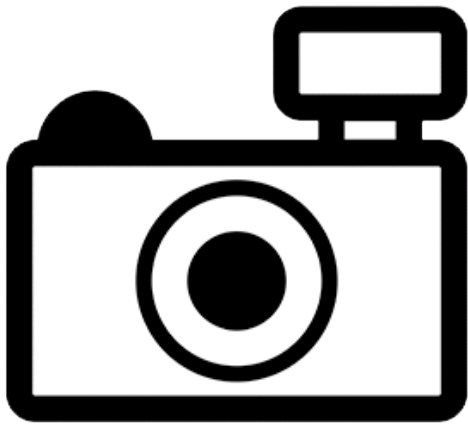
***Malapterurus barbatus* (a catfish, no common name)**

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, February 2012

Revised, June 2018

Web Version, 8/6/2018



No Photo Available

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2018a):

“Africa: broadly distributed in western upper Guinean waters, from the Great Scarcies (=Kolenté) River (Guinea/Sierra Leone) to the Borlor (=Farmington) River (Liberia) [Norris 2002, 2003]”

“Knwon [*sic*] from the rivers Moa, Makona [Norris 2002] and Kolenté [Norris 2002, 2003]. [Guinea]”

“Known from the rivers Loffa, Mano and Borlor (=Farmington) [Norris 2002, 2003]. [Liberia]”

“Known from the Little Scarcies, Rokel, Pampana, Sewa and Moa [Norris 2003]. Also in the rivers Teye, Bagbwe, Waanje, Taia and Mongo, and in Lake Kwako [Norris 2002]. [Sierra Leone]”

From Kamelan et al. (2018):

“Five species, *Claria sebriensis*, *Malapterurus barbatus*, *M. beninensis*, *M. minjiriya* and *M. tanoensis*, were reported for the first time in the Sassandra basin [Côte D’Ivoire].”

Status in the United States

No record of *Malapterurus barbatus* in the United States was found. No information on trade of *M. barbatus* in the United States was found.

The Florida Fish and Wildlife Conservation Commission has listed the electric catfish *M. barbatus* as a prohibited species. Prohibited nonnative species (FFWCC 2018), “are considered to be dangerous to the ecology and/or the health and welfare of the people of Florida. These species are not allowed to be personally possessed or used for commercial activities.”

Means of Introductions in the United States

No record of *Malapterurus barbatus* in the United States was found.

Remarks

Malapterurus barbatus is listed as Near Threatened on the IUCN Red List (Lalèyè 2010).

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Eschmeyer et al. (2018), *Malapterurus barbatus* Norris 2002 is the valid name for this species; it is also the original name.

From Froese and Pauly (2018b):

“Animalia (Kingdom) > Chordata (Phylum) > Vertebrata (Subphylum) > Gnathostomata (Superclass) > Pisces (Superclass) > Actinopterygii (Class) > Siluriformes (Order) > Malapteruridae (Family) > *Malapterurus* (Genus) > *Malapterurus barbatus* (Species)”

Size, Weight, and Age Range

From Froese and Pauly (2018a):

“Max length : 21.5 cm SL male/unsexed; [Norris 2003]”

Environment

From Froese and Pauly (2018a):

“Freshwater; benthopelagic.”

Climate/Range

From Froese and Pauly (2018a):

“Tropical”

Distribution Outside the United States

Native

From Froese and Pauly (2018a):

“Africa: broadly distributed in western upper Guinean waters, from the Great Scarcies (=Kolenté) River (Guinea/Sierra Leone) to the Borlor (=Farmington) River (Liberia) [Norris 2002, 2003]”

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Introduced

No records of introductions of *Malapterurus barbatus* were found.

Means of Introduction Outside the United States

No records of introductions of *Malapterurus barbatus* were found.

Short Description

From Froese and Pauly (2018a):

“Dorsal spines (total): 0; Dorsal soft rays (total): 0; Anal spines: 0; Anal soft rays: 8 - 9; Vertebrae: 38 - 41. Diagnosis: tooth patches broad; 8-9 anal-fin rays; 0-4 gill-rakers on upper branch of first arch; 3 unbranched ventral caudal-fin rays; 38-41 vertebrae; caudal fin with prominent pale basal crescent, even in adults; body typically grey; grey flank pigment carried onto the lower lip, mental [located on the chin] barbels and, in adults, the underside of the head [Norris 2002].”

“Description: body and head moderately depressed; eyes placed laterally; snout blunt; lips thick; lower jaw prominent, particularly in juveniles; 16-18 abdominal vertebrae; 22-24 caudal vertebrae; 20 caudal fin rays (usual arrangement ii-7-8-iii; iii-6-8-iii in some juveniles; ii-7-9-ii in one adult) [Norris 2002].”

“Coloration: head and body bicolored in shades of grey; dorsum and flank well-marked with spots, most an eye diameter or smaller, with similar spots scattered across venter; dorsal surface of pectoral fin dusky in adults, pelvic fin generally unmarked; underside of head (from snout to level of pectoral fin) bears a distinct scattering of dark grey pigment (matching dorsal pigment in shade), lower lip and barbels similarly marked; pigmentation of ventral surface of head well-developed in young and adults and starts forming at about 70-80mm SL; anal fin with faint dusky bar near its distal margin in young and juveniles, which is not apparent in larger specimens in which the anal fin is generally unpigmented and may bear scattered small spots or a slight shading of grey pigment; caudal fin in adults roughly the same shade as flank, with a pale distal margin and a faint pale basal crescent; caudal fin in young and juveniles with a dark bar set off by the pale distal margin and a wide, pale basal crescent; caudal saddle and bar pattern well-developed in specimens up to about 70mm SL; caudal bar dark and mostly on the caudal peduncle; saddle extending about 3/4 of the way down the flank, generally not as dark nor as well-defined as the caudal bar [Norris 2002].”

Froese and Pauly (2018a) also list 8 barbels, 9–10 pectoral fin soft rays, and 6 pelvic fin soft rays.

Biology

From Lalèyè (2010):

“This benthopelagic fish occurs among rocks or roots; favours sluggish or standing water. Active at night, feeding mainly on fish stunned by electric shocks. The electric organ, capable of discharging 300–400 V, is derived from pectoral muscle and surrounds almost the entire body. It is used both for prey capture and defence [sic]. Electric organ discharge (EOD) is intermittent and the amplitude increases with size of the fish. Responds immediately to cyclic light changes, exhibiting maximum EOD activity shortly after sunset and lowest activity just after sunrise. Its EOD duration decreased from 1.5 to 0.3 ms in response to increased temperature from 15 to 30°C. Forms pairs and breeds in excavated cavities or holes”

Human Uses

From Lalèyè (2010):

“This species is part of the aquarium trade.”

Diseases

No records of OIE-reportable diseases were found for *Malapterurus barbatus*.

Poelen et al. (2014) list *Electrotaenia malopteruri* as a parasite of *M. barbatus*.

Threat to Humans

From Froese and Pauly (2018a):

“Harmless”

3 Impacts of Introductions

No records of introductions of *Malapterurus barbatus* were found.

The Florida Fish and Wildlife Conservation Commission has listed the electric catfish *M. barbatus* as a prohibited species.

4 Global Distribution



Figure 1. Known global distribution of *Malapterurus barbatus*. Locations are in Sierra Leone and Liberia. Map from GBIF Secretariat (2018).

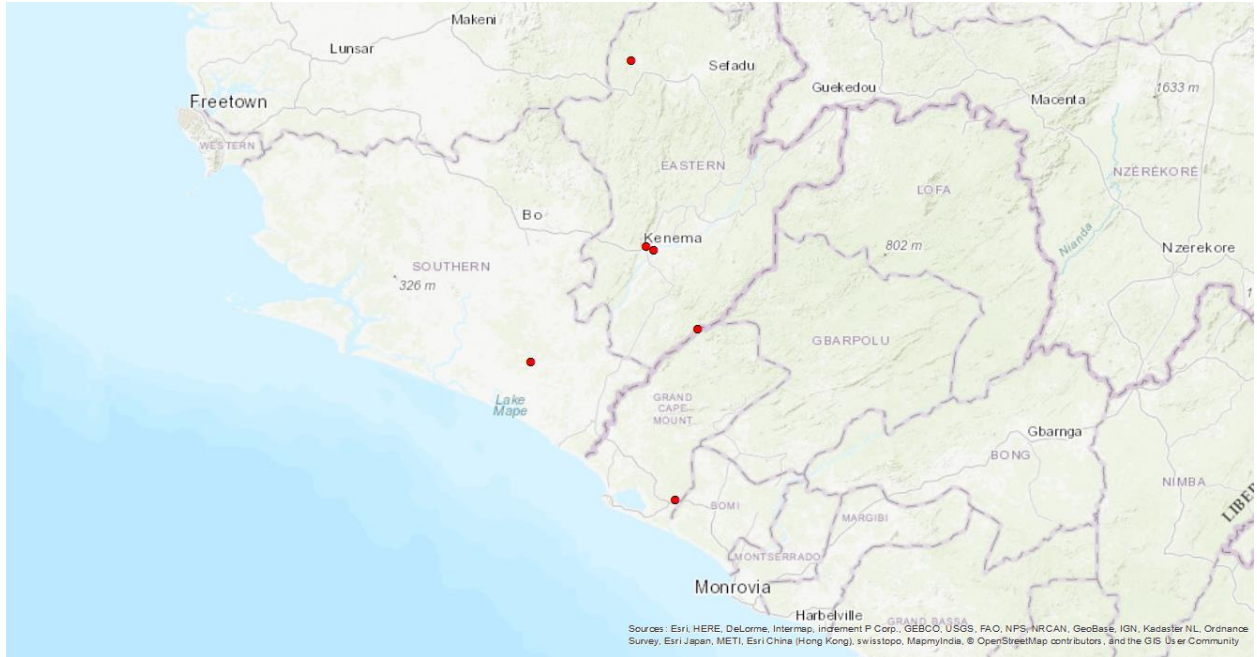


Figure 2. Additional known global distribution of *Malapterurus barbatus*. Locations are in Sierra Leone and Liberia. Map created with data from Froese and Pauly (2018a); base map from ArcGIS® by Esri (www.esri.com).

Georeferenced locations were not available for Ivory Coast and Guinea.

5 Distribution Within the United States

No record of *Malapterurus barbatus* in the United States was found.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Malapterurus barbatus* is low across the contiguous United States. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.000, low. The range for a low climate match is from 0.0 to 0.005, inclusive. All states had individually low climate scores.

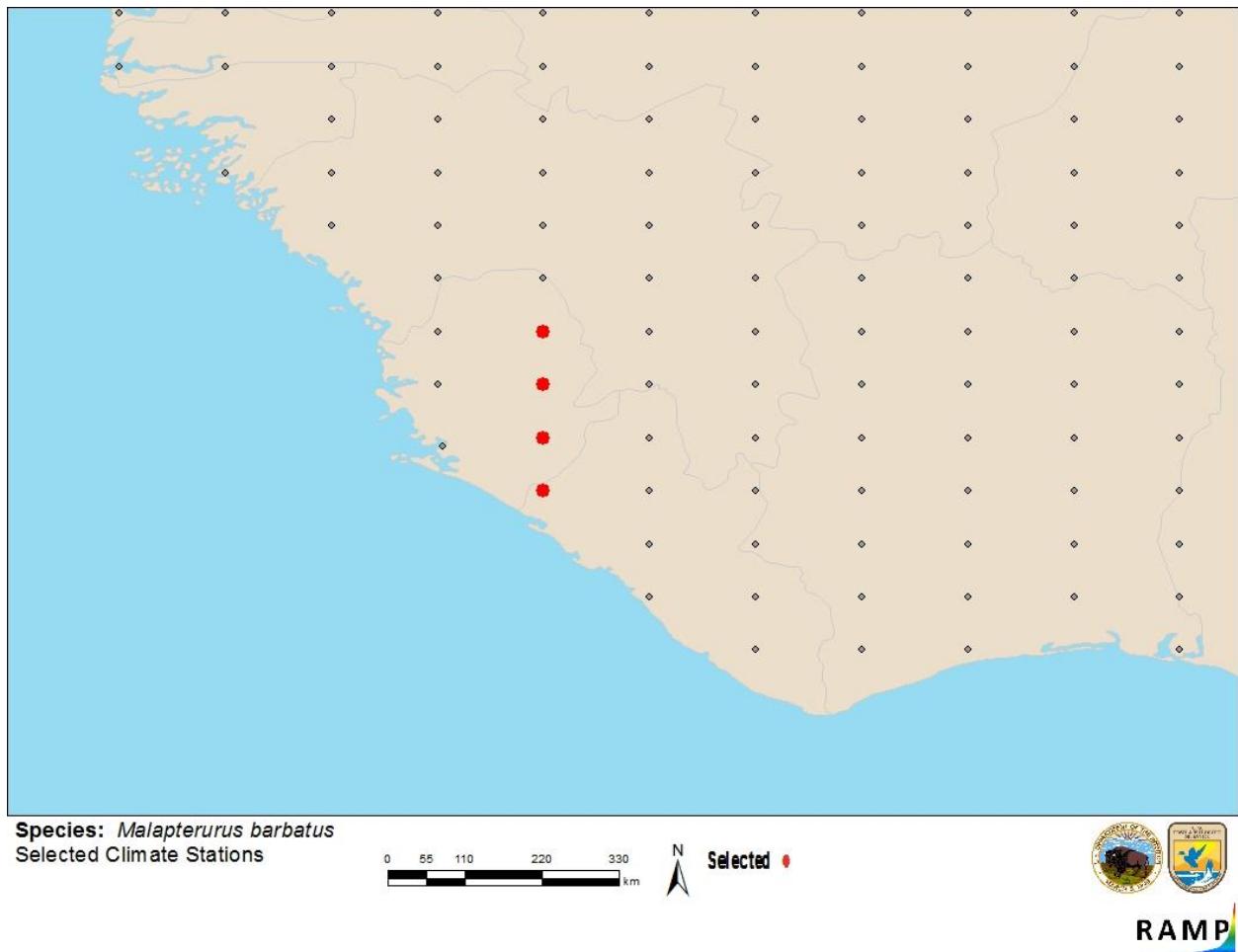


Figure 3. RAMP (Sanders et al. 2018) source map showing weather stations in Sierra Leone and Liberia selected as source locations (red) and non-source locations (gray) for *Malapterurus barbatus* climate matching. Source locations from Froese and Pauly (2018a) and GBIF Secretariat (2018).

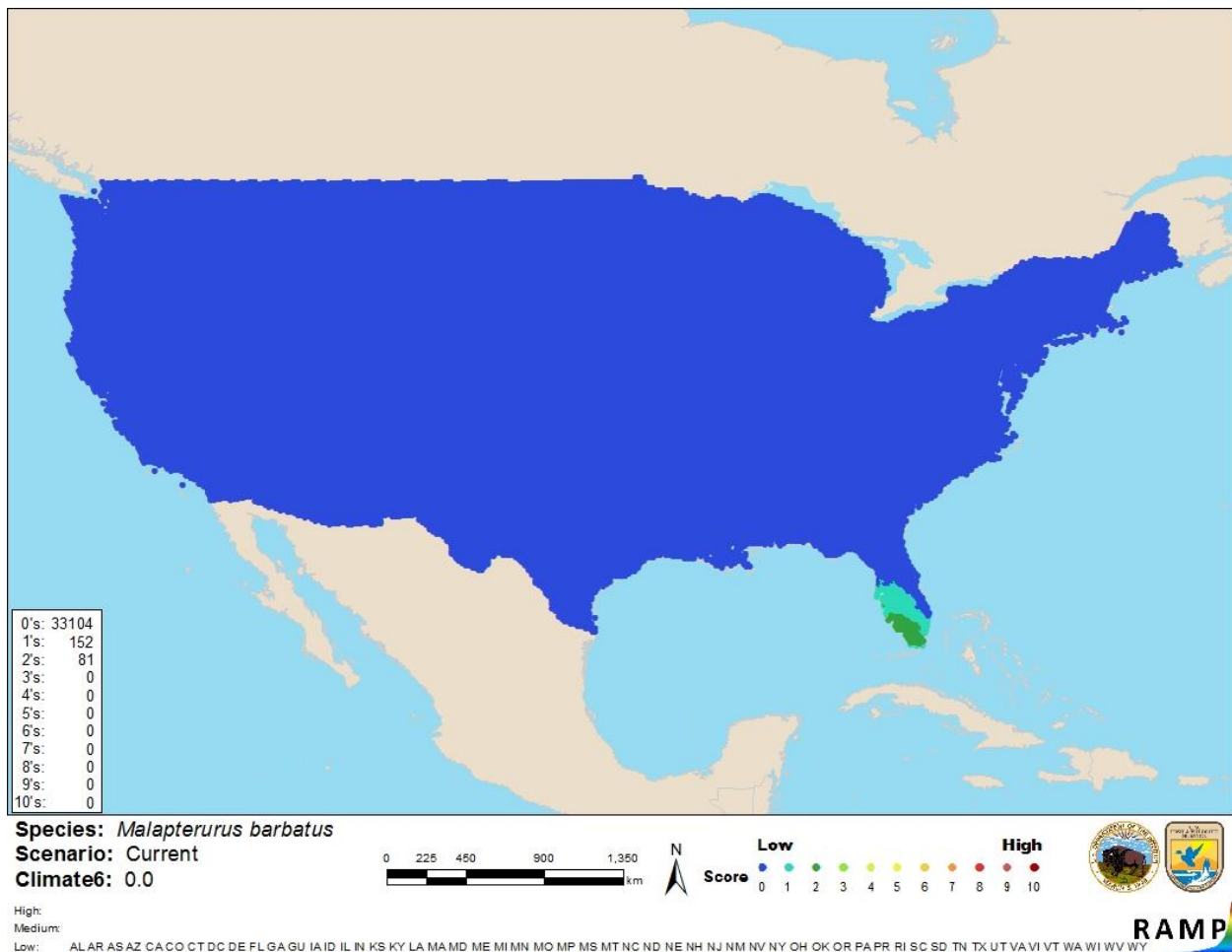


Figure 4. Map of RAMP (Sanders et al. 2018) climate matches for *Malapterurus barbatus* in the contiguous United States based on source locations reported by Froese and Pauly (2018a) and GBIF Secretariat (2018). 0 = Lowest match, 10 = Highest match.

The High, Medium, and Low Climate match Categories are based on the following table:

Climate 6: Proportion of (Sum of Climate Scores 6-10) / (Sum of total Climate Scores)	Climate Match Category
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

7 Certainty of Assessment

The certainty of assessment is low. There was some biological information available for this species. However, there were no records of introductions found, so impacts of introduction are unknown.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Malapterurus barbatus is an electric catfish native to western coastal regions of Africa. The species is used in the aquarium trade but there was no information regarding trade of this species in the United States. The history of invasiveness is uncertain. No records of introductions were found. The Florida Fish and Wildlife Conservation Commission has listed *M. barbatus* as a prohibited species. The climate match with the contiguous United States is low, and there were no areas of medium or high match. The certainty of assessment is low; the overall risk assessment category is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): Low**
- **Certainty of Assessment (Sec. 7): Low**
- **Remarks/Important additional information:** No additional information.
- **Overall Risk Assessment Category: Uncertain**

9 References

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 10.

- Eschmeyer, W. N., R. Fricke, and R. van der Laan, editors. 2018. Catalog of fishes: genera, species, references. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (June 2018).
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- Froese, R., and D. Pauly, editors. 2018a. *Malapterurus barbatus* Norris, 2002. FishBase. Available: <http://www.fishbase.org/summary/Malapterurus-barbatus.html>. (June 2018).
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- Kamelan, T. M., Y. A. Konan, S. Berté, S.-S. Y., and E. P. Kouamélan. 2018. Contribution of Taï National Park in the preservation of fish diversity in the Sassandra River Basin (Côte D'Ivoire, West Africa). CODEN: International Journal of Recent Scientific Research 9(5D):26736–26742.
- Lalèyè, P. 2010. *Malapterurus barbatus*. The IUCN Red List of Threatened Species 2010: e.T182744A7958253. Available: <http://www.iucnredlist.org/details/full/182744/0>. (June 2018).
- Poelen, J. H., J. D. Simons, and C. J. Mungall. 2014. Global Biotic Interactions: an open infrastructure to share and analyze species-interaction datasets. Ecological Informatics 24:148–159.
- Sanders, S., C. Castiglione, and M. Hoff. 2018. Risk assessment mapping program: RAMP, version 3.1. U.S. Fish and Wildlife Service.

10 References Quoted But Not Accessed

Note: The following references are cited within quoted text within this ERSS, but were not accessed for its preparation. They are included here to provide the reader with more information.

- Norris, S. M. 2002. A revision of the African electric catfishes, family Malapteruridae (Teleostei, Siluriformes), with erection of a new genus and descriptions of fourteen new species, and an annotated bibliography. Annales du Musée Royal de l'Afrique Centrale: Sciences Zoologiques 289:1–155.
- Norris, S. M. 2003. Malapteruridae. Pages 174–194 in C. Lévêque, D. Paugy, and G. G. Teugels, editors. Faune des poissons d'eaux douces et saumâtres de l'Afrique de l'Ouest, Tome 2. Coll. Faune et Flore tropicales 40. Musée Royal de l'Afrique Centrale, Tervuren, Belgique, Museum National d'Histoire Naturelle, Paris, France and Institut de Recherche pour le Développement, Paris, France.