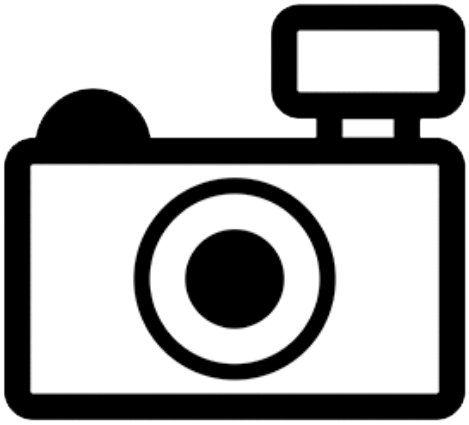
Malapterurus occidentalis (a catfish, no common name)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, February 2012
Revised, July 2018
Web Version, 9/11/2018



1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2018):

"Africa: (middle) Gambia and Géba Rivers in Gambia and Guinea-Bissau respectively [Norris 2002, 2003]."

From Lalèyè et al. (2010):

"*Malapterurus occidentalis* has been confirmed from the Middle Gambia River (Gambia) and the Géba River (Guinea-Bissau)."

Status in the United States

No records of *Malapterurus occidentalis* in the United States were found.

The Florida Fish and Wildlife Conservation Commission has listed the family of electric catfishes, including the genus and species *Malapterurus occidentalis*, 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 records of *Malapterurus occidentalis* in the United States were found.

Remarks

From Lalèyè et al. 2010:

"This species is part of the aquarium trade."

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

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

From ITIS (2018):

"Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii
Class Teleostei
Superorder Ostariophysi
Order Siluriformes
Family Malapteruridae
Genus *Malapterurus*
Species *Malapterurus occidentalis* Norris, 2002"

Size, Weight, and Age Range

From Froese and Pauly (2018):

"Max length : 32.0 cm SL male/unsexed; [Norris 2003]"

Environment

From Froese and Pauly (2018):

"Freshwater; demersal."

Climate/Range
From Froese and Pauly (2018):

"Tropical"

Distribution Outside the United States
Native
From Froese and Pauly (2018):

"Africa: (middle) Gambia and Géba Rivers in Gambia and Guinea-Bissau respectively [Norris 2002, 2003]."

Introduced
No records of *Malapterurus occidentalis* introductions were found.

Means of Introduction Outside the United States
No records of *Malapterurus occidentalis* introductions were found.

Short Description
From Froese and Pauly (2018):

"Dorsal spines (total): 0; Dorsal soft rays (total): 0; Anal spines: 0; Anal soft rays: 9 - 11; Vertebrae: 36 - 38. Diagnosis: tooth patches narrow; vertically based pectoral fin positioned near body mid-depth; 7-8 branched caudal-fin rays; eye relatively large; interorbital space relatively narrow; 8-9 pectoral-fin rays; 36-38 vertebrae; young tan or brown; caudal saddle and bar pattern present in juveniles but poorly developed in adults; flank and dorsum marked with small spots but no large blotches; caudal fin not heavily marked with spots or blotches [Norris 2002]."

"Coloration: head and body bicolored in shades of tan or grey; flank and dorsum marked with scattered small spots, which generally do not continue onto rayed fins; adipose fin pigmented as the dorsum; pectoral and pelvic fins may be dusky in adults; anal fin usually darkly pigmented with a pale distal margin; caudal fin with pale basal crescent in younger specimens; large adults may show a hint of a caudal bar and pale interspace; juveniles show the caudal saddle and bar pattern: caudal bar dark, saddle well defined but faint; caudal fin darkly pigmented (little darker than flank base color) with pale distal margin and broad pale basal crescent"

Biology
No information on the biology of *Malapterurus occidentalis* was available.

Human Uses
From Lalèyè et al. (2010):

"This species is part of the aquarium trade."

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

Poelen et al. (2018) lists *Electrotaenia malopteruri* as a parasite of *Malapterurus occidentalis*.

Threat to Humans
From Froese and Pauly (2018):

"Harmless"

Although Froese and Pauly (2018) list *Malapterurus occidentalis* as harmless, some species in this genus are able to produce electric discharges in the range of hundreds of volts (Alves-Gomes 2001), which have the potential to inflict harm.

3 Impacts of Introductions

No records of *Malapterurus occidentalis* introductions were found therefore there is no information on impacts of introductions.

Members of the genus *Malapterurus* use electric discharges to stun prey and for defense (Alves-Gomes 2001). It is unknown how that would impact native fish.

4 Global Distribution

Figure 1. Known global distribution of *Malapterurus occidentalis*. Location is in Gambia, on the western coast of Africa. Map from GBIF Secretariat (2018).

5 Distribution Within the United States

No records were found of *Malapterurus occidentalis* in the United States.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Malapterurus occidentalis* was low for the entire 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.

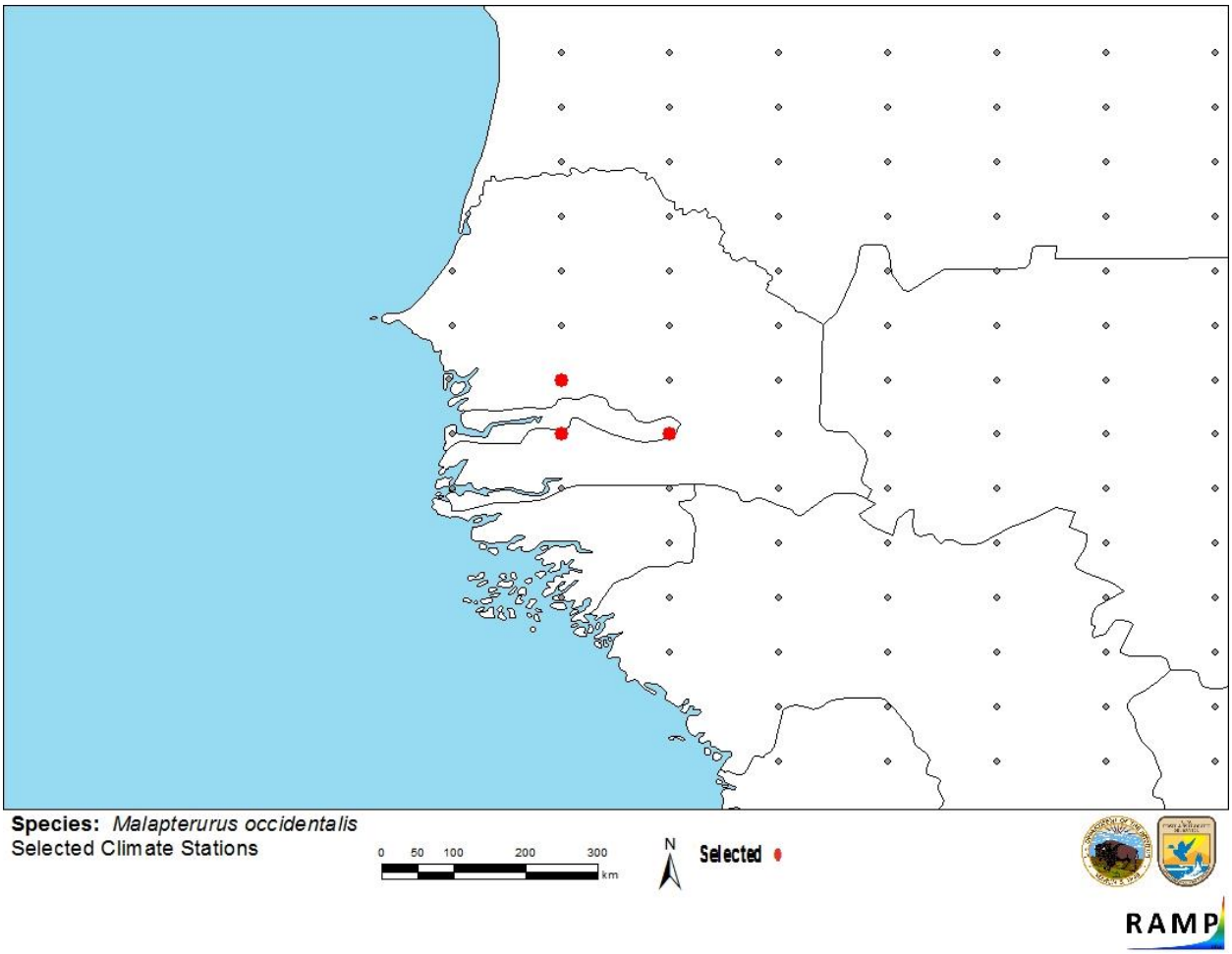


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations selected as source locations (red; Gambia) and non-source locations (gray) for *Malapterurus occidentalis* climate matching. Source locations from GBIF Secretariat (2018).

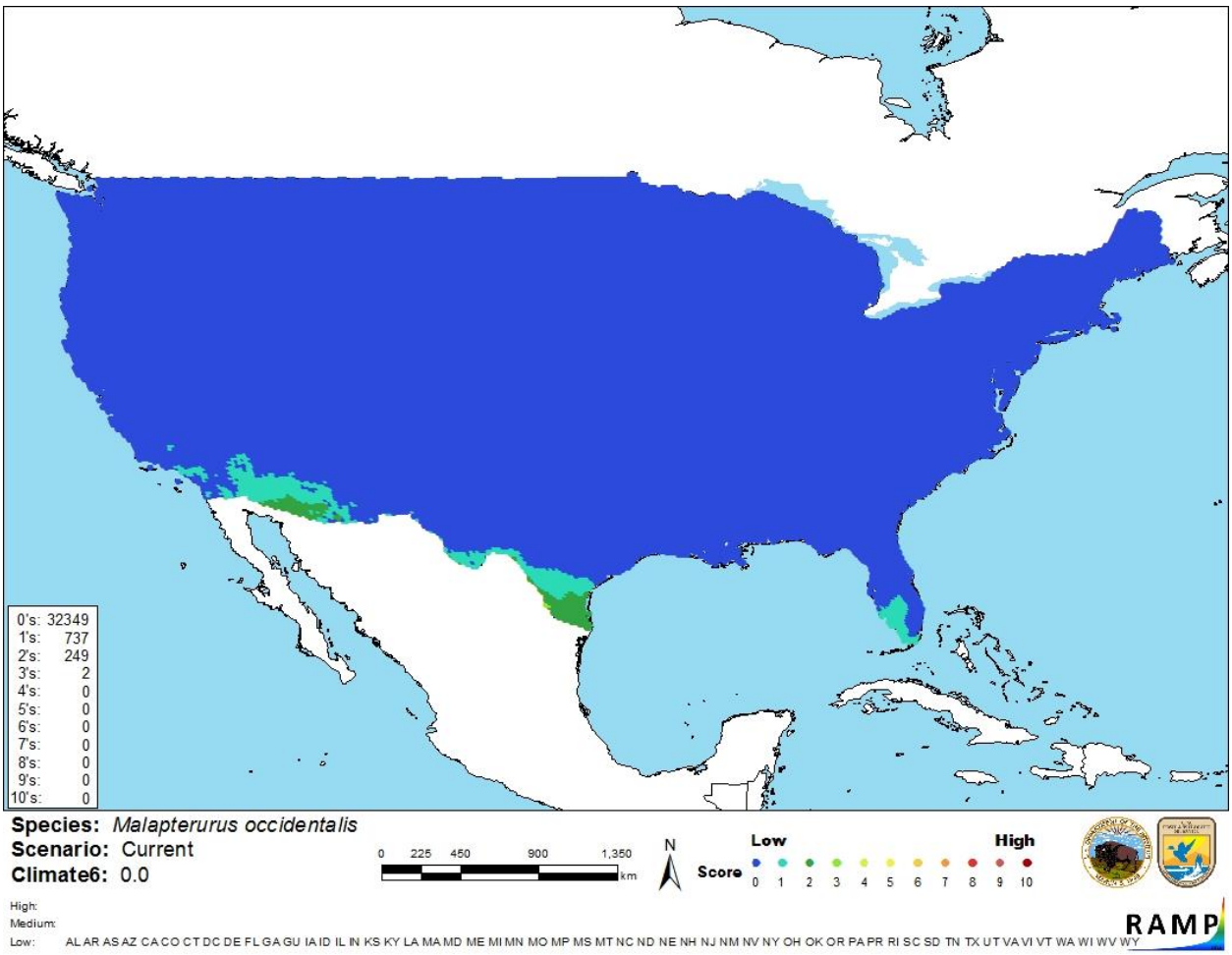


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Malapterurus occidentalis* in the contiguous United States on source locations reported by GBIF Secretariat (2018).
0 = Lowest match, 10 = Highest match.

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≤X≤0.005	Low
0.005<X<0.103	Medium
≥0.103	High

7 Certainty of Assessment

The certainty of assessment is low. There is minimal information available for this species and no records of introductions have been found.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Malapterurus occidentalis is an electric catfish native to Gambia in western Africa. Some species in this genus are able to produce electric discharges in the range of hundreds of volts to stun prey and for defense. The Florida Fish and Wildlife Conservation Commission has listed this species as prohibited. The history of invasiveness is uncertain, no records of introductions were found. The climate match is low. 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.

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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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Lalèyè, P., T. Moelants, and B. D. Olaosebikan. 2010. *Malapterurus occidentalis*. The IUCN Red List of Threatened Species 2010: e.T182641A7932825. Available: http://www. http://www.iucnredlist.org/details/181897/0. (July 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.

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Norris, S. M. 2003. Malapteruridae. Pages 174–194 in C. Lévêque, D. Paugy, and G. G. Teugels, editors. Faune des poissons d'eaux douce 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 Naturalle, Paris, France and Institut de Recherche pour le Développement, Paris, France.

Stronna, G., M. L. D. Palomares, N. Bailly, P. Galli, and K. D. Lafferty. 2013. Host range, host ecology, and distribution of more than 11800 fish parasite species. Ecological Society of America 94:544.