

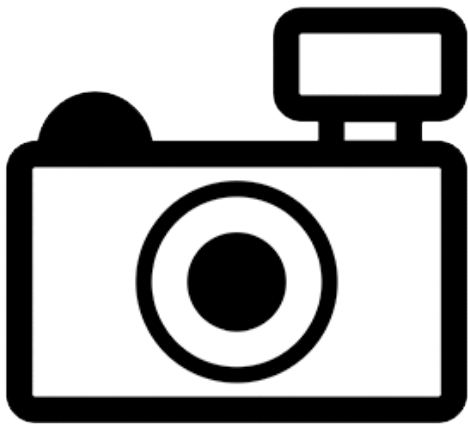
***Malapterurus shirensis* (a catfish, no common name)**

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, March 2012

Revised, July 2018

Web Version, 9/11/2018



No Photo Available

1 Native Range and Status in the United States

Native Range

From Bills and Marshall (2010):

“This species is known from the middle and lower Zambezi south to the lower Save River [Malawi and Mozambique]. It is present in major tributaries but does not penetrate into tributary streams.”

Status in the United States

No indication of *Malapterurus shirensis* in the United States in the wild or in trade was found.

The Florida Fish and Wildlife Conservation Commission has listed the family of electric catfishes, including the genus and species *Malapterurus shirensis*, as a prohibited species. Prohibited nonnative species (FFWCC 2016), “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 indication of *Malapterurus shirens* in the United States in the wild was found.

Remarks

No additional remarks.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Eschmeyer et al. (2018), *Malapterurus shirens* Roberts 2000 is the original and currently valid name of this species.

From ITIS (2018):

“Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass ActinopterygiiClass Teleostei
Superorder Ostariophysi
Order Siluriformes
Family Malapteruridae Bleeker, 1858
Genus *Malapterurus* Lacepède, 1803
Species *Malapterurus shirens* Roberts, 2000”

Size, Weight, and Age Range

From Froese and Pauly (2018):

“Max length : 37.2 cm SL male/unsexed; [Norris 2002]”

Environment

From Froese and Pauly (2018):

“Freshwater; benthopelagic.”

Climate/Range

From Froese and Pauly (2018):

“Tropical”

Distribution Outside the United States

Native

From Bills and Marshall (2010):

“This species is known from the middle and lower Zambezi south to the lower Save River [Malawi and Mozambique]. It is present in major tributaries but does not penetrate into tributary streams.”

Introduced

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

Means of Introduction Outside the United States

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

Short Description

From Froese and Pauly (2018):

“Anal spines: 0; Anal soft rays: 9 - 11; Vertebrae: 40 - 45. Medium-sized species probably attaining over 300 mm; vertebral counts 23+19+42(2); tooth bands moderately large, laterally and longitudinally moderately broad. Distinguished from the species in the Congo basin by its coloration, with relatively large blotches similar with *M. electricus* and *M. minjiriya*. Resembles *M. electricus* but differs in having more vertebrae (45 vs. 41-44), fewer gill rakers, and oral tooth bands that are laterally and longitudinally somewhat shorter. Holotype and paratype from the Shire have 2+21=23 and 3+18=21 gill rakers on the first gill arch [Roberts 2000]. Tooth patches narrow; pectoral fin placed near the body mid-depth; 9 pectoral-fin rays; 9-11 anal-fin rays; total number of vertebrae 40-41; 7-8 branched caudal-fin rays; large blotches on dorsum and flank; base color grey; caudal fin at most lightly spotted [Norris 2002].”

Biology

From Bills and Marshall (2010):

“It is found in main channels of large rivers where it prefers hiding during the day in root stocks and under rocks.”

Human Uses

From Bills and Marshall (2010):

“This species is harvested for human consumption.”

Diseases

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

Poelen et al. (2014) lists *Eubothrium parvum*, *Gyrodactyloides andriaschewi*, *Gyrodactyloides petruschewskii*, *Hemiurus levinseni*, *Echinorhynchus gadi*, *Lecithaster gibbosus*, *Anisakis simplex*, and *Derogenes varicus* as parasites of *Malapterurus shirensis*.

Threat to Humans

From Froese and Pauly (2018):

“Harmless”

Although Froese and Pauly (2018) list *Malapterurus shirensis* 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 introductions of *Malapterurus shirensis* were found.

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

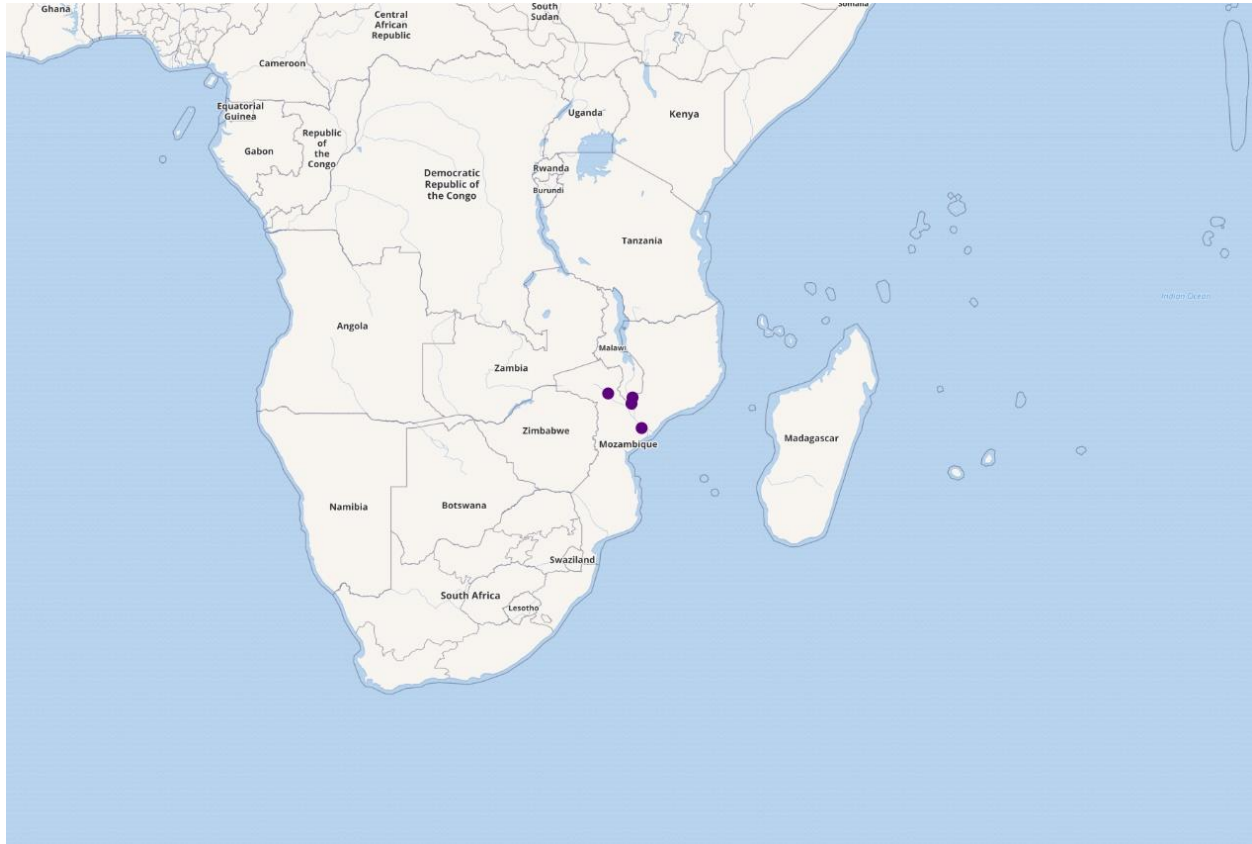


Figure 1. Known global distribution of *Malapterurus shirensis*. Locations are in Malawi and Mozambique. Map adapted from GBIF Secretariat (2018).

5 Distribution Within the United States

No indication of *Malapterurus shirensis* in the United States in the wild was found.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Malapterurus shirens* is low across the majority of the contiguous United States with small regions of medium match southern Texas and high match in Florida. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.003, low. All States had individually low climate scores except for Florida, which had a high climate score.

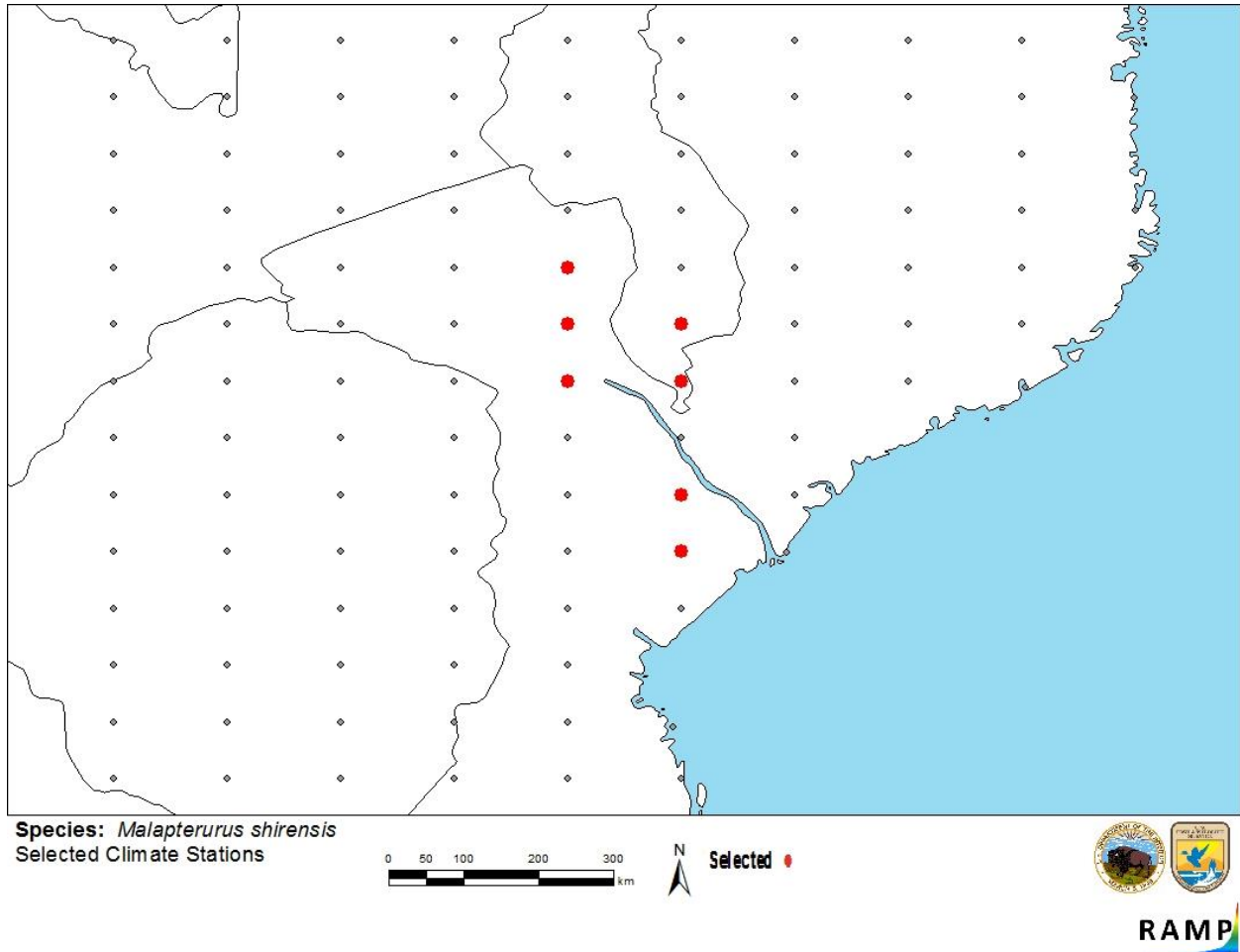


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in southern Africa selected as source locations (red; Malawi and Mozambique) and non-source locations (gray) for *Malapterurus shirens* climate matching. Source locations from GBIF Secretariat (2018).

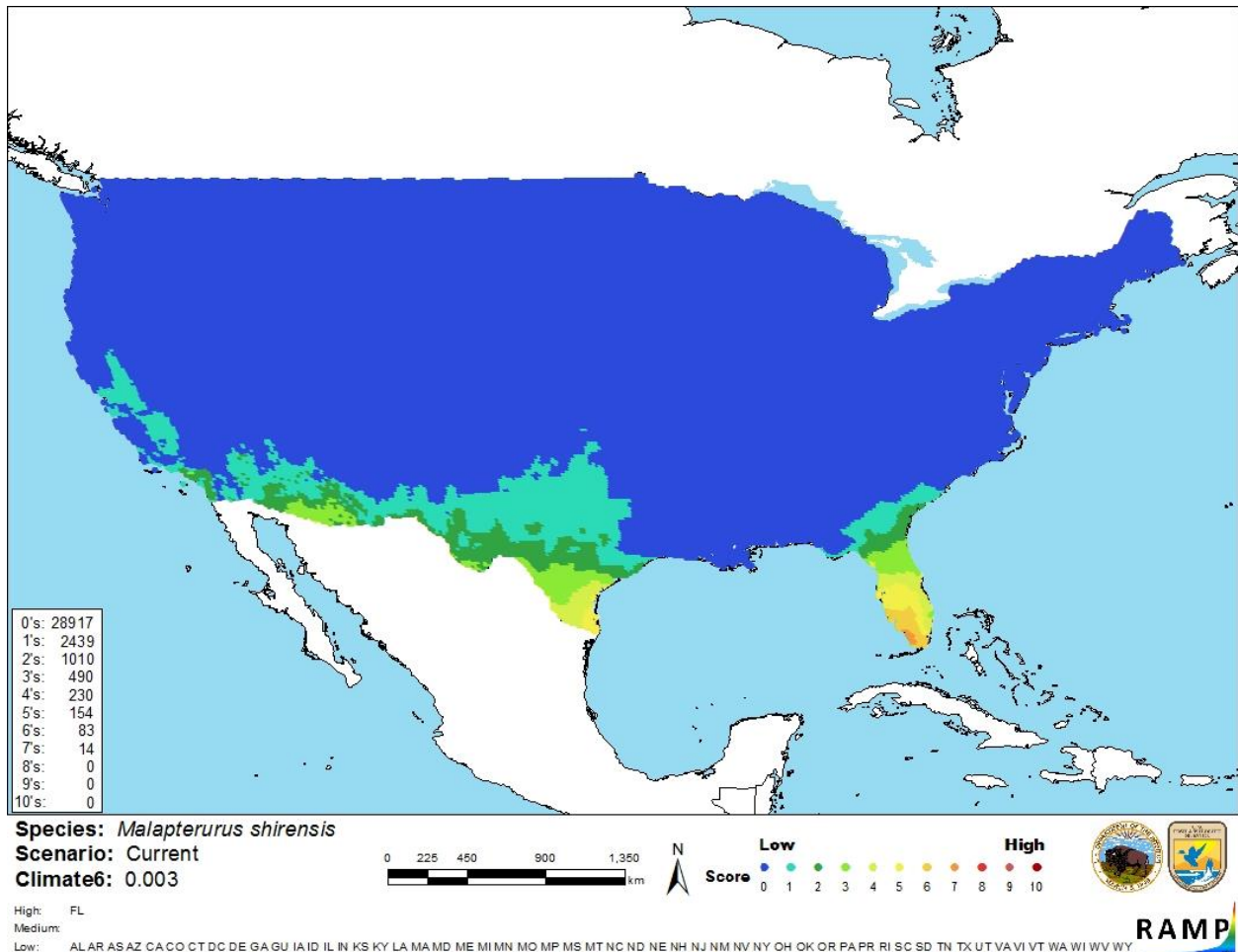


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Malapterurus shirensis* in the contiguous United States based on source locations reported by GBIF Secretariat (2018). 0 = Lowest match, 10 = Highest match.

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
$0.000 \leq X < 0.005$	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 but there were no records of introductions found.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Malapterurus shirensis is an electric catfish native to western coastal regions of 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 overall climate match is low, with Florida having an individually high climate score. 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 remarks.**
- **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.

Alves-Gomes, J. A. 2001. The evolution of electroreception and bioelectrogenesis in teleost fish: a phylogenetic perspective. *Journal of Fish Biology* 58:1489–1511.

Bills, R., and B. Marshall. 2010. *Malapterurus shirensis*. The IUCN Red List of Threatened Species 2010: e.T183020A8030091. Available: <http://www.iucnredlist.org/details/183020/0>. (July 2018).

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>. (July 2018).

FFWCC (Florida Fish and Wildlife Conservation Commission). 2018. Prohibited species list. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida. Available: <http://myfwc.com/wildlifehabitats/nonnatives/regulations/prohibited/>. (July 2018).

Froese, R., and D. Pauly, editors. 2018. *Malapterurus shirensis* Roberts, 2000. FishBase. Available: <http://www.fishbase.org/summary/Malapterurus-shirensis.html>. (July 2018).

ITIS (Integrated Taxonomic Information System). 2018. *Malapterurus shirensis* (Roberts, 2000). Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=681507#null. (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.

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.

Roberts, T. R. 2000. A review of the African electric catfish family Malapteruridae, with descriptions of new species. *Occasional Papers in Ichthyology* 1:1–15.