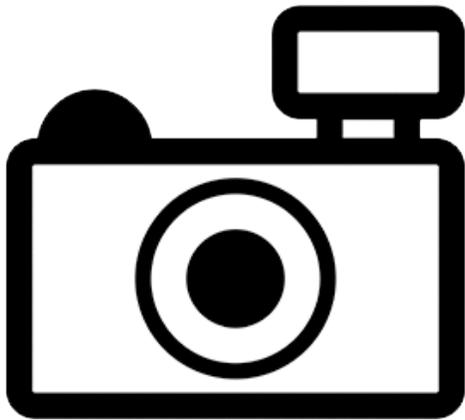


***Malapterurus beninensis* (a catfish, no common name)**

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 (2018):

“Africa: coastal plain of West and Central Africa from the lower Volta River (Ghana) to the Shiloango system (Angola and Congo DR) [Norris 2002, 2003, 2007], and on the island of Fernando Po [Norris 2002].”

“Known from the Chiloango basin [Norris 2002, 2007] and the Luali River (in Cabinda Province) [Norris 2002]. [Angola]”

“Known from the rivers Ouémé [Norris 2002, 2003] and Okpara, and from Lake Nokoué [Norris 2002]. [Benin]”

“Known from the rivers Cross [Norris 2002, 2003, 2007], Wouri, Mungo, Sandje, Nyong, Lobé, Lokunje, Bikui, Sanaga, Lobo, Ntem, Bongala, Bitande, Meme, Ezezam, Mvase, Kumba, Mam, Munaya, Benue, Nam, Lobi and Kribi [Norris 2002]. [Cameroon]”

“Present in the Kouilou-Niari and Loémé basins [Norris 2007]. Known from the rivers Zibati, Tombo, Dola, Louvoumou, Loundji, Mami, Moumgongo, Loubomo, Loémé, Tchibati, Loukonene (Kouilou system) [Norris 2002]. [Congo]”

“Known from the rivers Lukula, Vemba, Mala and Mbavu (Shiloango basin) [Norris 2002]. [Democratic Republic of the Congo]”

“Known from the rivers Benito (=Woleu=Mbini) [Norris 2002, 2007] and Campo (=Ntem) [Norris 2002]. [Equatorial Guinea]”

“Known from the rivers Ogooué and Komo [Norris 2002, 2007], and from lakes Ezanga and Agemwe [Norris 2002]. [Gabon]”

“Known from the Aimaso and Hedjo rivers (Volta system) [Norris 2002]. [Ghana]”

“Known from the Ogun [Norris 2002, 2003], Oshun, Osse [Norris 2003], lower Niger, Niger delta, Kwa Ibo [Norris 2002, 2003] and Cross [Norris 2002, 2003, 2007]. In the Niger delta, present in the rivers Orashi, Nun, Sombreiro, Imo and Lake Okoso [Norris 2002]. [Nigeria]”

“Known from the Mono River [Norris 2002, 2003], Lake Volta and the Oti River [Norris 2002]. [Togo]”

Status in the United States

No records of *Malapterurus beninensis* in the United States were found. No information on trade of *M. beninensis* in the United States was found.

The Florida Fish and Wildlife Conservation Commission has listed the electric catfish *M. beninensis* 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 beninensis* in the United States were found.

Remarks

From Lalèyè et al. (2010):

“*Malapterurus beninensis* displays marked variation in pigmentation across its range. It is possible that *Malapterurus beninensis* is an amalgam of two or three species, but while extreme morphotypes and pigment variants can be quite distinct, there is extensive overlap. Attempts to assign taxonomic significance to this variation were unsuccessful. Cohesive, definable taxa could not be identified in either pattern of variation or geography.”

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Eschmeyer et al. (2018), *Malapterurus beninensis* Murray, 1855 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 beninensis* Murray, 1855”

Size, Weight, and Age Range

From Froese and Pauly (2018):

“Max length : 22.3 cm SL male/unsexed; [Roberts 2000]”

Environment

From Froese and Pauly (2018):

“Freshwater; benthopelagic.”

Climate/Range

From Froese and Pauly (2018):

“Tropical”

Distribution Outside the United States

Native

From Froese and Pauly (2018):

“Africa: coastal plain of West and Central Africa from the lower Volta River (Ghana) to the Shiloango system (Angola and Congo DR) [Norris 2002, 2003, 2007], and on the island of Fernando Po [Norris 2002].”

“Known from the Chiloango basin [Norris 2002, 2007] and the Luali River (in Cabinda Province) [Norris 2002]. [Angola]”

“Known from the rivers Ouémé [Norris 2002, 2003] and Okpara, and from Lake Nokoué [Norris 2002]. [Benin]”

“Known from the rivers Cross [Norris 2002, 2003, 2007], Wouri, Mungo, Sandje, Nyong, Lobé, Lokunje, Bikui, Sanaga, Lobo, Ntem, Bongala, Bitande, Meme, Ezezam, Mvase, Kumba, Mam, Munaya, Benue, Nam, Lobi and Kribi [Norris 2002]. [Cameroon]”

“Present in the Kouilou-Niari and Loémé basins [Norris 2007]. Known from the rivers Zibati, Tombo, Dola, Louvoumou, Loundji, Mami, Moumgongo, Loubomo, Loémé, Tchibati, Loukonene (Kouilou system) [Norris 2002]. [Congo]”

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“Known from the Aimaso and Hedjo rivers (Volta system) [Norris 2002]. [Ghana]”

“Known from the Ogun [Norris 2002, 2003], Oshun, Osse [Norris 2003], lower Niger, Niger delta, Kwa Ibo [Norris 2002, 2003] and Cross [Norris 2002, 2003, 2007]. In the Niger delta, present in the rivers Orashi, Nun, Sombreiro, Imo and Lake Okoso [Norris 2002]. [Nigeria]”

“Known from the Mono River [Norris 2002, 2003], Lake Volta and the Oti River [Norris 2002]. [Togo]”

Introduced

No records of *Malapterurus beninensis* introductions were found.

Means of Introduction Outside the United States

No records of *Malapterurus beninensis* introductions were found.

Short Description

From Froese and Pauly (2018):

“Dorsal spines (total): 0; Anal spines: 0; Anal soft rays: 8 - 11; Vertebrae: 33 - 38. Diagnosis: body cylindrical; tooth patches narrow; vertically oriented pectoral fins, placed near body mid-depth; 6-7 branched caudal-fin rays; pectoral-fin rays usually 8, rarely 7 or 9; 34-38 vertebrae; eyes relatively small, interorbital space relatively broad; caudal saddle and bar pattern quite distinct in juveniles and young and usually apparent in adults [Norris 2002], but often subdued [Norris 2007]. Dorsum and flank nearly always spotted, sometimes extensively [Norris 2002, 2007]. Commonly 10-15 gill rakers on first arch (total range 4-22) [Norris 2002]. Caudal saddle and anal-fin pigmentation not continuous [Norris 2002, 2007]. Venter often dusky, occasionally lightly spotted [Norris 2007].”

“Coloration: head and body bicolored, grey, with their dorsal and lateral surfaces usually spotted; spots small, generally no larger than 2-3 times an eye diameter, with spots rarely present on any fin; caudal saddle and bar pattern well developed, although often subdued in adults; wide caudal bar rounded or wedge-shaped, projecting anteriorly into the pale interspace and also marking the base of the caudal fin; pale interspace usually lighter than flank or dorsum ground color; caudal saddle variable, dark or faint, narrow or relatively wide, usually with an irregular anterior border; it may cross the body mid-depth, but clearly stops short of anal-fin base; saddle and bar pattern decrease in definition with body size, with the saddle fading more dramatically; pectoral fin frequently dusky; pelvic fin usually clear; anterior half of adipose fin marked by the saddle, the posterior half usually matches pale interspace; anal fin carries a dusky stripe, with a pale distal margin, more distinct in juveniles and young; anal fin sometimes dusky overall matching flank ground color; caudal fin usually with dark bar distally, with clear distal margin and pale basal crescent; caudal fin sometimes dusky overall, matching flank ground color, with little indication of a dark bar, pale margin or basal crescent [Norris 2002]. Displays marked variation in pigmentation across its range [Norris 2007].”

Froese and Pauly (2018) also list 8–11 pectoral soft rays and 6 pelvic soft rays.

Biology

From Lalèyè et al. (2010):

“*Malapterurus beninensis* is a benthopelagic species that can produce an electric current that is used both for prey capture and defence [*sic*]. It is mostly found in lowland habitats, and lives in marshes, swamps, rivers and lakes.”

Human Uses

From Lalèyè et al. (2010):

“It is used in research for interest in its electrical discharge properties, as well as being collected for human consumption, and the aquarium trade.”

Diseases

No information on parasites or pathogens of *Malapterurus beninensis* was found.

Threat to Humans

From Froese and Pauly (2018):

“Harmless”

3 Impacts of Introductions

No records of *Malapterurus beninensis* introductions were found.

The Florida Fish and Wildlife Conservation Commission (2018) has listed the electric catfish *M. beninensis* as a prohibited species.

4 Global Distribution

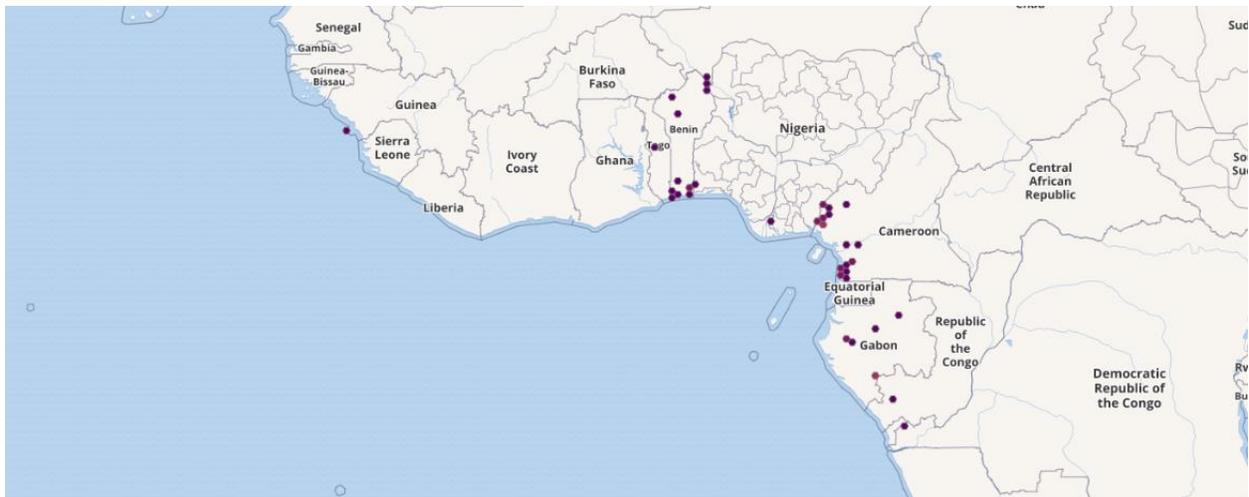


Figure 1. Known global distribution in western Africa of *Malapterurus beninensis*. Locations are in Guinea, Togo, Benin, Niger, Nigeria, Cameroon, Gabon, Republic of the Congo, and Democratic Republic of the Congo. Map from GBIF Secretariat (2018).

The location off the coast of Guinea (Figures 1, 2) was not used as a source point for the climate match. No records of an established population were found for this location and there is some missing information in the record information (GBIF Secretariat 2018).

The point in Niger (Figure 1) was used as a source point in the climate match even though Niger was not specifically listed in the range description because the location of the point is in proximity to other known locations.

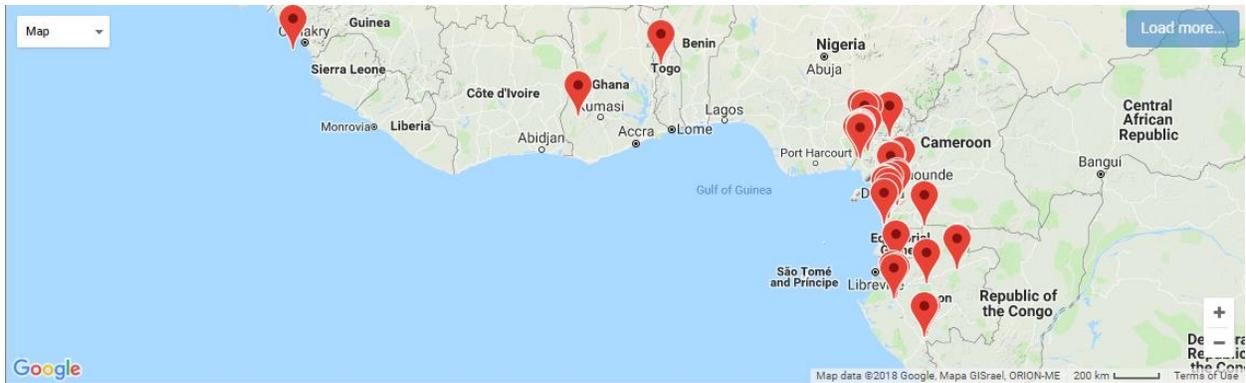


Figure 2. Additional known global distribution of *Malapterurus beninensis*. Locations are in Guinea, Ghana, Togo, Nigeria, Cameroon, Equatorial Guinea, and Gabon. Map from VertNet (2018).

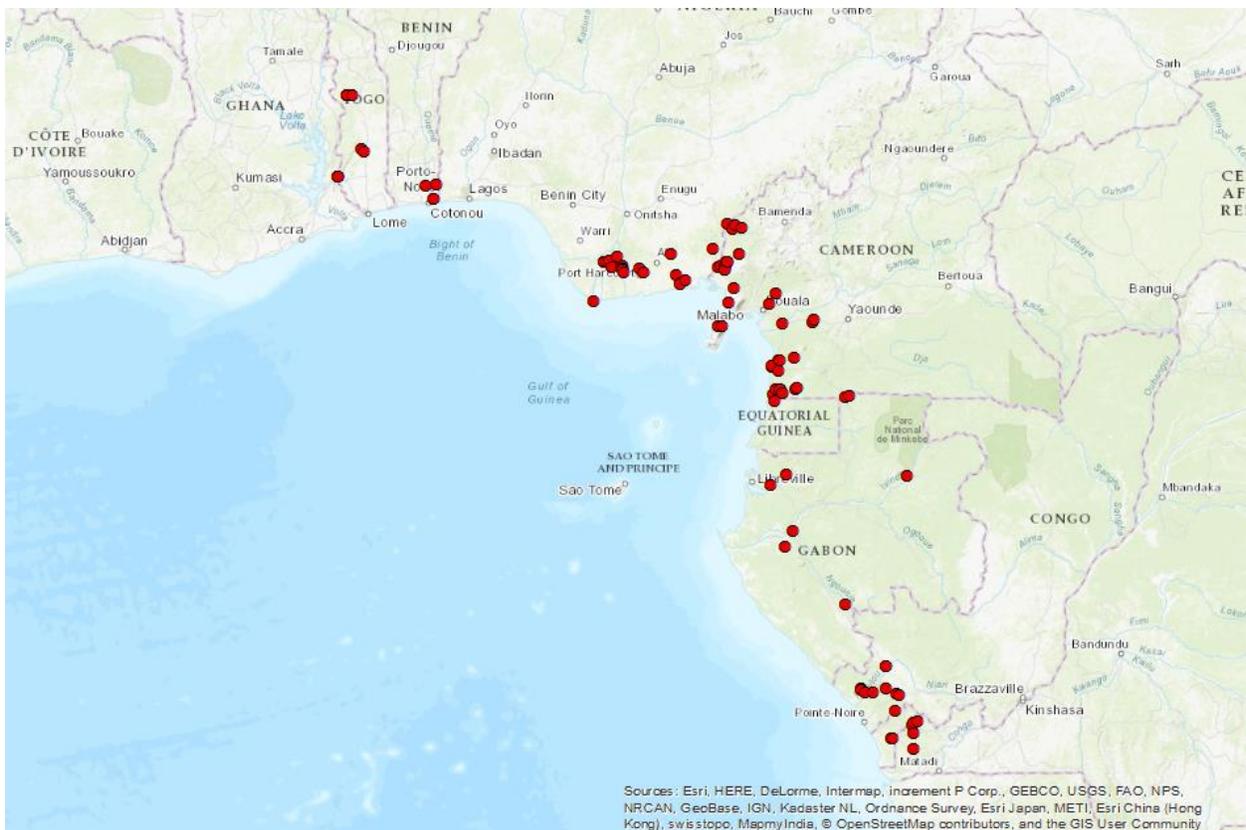


Figure 3. Additional known global distribution of *Malapterurus beninensis*. Locations are in Ghana, Togo, Benin, Nigeria, Cameroon, Equatorial Guinea, Gabon, Congo, and Democratic Republic of the Congo. Map created with data from Froese and Pauly (2018).

5 Distribution Within the United States

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

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Malapterurus beninensis* was low for most of the contiguous United States. There was a small area of medium match in southern Texas and most of peninsular Florida had a medium match. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.002, low. The range for a low climate match is from 0.0 to 0.005, inclusive. Florida has a medium individual climate score.

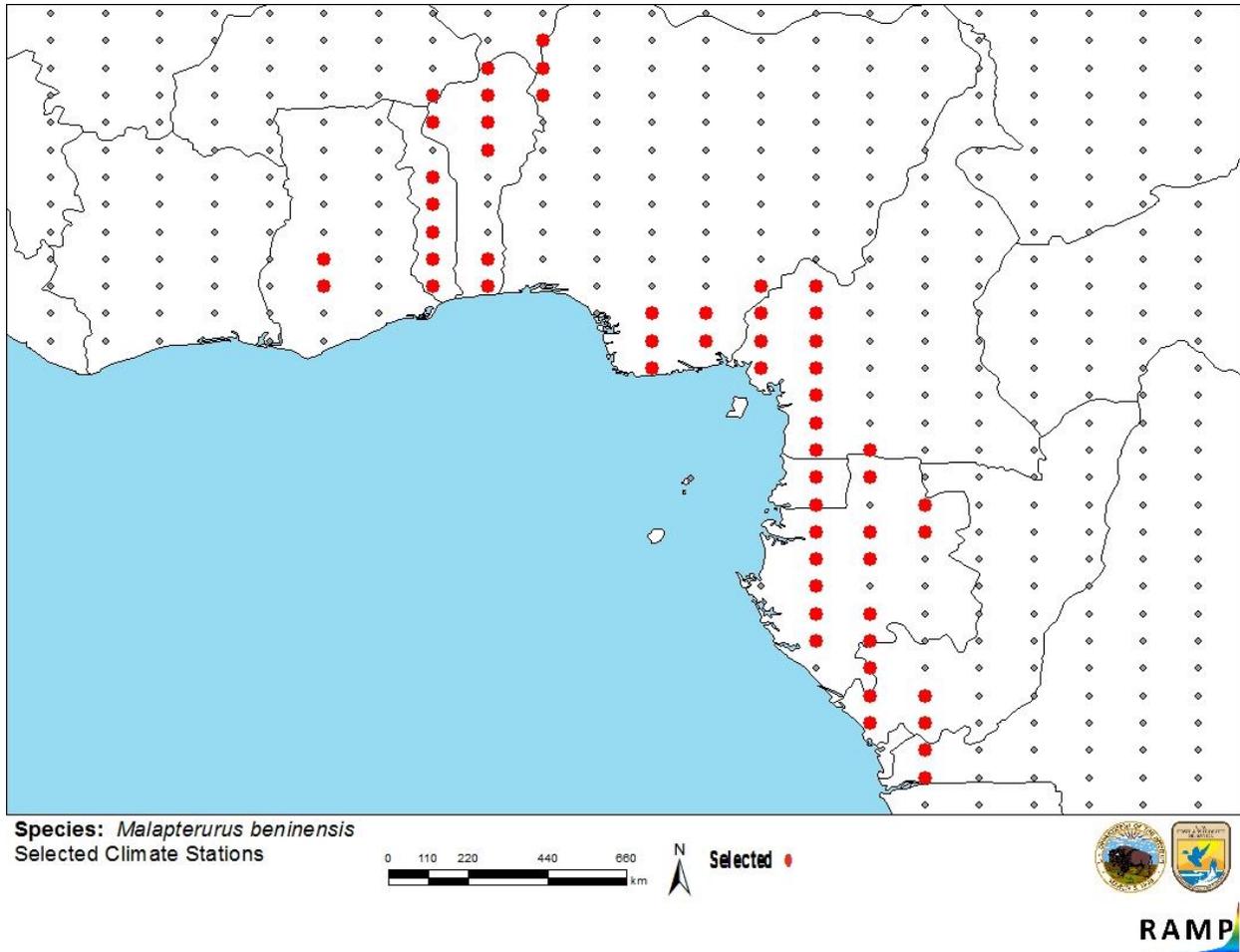


Figure 4. RAMP (Sanders et al. 2018) source map showing weather stations selected as source locations (red; Ghana, Togo, Benin, Burkina Faso, Niger, Nigeria, Cameroon, Equatorial Guinea, Gabon, Republic of the Congo, Democratic Republic of the Congo) and non-source locations (gray) for *Malapterurus beninensis* climate matching. Source locations from Froese and Pauly (2018), GBIF Secretariat (2018), and VertNet (2018). Populations in Angola are not included in the climate match because georeferenced locations were unavailable. Weather stations within 100 km of a known observation are chosen as source locations for the climate match.

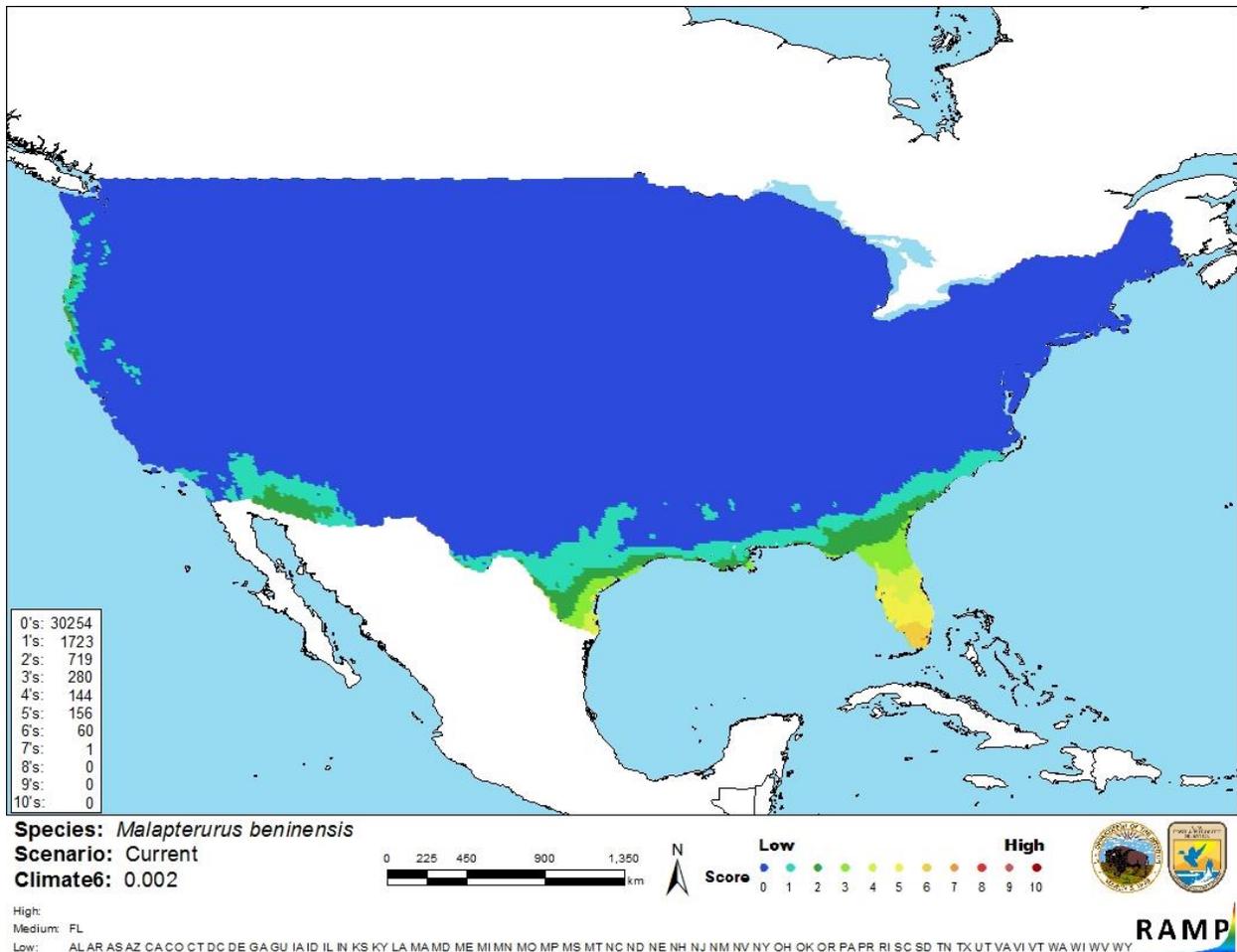


Figure 5. Map of RAMP (Sanders et al. 2018) climate matches for *Malapterurus beninensis* in the contiguous United States on source locations reported by Froese and Pauly (2018), GBIF Secretariat (2018), and VertNet (2018). 0 = Lowest match, 10 = Highest match.

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 minimal biological information available for this species. 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 beninensis is an electric catfish native to coastal river drainages in western Africa. It is used for human consumption, in the aquarium trade, and for research because of its electrical discharge properties. No information on *M. beninensis* in the aquarium trade in the United States was found. The Florida Fish and Wildlife Conservation Commission has listed *M. beninensis* as a prohibited species. The history of invasiveness is uncertain. No records of introductions were found. The climate match with the contiguous United States is low; however Florida did have a medium individual 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 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).
- 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/>. (June 2018).
- Froese, R., and D. Pauly, editors. 2018. *Malapterurus beninensis* Murray, 1855. FishBase. Available: <http://www.fishbase.org/summary/Malapterurus-beninensis.html>. (June 2018).
- ITIS (Integrated Taxonomic Information System). 2018. *Malapterurus beninensis* Murray, 1855. Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=681499. (June 2018).
- Lalèyè, P., T. Moelants, and B. D. Olaosebikan. 2010. *Malapterurus beninensis*. The IUCN Red List of Threatened Species 2010: e.T182641A7932825. Available: <http://www.iucnredlist.org/details/full/182641/0>. (June 2018).

Sanders, S., C. Castiglione, and M. Hoff. 2018. Risk assessment mapping program: RAMP, version 3.1. U.S. Fish and Wildlife Service.

VertNet. 2018. VertNet. Available:

<http://portal.vertnet.org/search?q=%22Malapterurus+beninensis%22>. (June 2018).

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 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 Naturelle, Paris, France and Institut de Recherche pour le Développement, Paris, France.

Norris, S. M. 2007. Malapteruridae. Pages 692–697 *in* M. L. J. Stiassny, G. G. Teugels, and C. D. Hopkins, editors. *The fresh and brackish water fishes of Lower Guinea, West-Central Africa, volume I. Collection Faune et Flore tropicales 42.* Institut de Recherche pour le Développement, Paris, France, Muséum National d'Histoire Naturelle, Paris, France, and Musée Royal de l'Afrique Centrale, Tervuren, Belgium.

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.