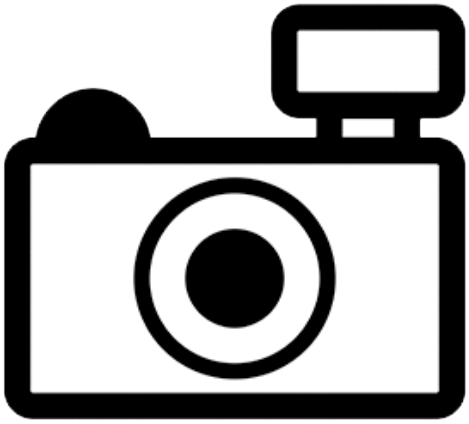
Xingu Peacock Bass (*Cichla mirianae*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, August 2011
Revised, September 2012, May 2018
Web Version, 9/7/2018



No Photo Available

1 Native Range and Status in the United States

Native Range

From Kullander and Ferreira (2006):

"Known from the upper Rio Tapajós drainage, in the Juruena and Teles Pires rivers, and from the middle and upper Rio Xingu drainage, in the Fresco, Batovi, Culuene and Suiá-Missu rivers […]"

Status in the United States

This species has not been reported as introduced or established in the United States. There is no evidence that this species is in trade in the United States.

Means of Introductions in the United States

This species has not been reported as introduced or established in the United States.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From Froese and Pauly (2018):

"Biota > Animalia (Kingdom) > Chordata (Phylum) > Vertebrata (Subphylum) > Gnathostomata (Superclass) > Pisces (Superclass) > Actinopterygii (Class) > Perciformes (Order) > Labroidei (Suborder) > Cichlidae (Family) > Cichlinae (Subfamily) > *Cichla* (Genus) > *Cichla mirianae* (Species)"

"Status accepted"

Size, Weight, and Age Range

From Froese and Pauly (2011):

"Max length: 52.0 cm SL male/unsexed; [Kullander and Ferreira 2006]"

Environment

From Froese and Pauly (2011):

"Freshwater; benthopelagic"

Climate/Range

From Froese and Pauly (2011):

"Tropical"

Distribution Outside the United States

Native

From Kullander and Ferreira (2006):

"Known from the upper Rio Tapajós drainage, in the Juruena and Teles Pires rivers, and from the middle and upper Rio Xingu drainage, in the Fresco, Batovi, Culuene and Suiá-Missu rivers […]"

Introduced

No introductions have been reported.

Means of Introduction Outside the United States

No introductions have been reported.

Short Description

From Froese and Pauly (2011):

"Unique in having a color pattern, which includes dark lateral band alongside in young, and three blackish ocellated blotches along middle of side from at least 90 mm SL; adults retain portions of lateral band as black irregular stripes connecting ocellar blotches and continuing on caudal peduncle. It is similar only to *C. orinocensis* in possessing three lateral ocelli; different in having a horizontal band which is absent in *orinocensis*; there are 3 indistinct vertical bars in young and adults (vs. five or more vertical bars in *C. intermedia*, *C. nigromaculata*, and *C. piquiti*); lateral scales 72-80 and line is discontinuous (vs. continuous in *intermedia*, *ocellaris*, *temensis*, *thyrorus*) [Kullander and Ferreira 2006]."

Biology

No information available.

Human Uses

From Kullander and Ferreira (2006):

"Species of the genus *Cichla* are among the major food and game fishes in South America."

Diseases

From Moravec and Diggles (2015):

"A new nematode species, *Philometra mirabilis* sp. n. (Philometridae), is described based on a subgravid female specimen recovered from the ovary of the freshwater perciform fish *Cichla mirianae* Kullander and Ferreira (Cichlidae) in the Juruena River (Amazon River basin), State of Mato Grosso, Brazil."

No OIE reportable diseases have been documented for this species.

Threat to Humans

From Froese and Pauly (2011):

"Harmless"

3 Impacts of Introductions

Moore et al. (2010) states that *Cichla mirianae* may have biological or ecological traits that lead to high risk of negative impact if introduced. However, no scientific studies are cited to support this risk characterization.

4 Global Distribution

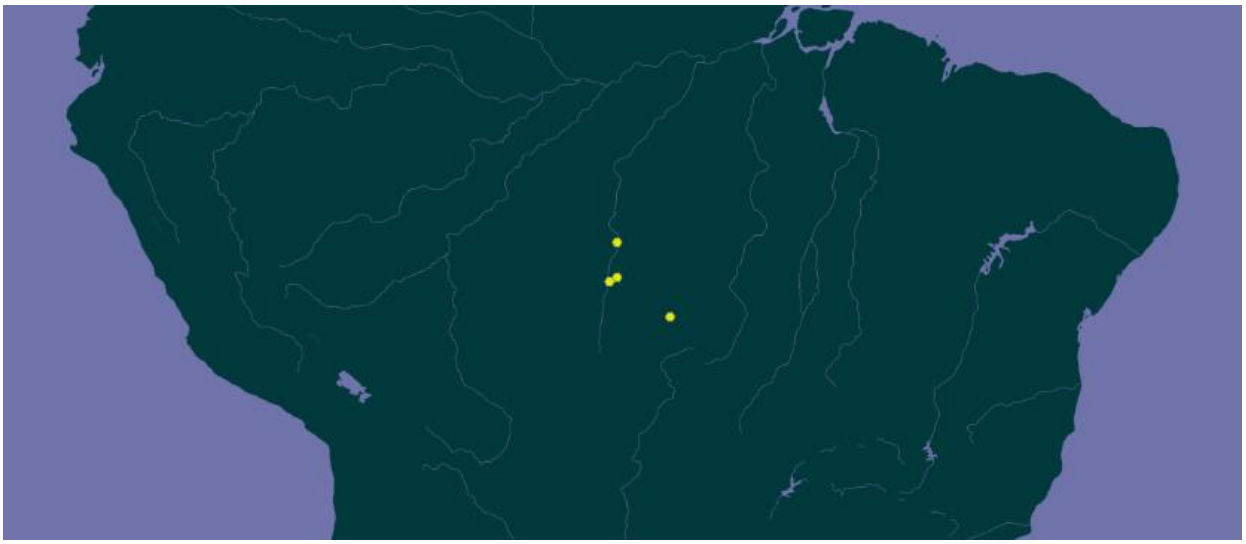


Figure 1. Known global distribution of *Cichla mirianae* in Brazil. Map from GBIF Secretariat (2017).

5 Distribution Within the United States

No known occurrences.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2018; 16 climate variables; Euclidean Distance) was low throughout the contiguous U.S., reflected in a Climate 6 proportion of 0.0. The range for Climate 6 proportions indicating a low climate match is 0.000 to 0.005. The highest match was 4 out of 10 which was found in Southwestern Florida. Majority of the United States recorded 0 out of 10.

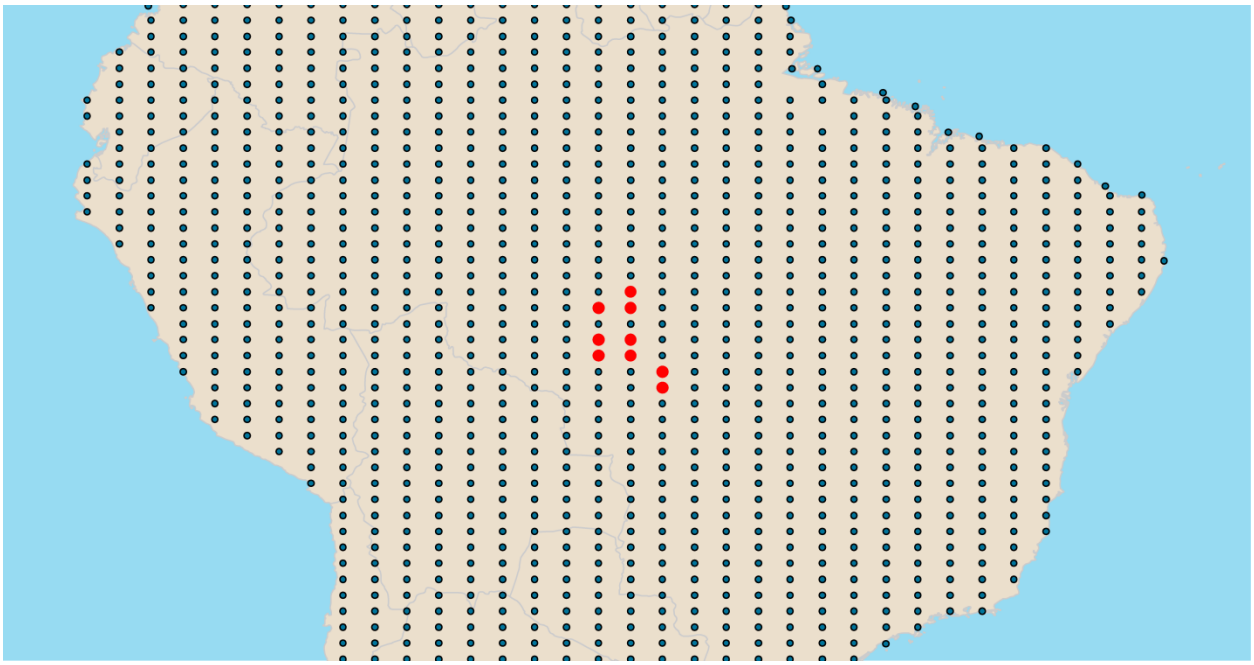


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations selected as source locations (red; central Brazil) and non-source locations (gray) for *Cichla mirianae* climate matching. Source locations from GBIF Secretariat (2017).

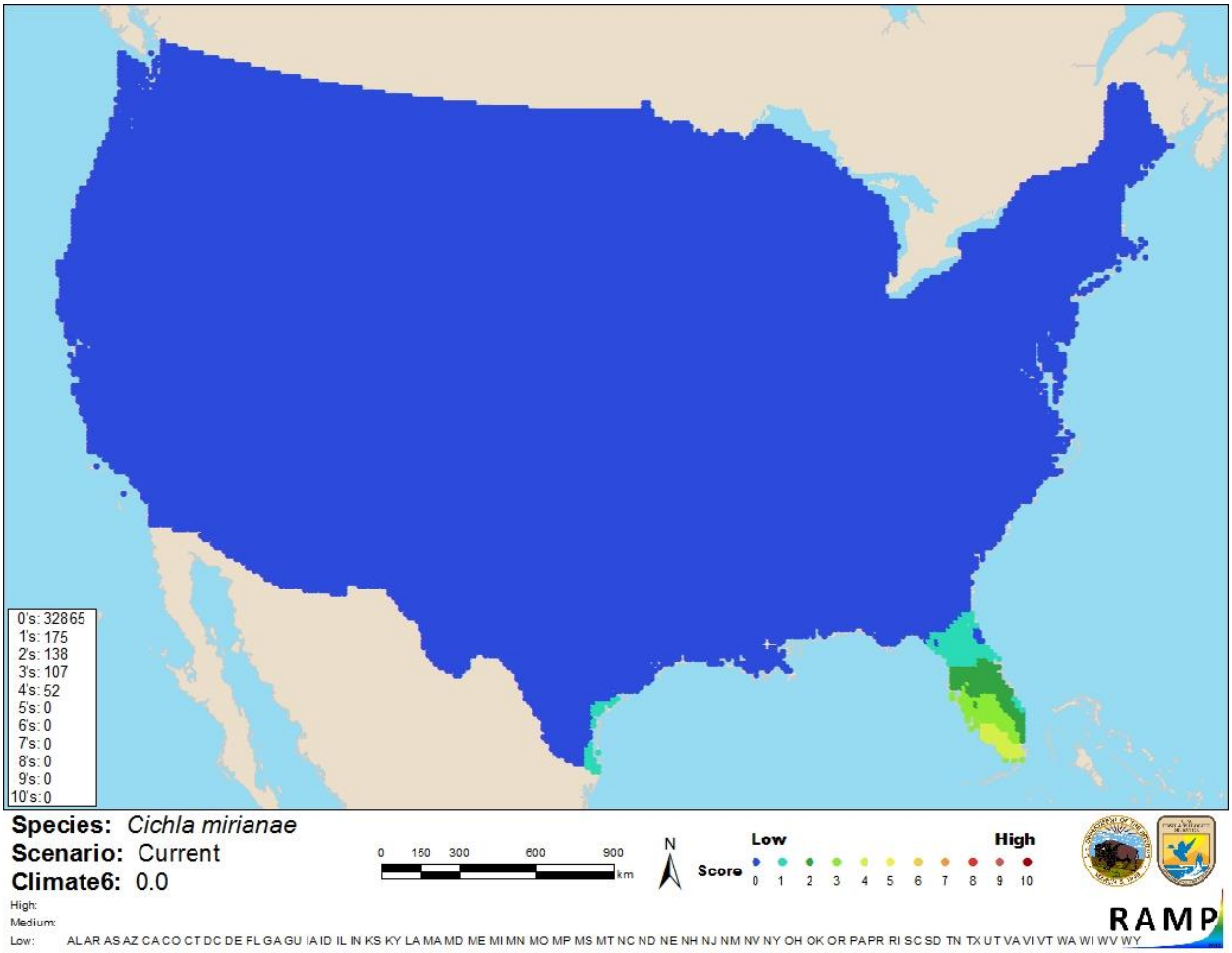


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Cichla mirianae* in the contiguous United States based on source locations reported by GBIF Secretariat (2017). 0= Lowest match, 10=Highest match. Counts of climate match scores are tabulated on the left.

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 biology and ecology of *Cichla mirianae* are poorly known. There are no records showing introductions of this species outside of its native range. Little information is known to conclude what kind of effect it could have if it were introduced. Due to lack of information, the certainty of assessment is low. More information is needed to elevate the assessment to medium of high certainty.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Cichla mirianae is native to the Amazon River basin in central Brazil. There is no documented history of introduction and a low climate match with the contiguous United States for *C. mirianae*. This species is not known to be in the aquarium or aquaculture industry. The lack of research and data makes the certainty of assessment low and the overall risk is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): Low**
- **Certainty of Assessment (Sec. 7): Low**
- **Overall Risk Assessment Category: Uncertain**

9 References

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GBIF Secretariat. 2017. GBIF backbone taxonomy: *Cichla mirianae* Kullander & Ferreira, 2006. Global Biodiversity Information Facility, Copenhagen. Available: https://www.gbif.org/species/5208141. (May 2018).

Kullander, S. O., and E. J. G. Ferreira. 2006. A review of the South American cichlid genus *Cichl*a, with descriptions of nine new species. Ichthyological Exploration of Freshwaters 17:289-398.

Moore, A., N. Marton, and A. McNee. 2010. A strategic approach to the management of ornamental fish in Australia. Communication strategy and grey list review – a report to OFMIG. Bureau of Rural Sciences, Canberra, Australia. Available: https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0008/637145/OrnamentalFishManagementReport2010.pdf. (May 2018).

Moravec, F., and B. Diggles. 2015. *Philometra mirabilis* sp. n. (Nematoda: Philometridae), a new gonad-infecting parasite from the freshwater fish *Cichla mirianae* (Cichlidae) in Brazilian Amazon. Parasitology Research 114(5):1929-1932.

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