

## ***Ituglanis mambai* (a catfish, no common name)**

### **Ecological Risk Screening Summary**

U.S. Fish & Wildlife Service, December 2016

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Photo: Bichuette and Trajano (2008). Licensed under Creative Commons BY-NC.

## **1 Native Range and Status in the United States**

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### **Native Range**

From Froese and Pauly (2016):

“South America: single subterranean stream inside the Lapa do Sumidouro Cave in Brazil.”

### **Status in the United States**

This species has not been reported in the United States.

From FFWCC (2016):

“Prohibited nonnative species 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. [...]

Freshwater Aquatic Species [...]

Parasitic catfishes [...]

*Ituglanis mambai*”

## Means of Introductions in the United States

This species has not been reported in the United States.

## 2 Biology and Ecology

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### Taxonomic Hierarchy and Taxonomic Standing

From GBIF (2016):

“KINGDOM Animalia  
PHYLUM Chordata  
CLASS Actinopterygii  
ORDER Siluriformes  
FAMILY Trichomycteridae  
GENUS *Ituglanis*  
SPECIES *Ituglanis mambai*”

“TAXONOMIC STATUS  
accepted species”

### Size, Weight, and Age Range

From Froese and Pauly (2016):

“Max length : 6.8 cm SL male/unsexed; [Bichuette & Trajano 2008]”

### Environment

From Bichuette and Trajano (2008):

“*Ituglanis mambai* inhabits a subterranean stream inside the Lapa do Sumidouro Cave. The stream reach where the fishes were observed is characterized by slow to fast-moving waters, 10-90 cm deep on average, and bottom formed basically by sand, silt, some gravels and boulders. [...] Environmental variables measured in September 2004: [...] pH, 7.9; conductivity, 0.141 mSm.cm<sup>-1</sup>; dissolved oxygen, 7.4 mg.l<sup>-1</sup>.”

### Climate/Range

From Froese and Pauly (2016):

“Tropical; [...]”

From Bichuette and Trajano (2008):

“Environmental variables measured in September 2004: water temperature, 23.4°C; [...]”

## Distribution Outside the United States

### Native

From Froese and Pauly (2016):

“South America: single subterranean stream inside the Lapa do Sumidouro Cave in Brazil.”

### Introduced

This species has not been reported as introduced outside of its native range.

## Means of Introduction Outside the United States

This species has not been reported as introduced outside of its native range.

## Short Description

From Froese and Pauly (2016):

“Dorsal soft rays (total): 9; Anal soft rays: 6; Vertebrae: 37 - 38. Can be differentiated from both epigean and cave congeners by the combination of the following features: absence of posterior fontanel (except for *Ituglanis epikarsticus* and *Ituglanis macunaima*; usually 17 pectoral-fin rays (except for *Ituglanis bambui*, *Ituglanis passensis* and *Ituglanis epikarsticus*; 6 pleural ribs (except for *Ituglanis bambui*, *Ituglanis parahybae* and *Ituglanis ramiroi*; total vertebrae 37-38 behind Weberian apparatus (except for *Ituglanis bambui*, *Ituglanis laticeps* and *Ituglanis macunaima*; predorsal length 65.1-70.8% in SL (except for *Ituglanis bambui*); caudal peduncle length 8.4-11.9% in SL; dorsal-fin base length 7.7-11.3% in SL; interorbital width 29.2-36.5% in HL (except for the cave species); mouth width 43.4-64.0% in HL (except for *Ituglanis bambui*; pigmentation intermediary between epigean and cave *Ituglanis* species, composed by irregular light brown spots along the body; variable size of eyes and intermediate between those of epigean and formerly described cave-restricted congeners, with diameter in adults ranging from 0.5-1.0 mm (7.8-10.0% in HL) (except for *Ituglanis cahyensis*. Other diagnostic characters include presence of discrete medial-posterior projection on the maxillae; fronto-lacrimar one half-length of the maxillae and pointed backwards; posterior process of palatine half its length, with a tenuous medial concavity; 14 dorsal and 12 ventral procurent rays [Bichuette and Trajano 2008].”

## Biology

From Bichuette and Trajano (2008):

“Visual censuses, carried out in two occasions and covering an area approximately 300 m long and 1.5 m wide, resulted in minimum population densities varying from 0.12 inds.m<sup>-2</sup> (September 2004, end of the dry season) to 0.04 inds.m<sup>-2</sup> (April 2007, beginning of the dry season). [...] All observed individuals were solitary, with swimming activity on the bottom and sometimes in the midwater. In the natural habitat, *I. mambai* catfish displayed cryptobiotic habits, trying to hide into the gravels and under boulders when disturbed, apparently showing a negative response to carbide and flashlight. It was observed a preference to slow-moving pools.”

“For cavefish standards (Trajano, 2001), the population densities recorded by visual censuses on two occasions, respectively at the beginning and at the end of the dry season, may be considered low (0.04 inds.m<sup>-2</sup>, beginning of the dry season) to moderate (0.12 inds.m<sup>-2</sup>, end of the dry season). The lower number of individuals visualized at the beginning of the dry season may be due to floods on the previous rainy season, washing away some fish and/or to a tendency to remain sheltered until heavy rains ceased. Lowered condition factor values at the end of the dry season, similar to the observed for *Ituglanis mambai* were also reported for *Pimelodella spelaea* (Trajano et al., 2004), indicating a food-limited regime, intensified along the dry season due to an accentuated shortage of water-carried nutrients. The lack of specializations to cope with the food shortage is another evidence of a relatively short time in isolation in the subterranean habitat for both species.”

## Human Uses

No information available.

## Diseases

No information available.

## Threat to Humans

From Froese and Pauly (2016):

“Harmless”

## 3 Impacts of Introductions

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This species has not been reported as introduced outside of its native range.

From FFWCC (2016):

“Prohibited nonnative species 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. [...]

Freshwater Aquatic Species [...]

Parasitic catfishes [...]

*Ituglanis mambai*”

## 4 Global Distribution

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**Figure 1.** Known global established locations in Brazil of *Ituglanis mambai*. Map from GBIF (2016).

## 5 Distribution Within the United States

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This species has not been reported within the United States.

## 6 Climate Matching

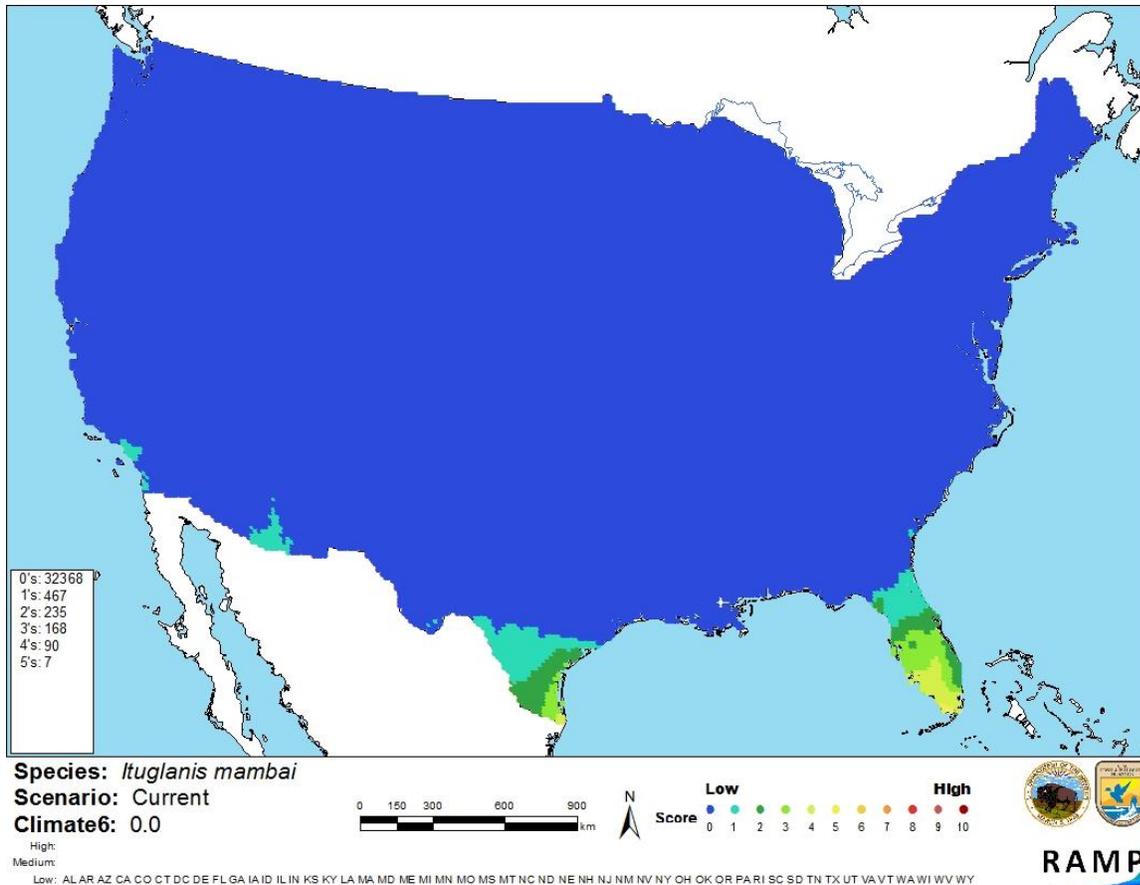
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### Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) for *Ituglanis mambai* was medium in southern Florida and far southern Texas. The climate match was low throughout the remainder of the contiguous U.S. Climate 6 proportion indicated that the contiguous U.S. was a low climate match overall. The range of proportions indicating a low climate match is 0.000-0.005; the Climate 6 proportion for *I. mambai* was 0.0.



**Figure 2.** RAMP (Sanders et al. 2014) source map of South America showing weather stations selected as source locations (red; in Brazil) and non-source locations (gray) for *Ituglanis mambai* climate matching. Source locations from GBIF (2016).



**Figure 3.** Map of RAMP (Sanders et al. 2014) climate matches for *Ituglanis mambai* in the contiguous United States based on source locations reported by GBIF (2016). 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
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
$\geq 0.103$	High

## 7 Certainty of Assessment

There was limited information available on the species *Ituglanis mambai*. This species has not been reported outside of its native range so impacts of introduction are unknown. Certainty of this assessment is low.

## 8 Risk Assessment

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### Summary of Risk to the Contiguous United States

*Ituglanis mambai* is a trichomycterid catfish found within a single subterranean stream in Brazil. There have been no reports of this fish outside of its native range. As with other trichomycterids, *I. mambai* is classified as a prohibited species in the state of Florida. Due to a low climate match and absence of introduction history, the overall risk posed by *I. mambai* 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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**Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 10.**

- Bichuette, M. E., and E. Trajano. 2008. *Ituglanis mambai*, a new subterranean catfish from a karst area of Central Brazil, rio Tocantins basin (Siluriformes: Trichomycteridae). *Neotropical Ichthyology* 6(1):9-15.
- FFWCC (Florida Fish and Wildlife Conservation Commission). 2016. Prohibited species list. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida. Available: <http://myfwc.com/wildlifehabitats/nonnatives/regulations/prohibited/#nogo>. (December 2016).
- Froese, R., and D. Pauly, editor. 2016. *Ituglanis mambai* Bichuette & Trajano, 2008. FishBase. Available: <http://www.fishbase.org/summary/Ituglanis-mambai.html>. (December 2016).
- GBIF (Global Biodiversity Information Facility). 2016. GBIF backbone taxonomy: *Ituglanis mambai* Bichuette & Trajano, 2008. Global Biodiversity Information Facility, Copenhagen. Available: <http://www.gbif.org/species/2342920>. (December 2016).
- Sanders, S., C. Castiglione, and M. H. Hoff. 2014. Risk Assessment Mapping Program: RAMP. U.S. Fish and Wildlife Service.

## 10 References Quoted But Not Accessed

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**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.**

Trajano, E. 2001. Ecology of subterranean fishes: an overview. *Environmental Biology of Fishes* 62:133-160.

Trajano, E., R. E. Reis, and M. E. Bichuette. 2004. *Pimelodella spelaea*: a new cave catfish from Central Brazil, with data on ecology and evolutionary considerations. *Copeia* 2004(2):315-325.