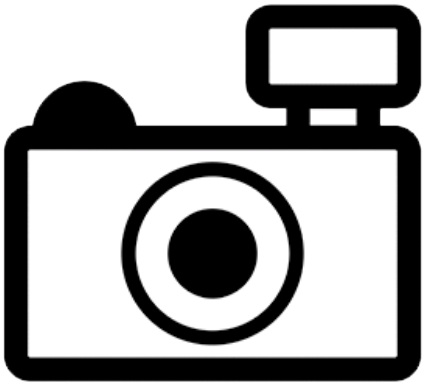
Hypostomus mutucae (a catfish, no common name)
Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, February 2012
Revised, September 2018
Web Version, 4/1/2019



1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2018):

"South America: Cuiabá River basin, Brazil."

Status in the United States

This species has not been reported as introduced or established in the United States. However, unidentified members of the genus are established in the United States.

From Nico et al. (2018):

"Several morphologically distinct but unidentified *Hypostomus* species have been recorded as established in the United States: these included populations in Indian Springs in Nevada; Hillsborough County in Florida; and the San Antonio River and San Felipe Creek in Texas (Courtenay and Deacon 1982; Courtenay et al. 1984, 1986; Courtenay and Stauffer 1990; Page and Burr 1991; López-Fernández and Winemiller 2005). A population of an unidentified *Hypostomus* species is firmly established in Hawaii (Devick 1991a, b). Reported from Arizona,

Colorado, Connecticut, Louisiana, and Pennsylvania. Failed in Connecticut, Massachusetts, and Pennsylvania."

Top Shelf Aquatics, a Cincinnati, Ohio-based aquarium retailer, includes *H. mutucae* on its stock list published in July 2016 (Top Shelf Aquatics 2016). However, the species is not present on the September 2018 stock list.

Means of Introduction into the United States

This species has not been reported as introduced or established in the United States. However, unidentified members of the genus are established in the United States.

From Nico et al. (2018):

"Members of this genus have been introduced through a combination of fish farm escapes or releases, and aquarium releases (Courtenay and Stauffer 1990; Courtenay and Williams 1992). In Texas, the initial introduction occurred when *Hypostomus* entered local streams after escaping from pool and canal systems of the San Antonio Zoological Gardens in or before 1962 (Barron 1964); the Comal County introduction was probably due to an aquarium release (Whiteside and Berkhouse 1992)."

Remarks

From Nico et al. (2018):

"The genus *Hypostomus* contains about 116 species (Burgess 1989). Highlighting the serious need for additional taxonomic and systematic work, Armbruster (1997) concluded that it is currently impossible to identify most species in the genus. Several apparently different *Hypostomus* species have been collected in the United States but not definitively identified to species level (Page and Burr 1991; Courtenay and Stauffer 1990). Distinguishing characteristics of the genus and a key to loricariid genera were provided by Burgess (1989) and Armbruster (1997). Photographs appeared in Burgess (1989) and Ferraris (1991). *Hypostomus* has officially replaced the generic name *Plecostomus*. The genus was included in the key to Texas fishes of Hubbs et al. (1991) and several identifying traits were also given by Page and Burr (1991)."

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2018):

"Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii

Class Teleostei
Superorder Ostariophysi
Order Siluriformes
Family Loricariidae
Subfamily Hypostominae
Genus *Hypostomus*
Species *Hypostomus mutucae* Knaack, 1999"

From Fricke et al. (2019):

"**Current status:** Valid as *Hypostomus mutucae* Knaack 1999. Loricariidae: Hypostominae."

Size, Weight, and Age Range

From Froese and Pauly (2018):

"Max length : 10.9 cm SL male/unsexed; [Zawadzki et al. 2012]"

Environment

From Froese and Pauly (2018):

"Freshwater; demersal."

From Seriously Fish (2018):

"[Aquarium Water] Temperature: 73-82°F (23.0-28.0°C)
pH: 6.2-7.6
Hardness: 2-15°H"

Climate/Range

From Froese and Pauly (2018):

"Tropical"

Distribution Outside the United States

Native

From Froese and Pauly (2018):

"South America: Cuiabá River basin, Brazil."

Introduced

No introductions of this species have been reported.

Means of Introduction Outside the United States

No introductions of this species have been reported.

Short Description
From Zawadzki et al. (2012):

"[…] caudal peduncle compressed, depth approximately twice the width at adipose-fin origin […]"

"[…] high number of teeth and dark spots on the body […]"

"[…] an unusually wide mouth and snout […]"

Biology
From Seriously Fish (2018):

"It inhabits flowing, highly oxygenated waters running over sandy substrates that are scattered with rocks and stones."

"Primarily vegetarian […]"

Human Uses
From Seriously Fish (2018):

"It's suprising [*sic*] that this relatively unknown species is not more popular in the hobby, given its small adult size and peaceable nature."

Top Shelf Aquatics, a Cincinnati, Ohio-based aquarium retailer, includes *H. mutucae* on its stock list published in July 2016 (Top Shelf Aquatics 2016). However, the species is not present on the September 2018 stock list.

Diseases
Information not available. No OIE-reportable diseases (OIE 2019) have been documented in this species.

Threat to Humans
From Froese and Pauly (2018):

"Harmless"

3 Impacts of Introductions
No introductions of *H. mutucae* have been reported outside its native range, so no impacts of introduction are known. However, unidentified members of the genus are established in the United States.

From Nico et al. (2018):

"The effects of these loricariid catfish is largely unknown. In Texas, Hubbs et al. (1978) reported possible local displacement of algae-feeding native fishes such as *Campostoma anomalum* by *Hypostomus*, and López-Fernández and Winemiller (2005) suggest that reductions in *Dionda diaboli* abundance in portions of San Felipe Creek are due to population increases of *Hypostomus*. Because of their abundance in Hawaii, introduced *Hypostomus*, *Pterygoplichthys*, and *Ancistrus* may compete for food and space with native stream species (Devick 1989; Sabaj and Englund 1999)."

4 Global Distribution

No georeferenced occurrences of this species have been reported (GBIF Secretariat 2017).

Figure 1. Map of Brazil with the Cuiabá River indicated with the red dot. *Hypostomus mutucae* is native to the Cuiabá River. Map: NordNordWest. Licensed under Creative Commons (BY-SA 3.0). Available: https://commons.wikimedia.org/w/index.php?curid=7488743. (September 2018).

5 Distribution within the United States

There is currently no known distribution of *Hypostomus mutucae* within the United States; however, unidentified species of *Hypostomus* are established in Nevada, Florida, Texas, and Hawaii.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2018; 16 climate variables; Euclidean Distance) was low throughout most of the contiguous United States. There were medium matches in coastal Texas and in much of peninsular Florida, and high matches in southern Florida. The Climate 6 score indicated that the contiguous United States has a low climate match overall. Scores of 0.005 and below are classified as low match; Climate 6 score for *H. mutucae* was 0.005. Florida had a high climate score, while all other states in the contiguous United States had a low score.

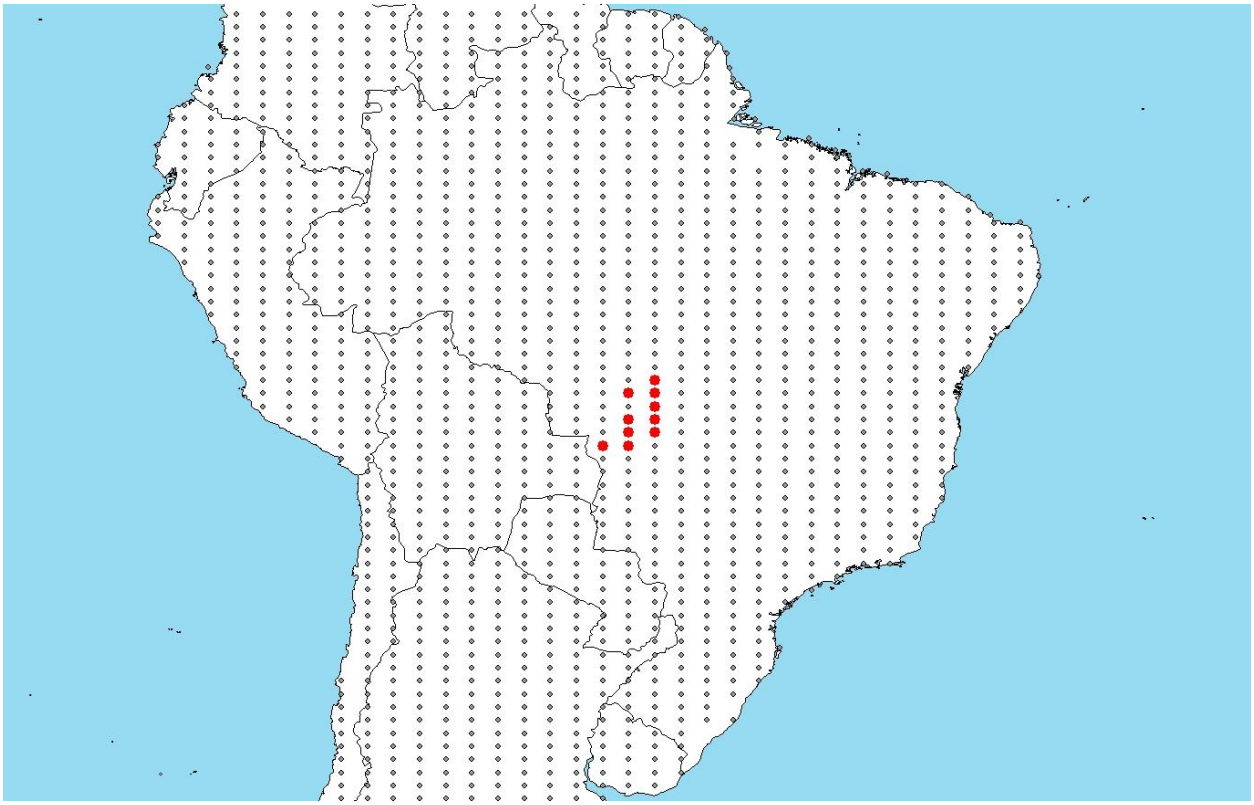


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations selected as source locations (red; Brazil) and non-source locations (gray) for *Hypostomus mutucae* climate matching. Source locations estimated from verbal description in Froese and Pauly (2018).

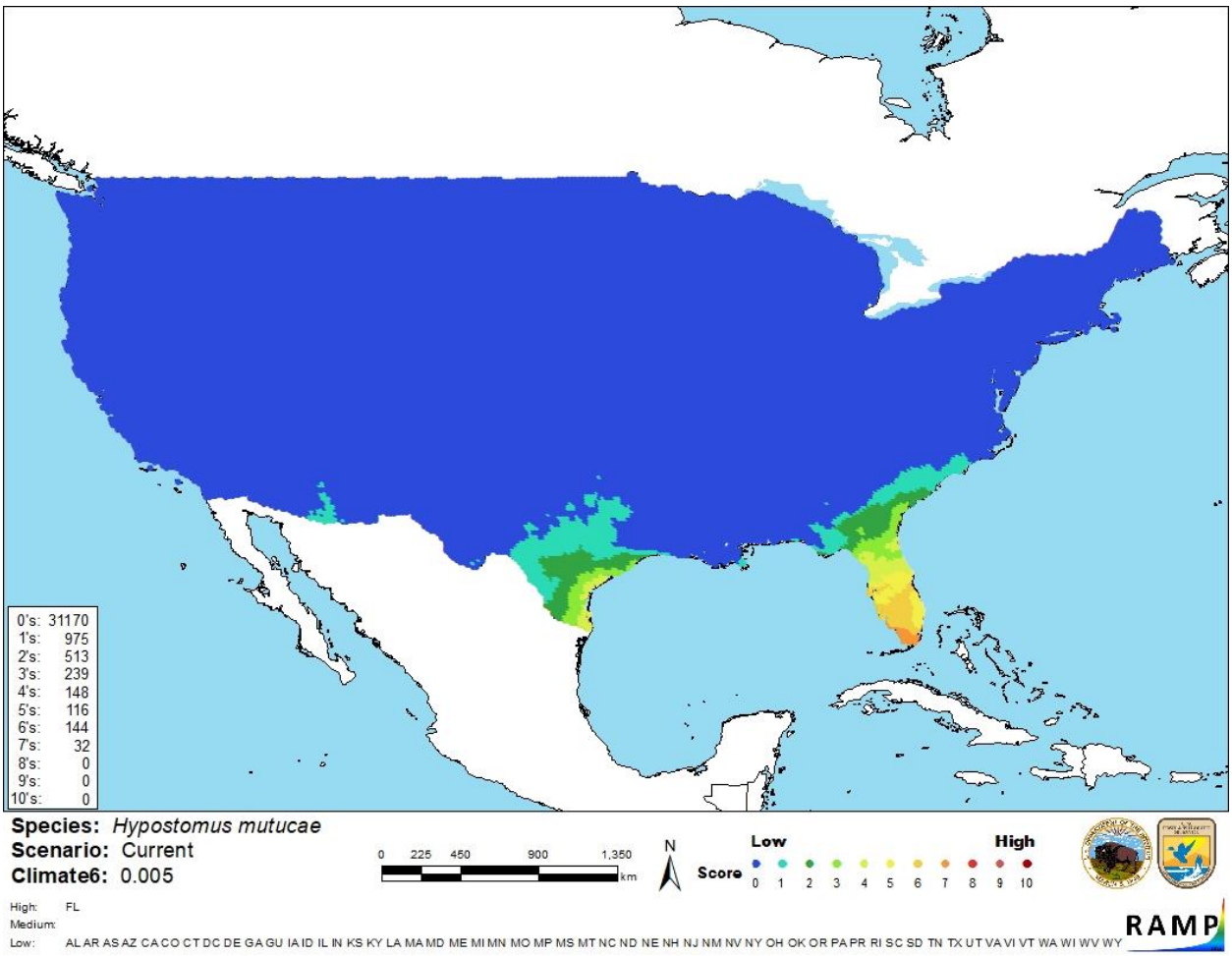


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Hypostomus mutucae* in the contiguous United States based on source locations reported by Froese and Pauly (2018). 0= Lowest match, 10= Highest match.

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

Limited information was available on the biology, ecology, and distribution of *H. mutucae*. It has not been reported as introduced outside its native range, so no impacts of introduction are known. However, unidentified species of *Hypostomus* have become established in the United States, and it is possible that one or more of those populations could be identified later as *H. mutucae*. There is considerable uncertainty about the taxonomy of this genus and about species-level identification. No georeferenced occurrences were available for climate-matching,

so the climate match was prepared based on a verbal description of the range. Certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Hypostomus mutucae is a catfish native to the Cuiabá River basin in Brazil. This species has no documented history of introduction in the United States or elsewhere outside its native range. However, unidentified species of *Hypostomus* are established in the United States. History of invasiveness is uncertain. *H. mutucae* was present in the aquarium trade in the United States in recent years, but it is not known to be in trade currently. The climate match to the contiguous United States was low overall, but there was a high match in southern Florida and medium match in coastal Texas and other parts of peninsular Florida. Because of the lack of documented introduction history, substantial taxonomic uncertainty, and a lack of georeferenced occurrences for climate matching, certainty of this assessment is low and overall risk is uncertain.

Assessment Elements

- **History of Invasiveness: Uncertain**
- **Climate Match: Low**
- **Certainty of Assessment: Low**
- **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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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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