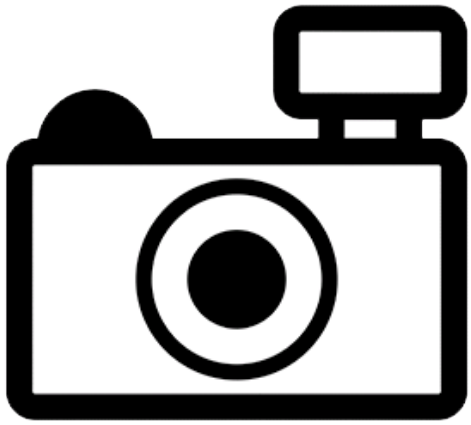
Trichomycterus tupinamba (a catfish, no common name)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, February 2017
Revised, March 2018
Web Version, 8/13/2020

Organism Type: Fish
Overall Risk Assessment Category: Uncertain



1 Native Range and Status in the United States

Native Range

From Eschmeyer et al. (2017):

"Distribution: Tributaries of Ribeira de Iguapé River southeastern Brazil."

From Wosiacki and Oyakawa (2005):

"Known from the localities of the type series, rivers Betari and Iporanga, both tributaries of the rio Ribeira de Iguape."

Status in the United States

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

From Arizona Secretary of State (2006):

"Fish listed below are restricted live wildlife [in Arizona] as defined in R12-4-401. […] South American parasitic catfish, all species of the family Trichomycteridae and Cetopsidae […]"

From Dill and Cordone (1997):

"[…] At the present time, 22 families of bony and cartilaginous fishes are listed [as prohibited in California], e.g. all parasitic catfishes (family Trichomycteridae) […]"

From FFWCC (2019):

"Nonnative Conditional species (formerly referred to as restricted species) and Prohibited species are considered to be dangerous to Florida's native species and habitats or could pose threats to the health and welfare of the people of Florida. These species are not allowed to be personally possessed, but can be imported and possessed by permit for research or public exhibition; Conditional species may also be possessed by permit for commercial sales. Facilities where Conditional or Prohibited species are held must meet certain biosecurity criteria to prevent escape."

Trichomycterus tupinamba (misspelled as "*Trichomycterus tupinamb*") is listed as a Prohibited species in Florida.

From Louisiana House of Representatives Database (2010):

"No person, firm, or corporation shall at any time possess, sell, or cause to be transported into this state [Louisiana] by any other person, firm, or corporation, without first obtaining the written permission of the secretary of the Department of Wildlife and Fisheries, any of the following species of fish: […] all members of the families […] *Trichomycteridae* (pencil catfishes) […]"

From Mississippi Secretary of State (2019):

"All species of the following animals and plants have been determined to be detrimental to the State's native resources and further sales or distribution are prohibited in Mississippi. No person shall import, sell, possess, transport, release or cause to be released into the waters of the state any of the following aquatic species or hybrids thereof.
[The list includes all species of] Family Trichomycteridae"

From Legislative Council Bureau (2018):

"Except as otherwise provided in this section and NAC [Nevada Administrative Code] 504.486, the importation, transportation or possession of the following species of live wildlife or hybrids thereof, including viable embryos or gametes, is prohibited [in Nevada]: […]
All species in the families Cetopsidae and Trichomycteridae"

From Utah DNR (2012):

"All species of fish listed in Subsections (2) through (30) are classified [in Utah] as prohibited for collection, importation and possession […]
Parasitic catfish (candiru, carnero) family Trichomycteridae (All species)"

Means of Introductions in the United States

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

Remarks

According to Wosiacki and Oyakawa (2005), *T. tupinamba* is very similar in appearance to congeners *T. plumbeus* and *T. guaraquessaba*.

From Wosiacki and Oyakawa (2005):

"Trichomycterus tupinamba is distinguished from *T. plumbeus* and *T. guaraquessaba* by having a color pattern composed of a narrow dark mid-lateral stripe from opercle to vertical through anal-fin origin, absent in the later species."

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From GBIF Secretariat (2016):

Kingdom Animalia
Phylum Chordata
Class Actinopterygii
Order Siluriformes
Family Trichomycteridae
Genus *Trichomycterus*
Species *Trichomycterus tupinamba*

From Eschmeyer et al. (2017):

"Current status: Valid as *Trichomycterus tupinamba* Wosiacki & Oyakawa 2005. Trichomycteridae: Trichomycterinae."

Size, Weight, and Age Range

From Wosiacki and Oyakawa (2005):

"[…] a pectoral-girdle width of 13.1-17.7 % of standard length, and a caudal-peduncle depth of 8.7-10.3 % of standard length."

Environment
From Eschmeyer et al. (2017):

"Freshwater"

From Froese and Pauly (2016):

"[…] demersal."

Climate
From Froese and Pauly (2016):

"Tropical, preferred ?"

Distribution Outside the United States
Native
From Eschmeyer et al. (2017):

"Distribution: Tributaries of Ribeira de Iguapé River southeastern Brazil."

From Wosiacki and Oyakawa (2005):

"Known from the localities of the type series, rivers Betari and Iporanga, both tributaries of the rio Ribeira de Iguape."

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

Means of Introduction Outside the United States
This species has not been reported as introduced or established outside of its native range.

Short Description
From Wosiacki and Oyakawa (2005):

"*Trichomycterus tupinamba* differs from the other species of the Trichomycterinae in having the first pectoral-fin ray not prolonged as a filament, the caudal fin is truncate with attenuated edges, two paired supraorbital pores s6, eye oriented dorsally, a subterminal mouth, anal and urogenital openings mid-way between the pelvic-fin margin and anal-fin origin, a dark spot at the base of the nasal barbel, a longitudinal row of dark spots along the midline of the flank from the opercle to the caudal-fin base […]"

Biology

From Wosiacki and Oyakawa (2005):

"The rio Betari at PETAR, the type locality of *Trichomycterus tupinamba*, is a clearwater river with strong to moderate current flowing over rocky beds intercalated with pools in karstic area. The river runs in an alluvial valley bordered by adjacent hills, and the riparian vegetation is composed of relatively well-preserved forest. Bellow the PETAR there are several human settlements near the rio Betari which release sewage into the river."

"*Trichomycterus tupinamba* and other siluriforms are found associated with stones and vegetable debris on the bottom. The following species of fish occur syntopically with *Trichomycterus tupinamba*: *T. davisi*, *Isbrueckerichthys alipionis* (Gosline), *Neoplecostomus ribeirensis* Langeani, *Harttia kronei* Miranda-Ribeiro, *Rhamdioglanis frenatus* Ihering, *Chasmocranus lopezi* Miranda-Ribeiro, *Bryconamericus microcephalus* (Miranda-Ribeiro), and *Characidium pterostictum* Gomes."

Human Uses

No information reported for this species.

Diseases

No OIE-reportable diseases (OIE 2020) have been documented for this species.

Threat to Humans

From Froese and Pauly (2016):

"Harmless"

3 Impacts of Introductions

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

The importation, possession, or trade of the catfish *T. tupinamba* is prohibited or restricted in the following states: Arizona (Arizona Secretary of State 2006), California (Dill and Cordone 1997), Florida (FFWCC 2019), Louisiana (Louisiana House of Representatives Database 2010), Mississippi (Mississippi Secretary of State 2019), Nevada (Legislative Council Bureau 2018), and Utah (Utah DNR 2012).

4 History of Invasiveness

The history of invasiveness is classified as No Known Nonnative Population. This species has not been reported as introduced or established outside of its native range, and it is not in trade. Its importation, possession, or trade is prohibited or restricted in several U.S. States.

5 Global Distribution

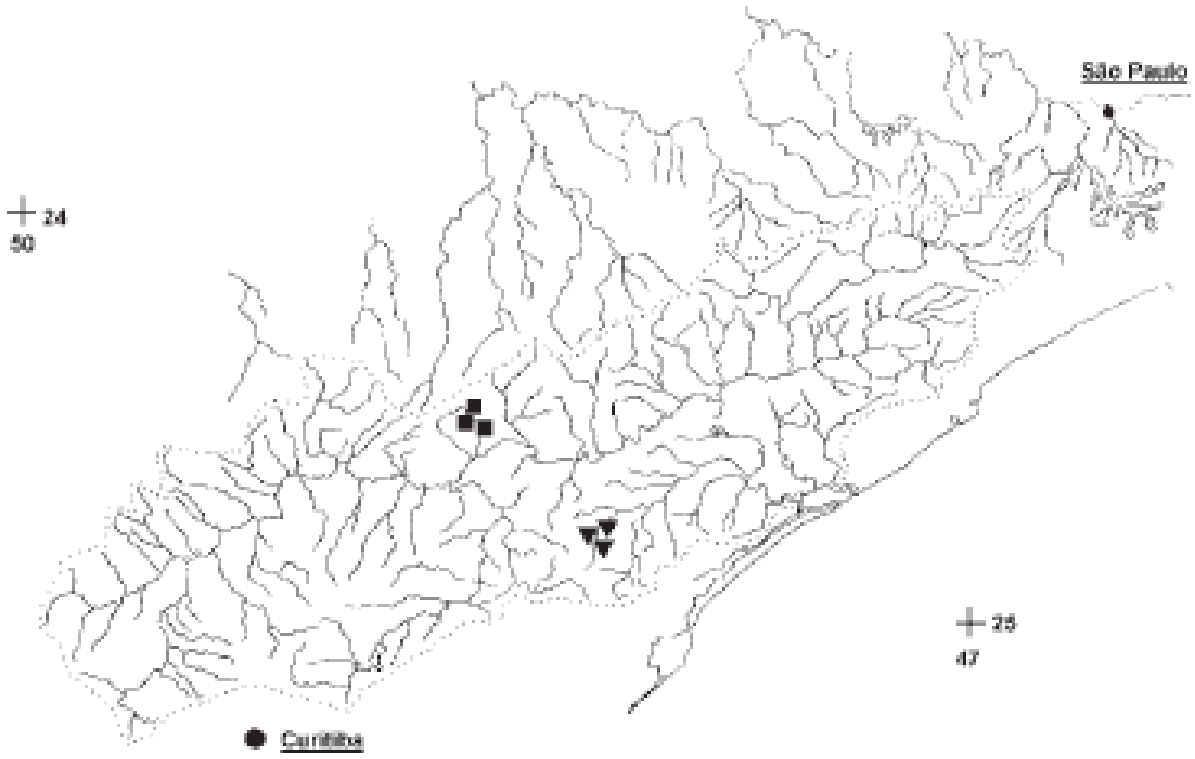


Figure 1. Known global distribution of *Trichomycterus tupinamba* in southeastern Brazil, represented by black squares. Map from Wosiacki and Oyakawa (2005). Licensed under Creative Commons (CC BY).

6 Distribution Within the United States

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

7 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) was medium in the coastal Southeast from Maryland to Texas, with high match in eastern Georgia, eastern Florida, and eastern Texas. Low matches occurred throughout the remainder of the contiguous United States. Climate 6 score indicated that the contiguous United States has a medium overall climate match (scores between 0.005 and 0.103, exclusive, are classified as medium). The Climate 6 score for *Trichomycterus tupinamba* is 0.020. Florida, Georgia and South Carolina had high individual climate scores, Texas had a medium individual climate score, and the remaining States had low individual climate scores.

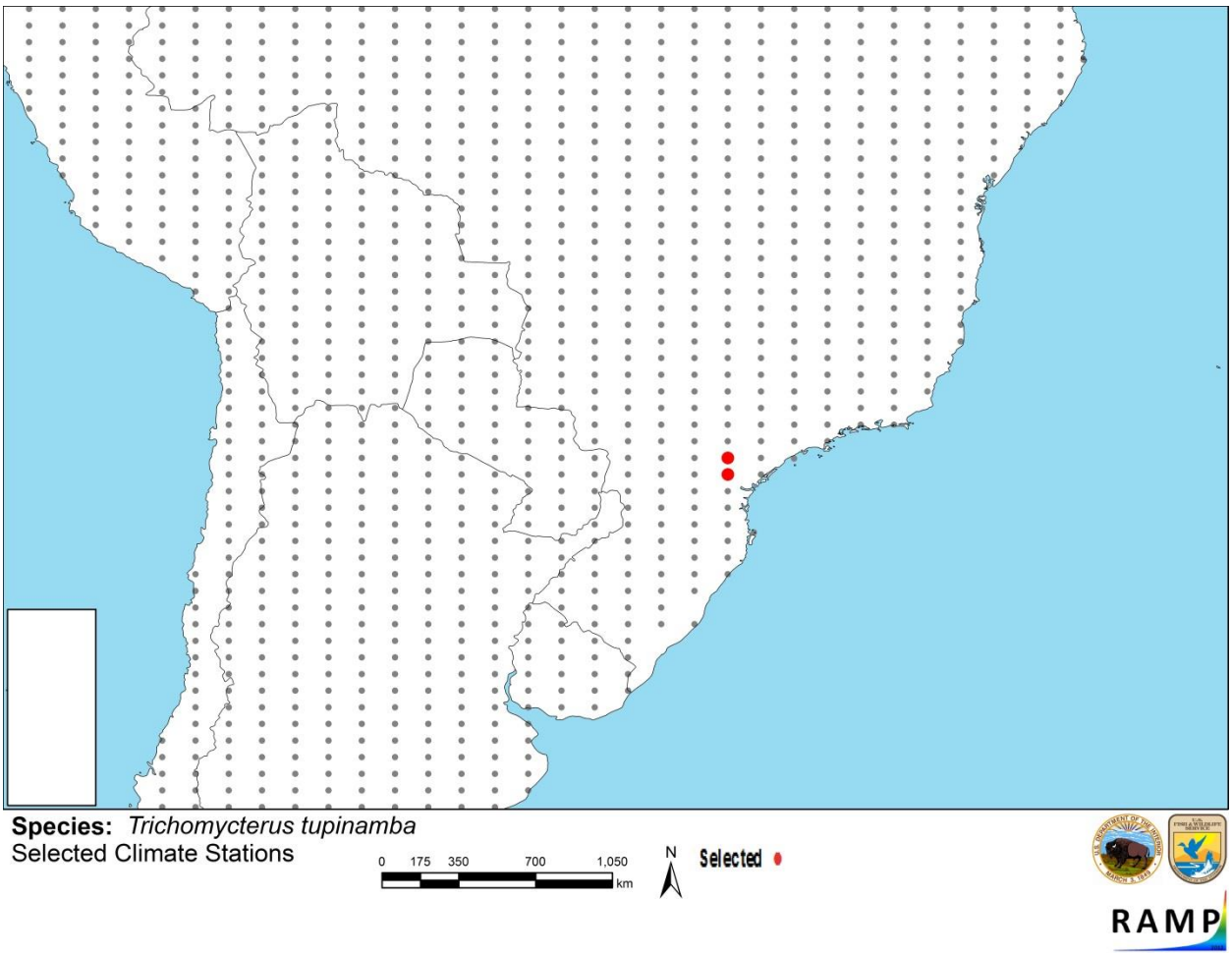


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red; Brazil) and non-source locations (gray) for *Trichomycterus tupinamba* climate matching. Source locations based on distribution map from Wosiacki and Oyakawa (2005). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

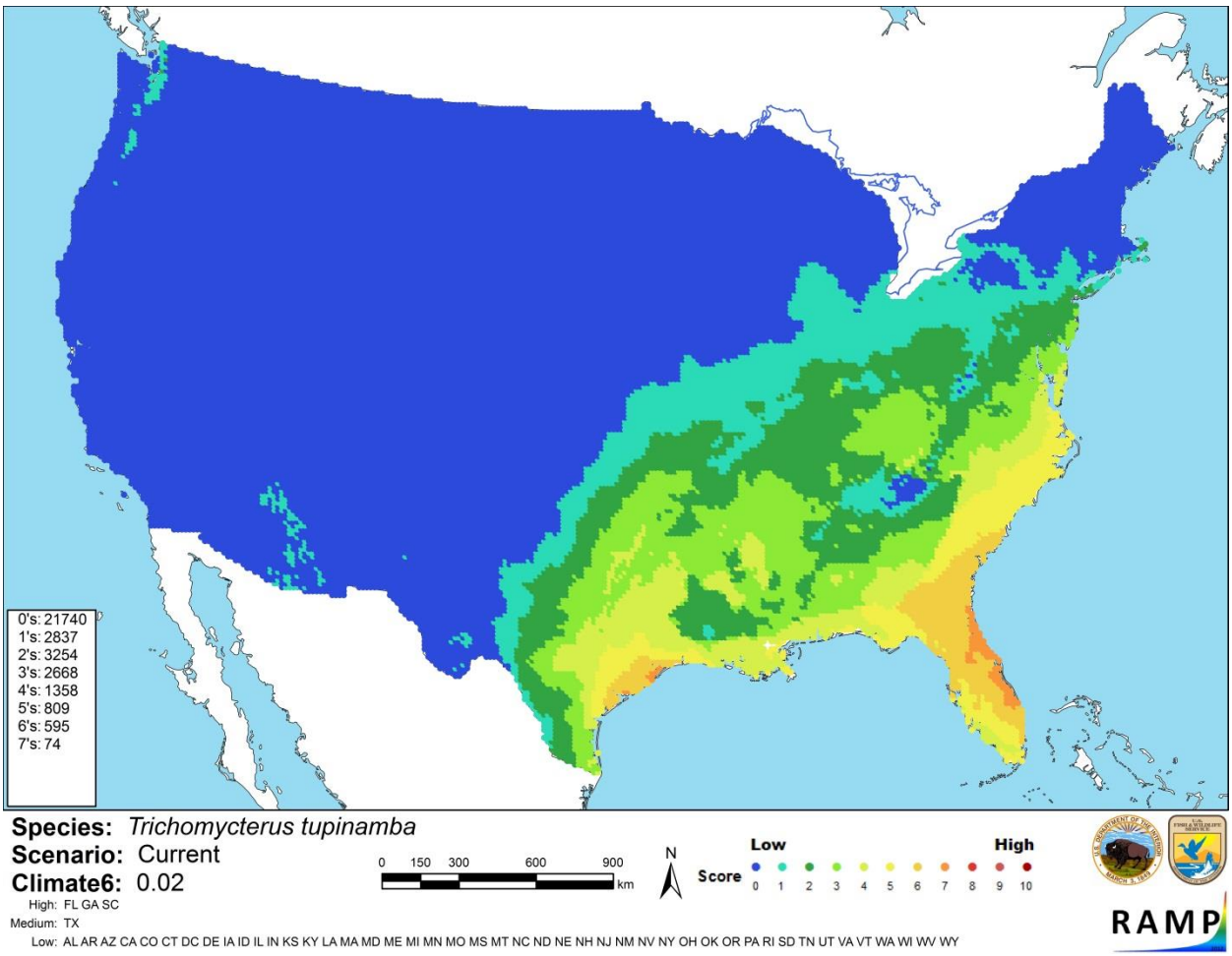


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Trichomycterus tupinamba* in the contiguous United States based on source locations reported by Wosiacki and Oyakawa (2005). Counts of climate match scores are tabulated on the left. 0/Blue = Lowest match, 10/Red = Highest match.

The High, Medium, and Low Climate match Categories are based on the following table:

Climate 6: (Count of target points with climate scores 6-10)/ (Count of all target points)	Overall Climate Match Category
0.000≤X≤0.005	Low
0.005<X<0.103	Medium
≥0.103	High

8 Certainty of Assessment

Information on the distribution and biology of *Trichomycterus tupinamba* is available. This species has not been reported as introduced outside of its native range, so data on impacts of introduction are lacking. Certainty of this assessment is low.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Trichomycterus tupinamba is a small catfish native to two tributaries of the Ribeira de Iguape River in southeastern Brazil. It is not known to be in trade in the United States, and several States have prohibitions or restrictions on its importation, possession, or trade. This species has not been reported outside of its very limited native range. Therefore, history of invasiveness is classified as No Known Nonnative Population. Certainty of this assessment is low due to lack of information on the species. *T. tupinamba* has a medium overall climate match with the contiguous United States, with high match in eastern Florida, Georgia, and Texas but low match across much of the northern and western United States. Overall risk posed by this species is Uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): No Known Nonnative Population**
- **Climate Match (Sec. 7): Medium**
- **Certainty of Assessment (Sec. 8): Low**
- **Remarks, Important additional information: None**
- **Overall Risk Assessment Category: Uncertain**

10 Literature Cited

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 11.

Arizona Secretary of State. 2006. Restricted live wildlife. Arizona Administrative Code, R12-4-406.

Dill, W. A., and A. J. Cordone. 1997. History and status of introduced fishes in California, 1871-1996. California Department of Fish and Game. Fish Bulletin 178.

Eschmeyer WN, Fricke R, van der Laan R, editors. 2017. Catalog of fishes: genera, species, references. California Academy of Science. Available: http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp (February 2017).

FFWCC (Florida Fish and Wildlife Conservation Commission). 2019. Florida's nonnative fish and wildlife. Tallahassee, Florida: Florida Fish and Wildlife Conservation Commission. Available: https://myfwc.com/wildlifehabitats/nonnatives/. (November 2019).

Froese R, Pauly D, editors. 2016. *Trichomycterus tupinamba* (Wosiacki and Oyakawa 2005). FishBase. Available: http://fishbase.sinica.edu.tw/summary/Trichomycterus-tupinamba.html (February 2017).

GBIF Secretariat. 2016. *Trichomycterus tupinamba* (Wosiacki and Oyakawa 2005). Copenhagen: Global Biodiversity Information Facility. Available: http://www.gbif.org/species/2343149 (February 2017).

Legislative Council Bureau. 2018. Restrictions on importation, transportation and possession of certain species. Nevada Administrative Code, Section 503.110.

Louisiana House of Representatives Database. 2010. Exotic fish; importation, sale, and possession of certain exotic species prohibited; permit required; penalty. Louisiana Revised Statutes, Title 56, Section 319.

Mississippi Secretary of State. 2019. Guidelines for aquaculture activities. Mississippi Administrative Code, Title 2, Part 1, Subpart 4, Chapter 11. Jackson, Mississippi: Regulatory and Enforcement Division, Office of the Mississippi Secretary of State.

[OIE] World Organisation for Animal Health. 2020. OIE-listed diseases, infections and infestations in force in 2020. Available: http://www.oie.int/animal-health-in-the-world/oie-listed-diseases-2020/ (February 2020).

Sanders S, Castiglione C, Hoff M. 2018. Risk Assessment Mapping Program: RAMP. Version 3.1. U.S. Fish and Wildlife Service.

Utah DNR. 2012. R657-3 – collection, importation, transportation, and possession of animals. Salt Lake City, Utah: Utah Division of Natural Resources. Available: https://wildlife.utah.gov/hunting-in-utah/guidebooks/46-rules/rules-regulations/940-r657-3--collection-importation-transportation-and-possession-of-animals.html. (May 2018).

Wosiacki WB, Oyakawa OT. 2005. Two new species of the catfish genus *Trichomycterus* (Siluriformes: Tirchomycteridae) from the rio Ribeira de Iguape Basin, southeastern Brazil. Neotropical Ichthyology 3:465-472.

11 Literature Cited in Quoted Material

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.

Eigenmann CH. 1918. The Pygidiidae, a family of South American catfishes. Memoirs of the Carnegie Museum 5:259-398.