

# ***Trichomycterus heterodontus* (a catfish, no common name)**

## **Ecological Risk Screening Summary**

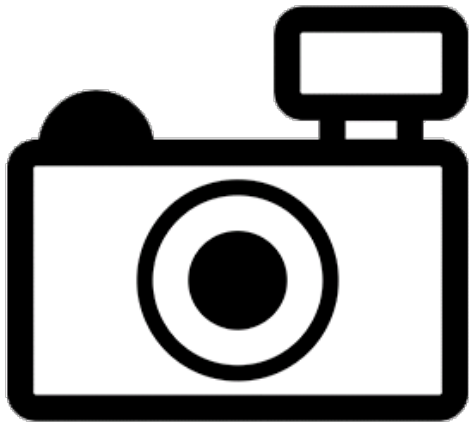
U.S. Fish & Wildlife Service, January 2017

Revised, May 2018

Web Version, 4/27/2021

Organism Type: Fish

Overall Risk Assessment Category: Uncertain



No Photo Available

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

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### **Native Range**

Eschmeyer et al. (2017):

“Mendoza River basin, Argentina and Bolivia”

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

This species has not been reported in the United States. No records of *Trichomycterus heterodontus* in trade in the United States were found.

From Arizona Office of the Secretary of State (2013):

“I. Fish listed below are considered restricted wildlife: [...]”

9. All species of the family Cetopsidae and Trichomycteridae. Common name: South American catfish.”

From California Department of Fish and Wildlife (2019):

“It shall be unlawful to import, transport, or possess live animals restricted in subsection (c) below except under permit issued by the department. [...]

Family Trichomycteridae (Pygidiidae)-Parasitic Catfishes.: All species”

The Florida Fish and Wildlife Conservation Commission has listed *Trichomycterus heterodontus* as a prohibited species. Prohibited nonnative species (FFWCC 2016), "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.

From Georgia DNR (2020):

“The exotic species listed below, except where otherwise noted, may not be held as pets in Georgia. This list is not all inclusive. [...]

Parasitic catfishes; all species”

From Louisiana State Legislature (2019):

“No person, firm, or corporation shall at any time possess, sell, or cause to be transported into this state 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: freshwater electric eel (*Electrophorus* sp.); rudd (*Scardinius erythrophthalmus*); all members of the families *Synbranchidae* (Asian swamp eels); *Channidae* (snakeheads); *Clariidae* (walking catfishes); *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. However, species listed as prohibited may be allowed under a permitting process where environmental impact has been assessed. [...]

Pencil or parasitic catfishes Family Trichomycteridae \*\*\*\* [indicating all species within the family are included in the regulation]”

From State of Nevada (2018):

“Except as otherwise provided in this section and NAC 504.486, the importation, transportation or possession of the following species of live wildlife or hybrids thereof, including viable embryos or gametes, is prohibited: [...]

South American Parasitic Catfish.....All species in the families Cetopsidae and Trichomycteridae”

From Oklahoma Secretary of State (2019):

“Until such time as is necessary for the Department of Wildlife Conservation to obtain adequate information for the determination of other harmful or potentially harmful exotic species, the importation into the State and/or the possession of the following exotic fish or their eggs is prohibited: [...]

Parasitic South American Catfish group (Candiru), genera & species of the Trichomycteridae family. *Vandellia* spp., *Tridens* spp., and *Pygidium* spp.”

From Texas Parks and Wildlife (2020):

“The organisms listed here are legally classified as exotic, harmful, or potentially harmful. No person may possess or place them into water of this state except as authorized by the department. Permits are required for any individual to possess, sell, import, export, transport or propagate listed species for zoological or research purposes; for aquaculture(allowed only for Blue, Nile, or Mozambique tilapia, Triploid Grass Carp, or Pacific White Shrimp); or for aquatic weed control (for example, Triploid Grass Carp in private ponds). [...]

South American Parasitic Candiru Catfishes, Family Trichomycteridae All species”

From Utah Office of Administrative Rules (2019):

“All species of fish listed in Subsections (2) through (30) are classified 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 in the United States.

## Remarks

No additional remarks.

## 2 Biology and Ecology

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### Taxonomic Hierarchy and Taxonomic Standing

From Eschmeyer et al. (2018):

“**Current status:** Valid as *Trichomycterus heterodontus* (Eigenmann 1917).”

From ITIS (2017):

Kingdom Animalia

Subkingdom Bilateria

Infrakingdom Deuterostomia

Phylum Chordata

Subphylum Vertebrata  
Infraphylum Gnathostomata  
Superclass Actinopterygii  
Class Teleostei  
Superorder Ostariophysi  
Order Siluriformes  
Family Trichomycteridae  
Subfamily Trichomycterinae  
Genus *Trichomycterus*  
Species *Trichomycterus heterodontus* (Eigenmann, 1917)

## **Size, Weight, and Age Range**

From Froese and Pauly (2017):

“Max length : 8.3 cm male/unsexed; [de Pínna and Wosiacki 2003]”

## **Environment**

From Froese and Pauly (2017):

“Freshwater; benthopelagic. [de Pínna and Wosiacki 2003]”

## **Climate**

From Froese and Pauly (2017):

“Tropical, [...] [de Pínna and Wosiacki 2003]”

## **Distribution Outside the United States**

### **Native**

Eschmeyer et al. (2017):

“Mendoza River basin, Argentina and Bolivia”

### **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**

No information available.

## **Biology**

No information available.

## Human Uses

No information available.

## Diseases

No information available. **No records of OIE-reportable diseases (OIE 2021) were found for *Trichomycterus heterodontus*.**

## Threat to Humans

From Froese and Pauly (2017):

“Harmless”

## 3 Impacts of Introductions

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This species has not been reported as introduced outside of its native range, so impacts of introductions are unknown.

*Trichomycterus heterodontus* is regulated in multiple States.

## 4 History of Invasiveness

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This species has not been reported as introduced outside of its native range, so the history of invasiveness is no known nonnative population.

## 5 Global Distribution

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**Figure 1.** Known global established locations of *Trichomycterus heterodontus*. Locations are in Bolivia and Chile. Map from GBIF Secretariat (2017).

## 6 Distribution Within the United States

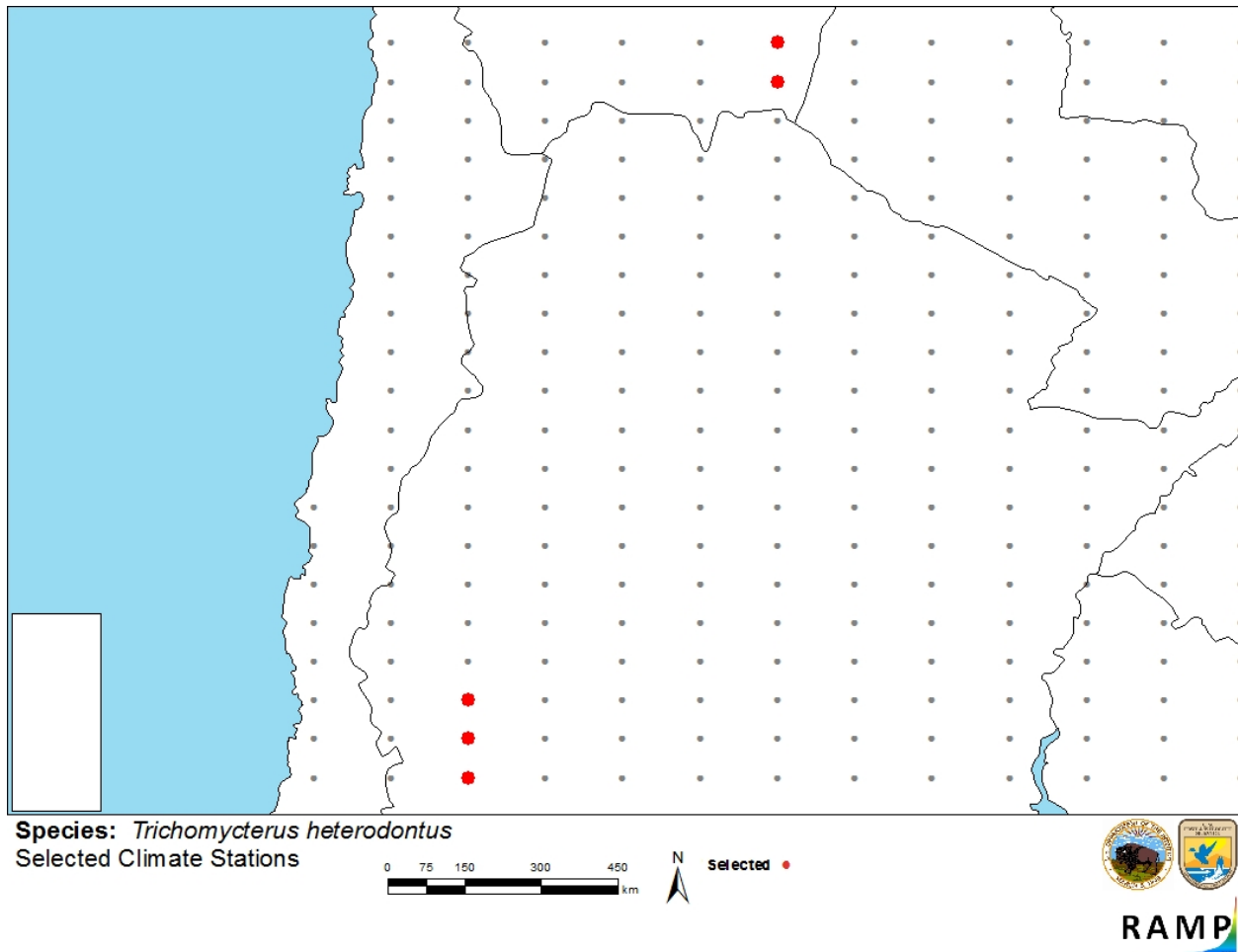
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This species has not been reported in the United States.

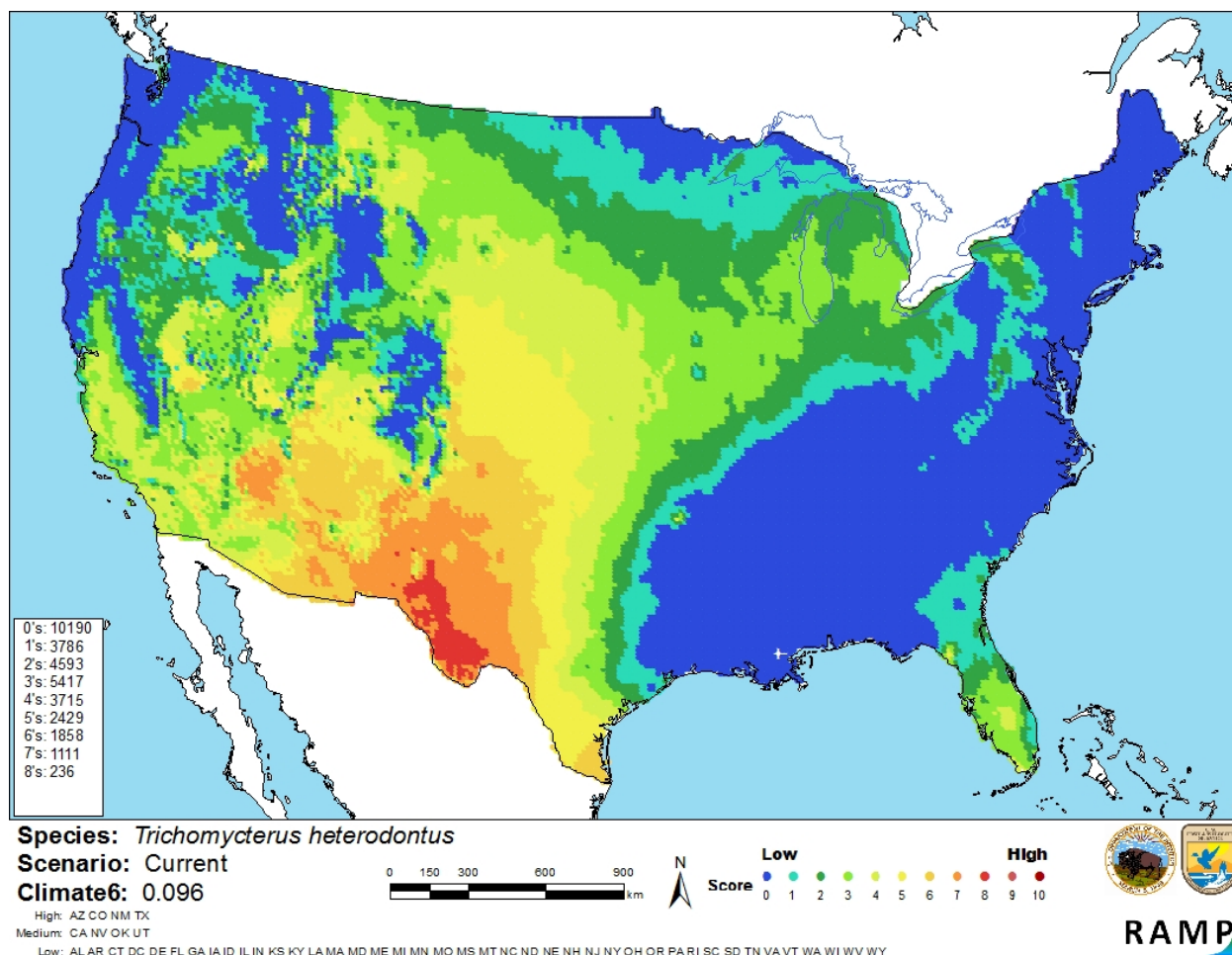
## 7 Climate Matching

### Summary of Climate Matching Analysis

The climate match for *Trichomycterus heterodontus* was high in western Texas. The climate match was low in eastern states and scattered areas in the northwest. Everywhere else had a medium match. The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean Distance) for the contiguous United States was 0.096, medium (scores between 0.005 and 0.103, exclusive, are considered low). The following States had high individual climate scores: Arizona, Colorado, New Mexico, and Texas. California, Nevada, Oklahoma, and Utah had medium individual scores. All other States had low individual scores.



**Figure 2.** RAMP (Sanders et al. 2014) source map showing weather stations in Argentina and Bolivia selected as source locations (red; Argentina, Bolivia) and non-source locations (gray) for *Trichomycterus heterodontus* climate matching. Source locations from GBIF Secretariat (2017). 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 heterodontus* in the contiguous United States based on source locations reported by GBIF Secretariat (2017). 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
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
$\geq 0.103$	High

## 8 Certainty of Assessment

There was limited information available on the species *Trichomycterus heterodontus*. This species has not been reported outside of its native range so impacts of introduction are unknown. With such little information known on this species, the certainty of this assessment is low.



## 9 Risk Assessment

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### Summary of Risk to the Contiguous United States

*Trichomycterus heterodontus* is a South American catfish found in the Mendoza River basin in Argentina. *T. heterodontus* is regulated in multiple States. The history of invasiveness is No Known Nonnative Population. There have been no reports of this fish outside of its native range. The climate match is medium. Areas of high climate match were in Texas and the southwest. The certainty of assessment is low. The overall risk assessment is uncertain.

### Assessment Elements

- **History of Invasiveness (Sec. 3): No known nonnative population**
- **Climate Match (Sec.6): Medium**
- **Certainty of Assessment (Sec. 7): Low**
- **Remarks/Important additional information:** *Trichomycterus heterodontus* is regulated in multiple States.
- **Overall Risk Assessment Category: Uncertain**

## 10 Literature Cited

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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 11.**

Arizona Office of the Secretary of State. 2013. Live wildlife. Arizona Administrative Code, Game and Fish Commission, Title 12, Chapter 4, Article 4.

California Department of Fish and Wildlife. 2019. Restricted species laws and regulations manual. Available: <https://wildlife.ca.gov/Conservation/Invasives/Regulations> (November 2020).

Eschmeyer WN, Fricke R, van der Laan R, editors. 2018. Catalog of fishes: genera, species, references. California Academy of Science. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp> (May 2018).

[FFWCC] Florida Fish and Wildlife Conservation Commission. 2017. Prohibited species list. Tallahassee: Florida Fish and Wildlife Conservation Commission. Available: <http://myfwc.com/wildlifehabitats/nonnatives/regulations/prohibited/#nogo> (January 2017).

Froese R, Pauly D, editors. 2017. *Trichomycterus heterodontus* (Eigenmann, 1917). FishBase. Available: <http://www.fishbase.org/summary/Trichomycterus-heterodontus.html> (January 2017).

- GBIF Secretariat. 2017. GBIF backbone taxonomy: *Trichomycterus heterodontus* (Eigenmann, 1917). Copenhagen: Global Biodiversity Information Facility. Available: <http://www.gbif.org/species/2342990> (January 2017).
- Georgia [DNR] Department of Natural Resources. 2020. Wild animals/exotics. Social Circle: Georgia Department of Natural Resources Law Enforcement Division. Available: <http://gadnrle.org/exotics> (November 2020).
- [ITIS] Integrated Taxonomic Information System. 2017. *Trichomycterus heterodontus* (Eigenmann, 1917). Reston, Virginia: Integrated Taxonomic Information System. Available: [https://www.itis.gov/servlet/SingleRpt/SingleRpt?search\\_topic=TSN&search\\_value=68214](https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=68214) (January 2017).
- Louisiana State Legislature. 2019. 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: Regulatory and Enforcement Division, Office of the Mississippi Secretary of State.
- [OIE] World Organisation for Animal Health. 2021. OIE-listed diseases, infections and infestations in force in 2021. Available: <http://www.oie.int/animal-health-in-the-world/oie-listed-diseases-2021/> (April 2021).
- Oklahoma Secretary of State. 2019. List of restricted exotic species. Oklahoma Administrative Code, Title 800, Chapter 20-1-2.
- Sanders S, Castiglione C, Hoff M. 2014. Risk Assessment Mapping Program: RAMP. Version 2.81. U.S. Fish and Wildlife Service.
- State of Nevada. 2018. Restrictions on importation, transportation and possession of certain species. Nevada Administrative Code, Chapter 503, Section 110.
- Texas Parks and Wildlife. 2020. Invasive, prohibited and exotic species. Austin: Texas Parks and Wildlife. Available: [https://tpwd.texas.gov/huntwild/wild/species/exotic/prohibited\\_aquatic.phtml](https://tpwd.texas.gov/huntwild/wild/species/exotic/prohibited_aquatic.phtml) (November 2020).
- Utah Office of Administrative Rules. 2019. Classification and specific rules for fish. Utah Administrative Code, Rule R657-3-23.

## 11 Literature Cited in Quoted Material

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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.**

de Pinna MCCC, Wosiacki W. 2003. Trichomycteridae (pencil or parasitic catfishes). Pages 270–290 in Reis RE, Kullander SO, Ferraris CJ Jr, editors. Checklist of the freshwater fishes of South and Central America. Porto Alegre, Brazil: EDIPUCRS.

Eigenmann CH. 1917. Descriptions of sixteen new species of Pygidiidae. Proceedings of the American Philosophical Society 56:690–703.