

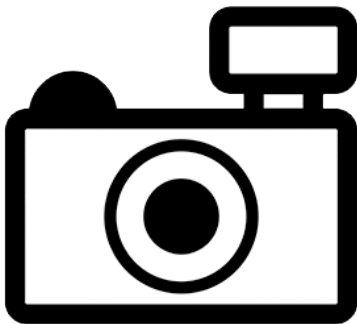
***Trichomycterus aguarague* (a catfish, no common name)**

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, January 2017

Revised, February 2017

Web Version, 4/24/2018



No Photo Available

1 Native Range and Status in the United States

Native Range

From Carvajal et al. (2016):

“This species occurs in Bolivia. It is known from the Mamoré river (Río Grande basin), the Ítenez river (Parapetí basin), and also in the rivers Caraparí and Itaú (Sarmiento pers. comm. 2014, based on specimens deposited in the Colección Bolivariana de Fauna). [...] The areas from where it is known in the rivers Caraparí and Itaú are very close to the border with Argentina and therefore it is possible that it is also present in this country (Sarmiento pers. comm. 2014). The type locality is in the Quebrada Timboycito, a tributary of Río Caiguami in Aguarague National Park, Gran Chaco Province (Fernandez and Osinaga 2006), in the Pilcomayo basin.”

Status in the United States

This species has not been reported as introduced in the United States. This species is not known to be in trade 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. Very limited exceptions may be made by permit from the Executive Director [...] [The list of prohibited nonnative species includes] *Trichomycterus aguarague*”

Means of Introductions in the United States

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

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From GBIF (2016):

“KINGDOM Animalia
PHYLUM Chordata
CLASS Actinopterygii
ORDER Siluriformes
FAMILY Trichomycteridae
GENUS *Trichomycterus*
SPECIES *Trichomycterus aguarague*”

“TAXONOMIC STATUS
accepted species”

Size, Weight, and Age Range

Fernández and Osinaga (2006) report standard lengths ranging from 37mm to 44.5mm, and total lengths ranging from 42.2mm and 53.1mm among specimens collected in National Park Aguaraque, Bolivia.

Environment

From Froese and Pauly (2016):

“Freshwater; demersal.”

From Fernández and Osinaga (2006):

“*Trichomycterus aguarague* was collected in mountainous rivers and streams that were generally 3.0 – 6.0 m wide and 0.32 – 1.35 m deep, with clear waters running over sandy and rock-pebble substrates [...]. The region is characterized by torrential hydrological conditions associated with abundant summer rains between January and March and a May to November dry season. Water temperatures 24 – 30°C and the pH 7.5. Current velocities were 9.4 – 15.6 m s⁻¹ during the dry season.”

Climate/Range

From Froese and Pauly (2016):

“Tropical, preferred ?”

From Fernández and Osinaga (2006):

“[...] elevations of approximately 615 – 910 m.”

Distribution Outside the United States

Native

From Carvajal et al. (2016):

“This species occurs in Bolivia. It is known from the Mamoré river (Río Grande basin), the Ítenéz river (Parapetí basin), and also in the rivers Caraparí and Itaú (Sarmiento pers. comm. 2014, based on specimens deposited in the Colección Bolivariana de Fauna). [...] The areas from where it is known in the rivers Caraparí and Itaú are very close to the border with Argentina and therefore it is possible that it is also present in this country (Sarmiento pers. comm. 2014). The type locality is in the Quebrada Timboy cito, a tributary of Río Caiguami in Aguarague National Park, Gran Chaco Province (Fernandez and Osinaga 2006), in the Pilcomayo basin.”

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 Fernández and Osinaga (2006):

“*Trichomycterus aguarague* is considered to belong to a species assemblage comprised of *T. alterus*, *T. boylei*, *T. ramosus*, and *T. belensis*, a group diagnosed by three putative apomorphic conditions: (1) base of the maxillary barbel wide and engrossed like a skin flap or fold, (2) premaxillary bone smaller than maxilla, and (3) odontodes embedded in thick integument that covers interopercle. Alternatively, *T. aguarague* and *T. alterus* share an unusual number of five or fewer abdominal vertebrae, which is a synapomorphy for the group composed of *Scleronema*, *Ituglanis*, and the Stegophilinae+Tridentinae+Vandelliinae+Glanapteryginae+Sarcoglanidinae clade. The new species differs from all congeners in having the following combination of characters: caudal peduncle depth 13.5 – 16.0% SL, 15 or 16 pairs of ribs, 15 dorsal procurent rays, 12 ventral procurent rays, 8 pectoral fin rays; 9 anal fin rays; barbels and skin of trunk with numerous, minute thread-like papillae.”

Biology

From Fernández and Osinaga (2006):

“Stomach of one cleared and stained specimen contained dipteran larvae (Chironomidae and Simuliidae); a diet of autochthonous benthic macroinvertebrates is common to many congeners (Castro & Casatti 1997, Casatti & Castro 1998, Fernández & Vari 2002, Casatti 2003). The only other fish collected with the new species was *T. tiraquae* (Fowler).”

Human Uses

From Carvajal et al. (2016):

“This species is only accidentally used as food.”

Diseases

No information available.

Threat to Humans

From Froese and Pauly (2016):

“Harmless”

3 Impacts of Introductions

No introductions of this species have been reported. The Florida Fish and Wildlife Conservation Commission has listed the parasitic catfish *T. aguarague* as a prohibited species.

4 Global Distribution



Figure 1. Known global established locations of *Trichomycterus aguarague* in Bolivia. Map from GBIF (2016).

5 Distribution Within the United States

This species has not been reported in the United States.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) was low across much of the contiguous U.S., with patchily distributed areas of medium match in the Southwest and along the California coast. The Climate 6 proportion indicated a low match for the contiguous U.S. The range for Climate 6 proportions indicating a low climate match is 0.000 to 0.005; the Climate 6 proportion for *T. aguarague* was 0.0.

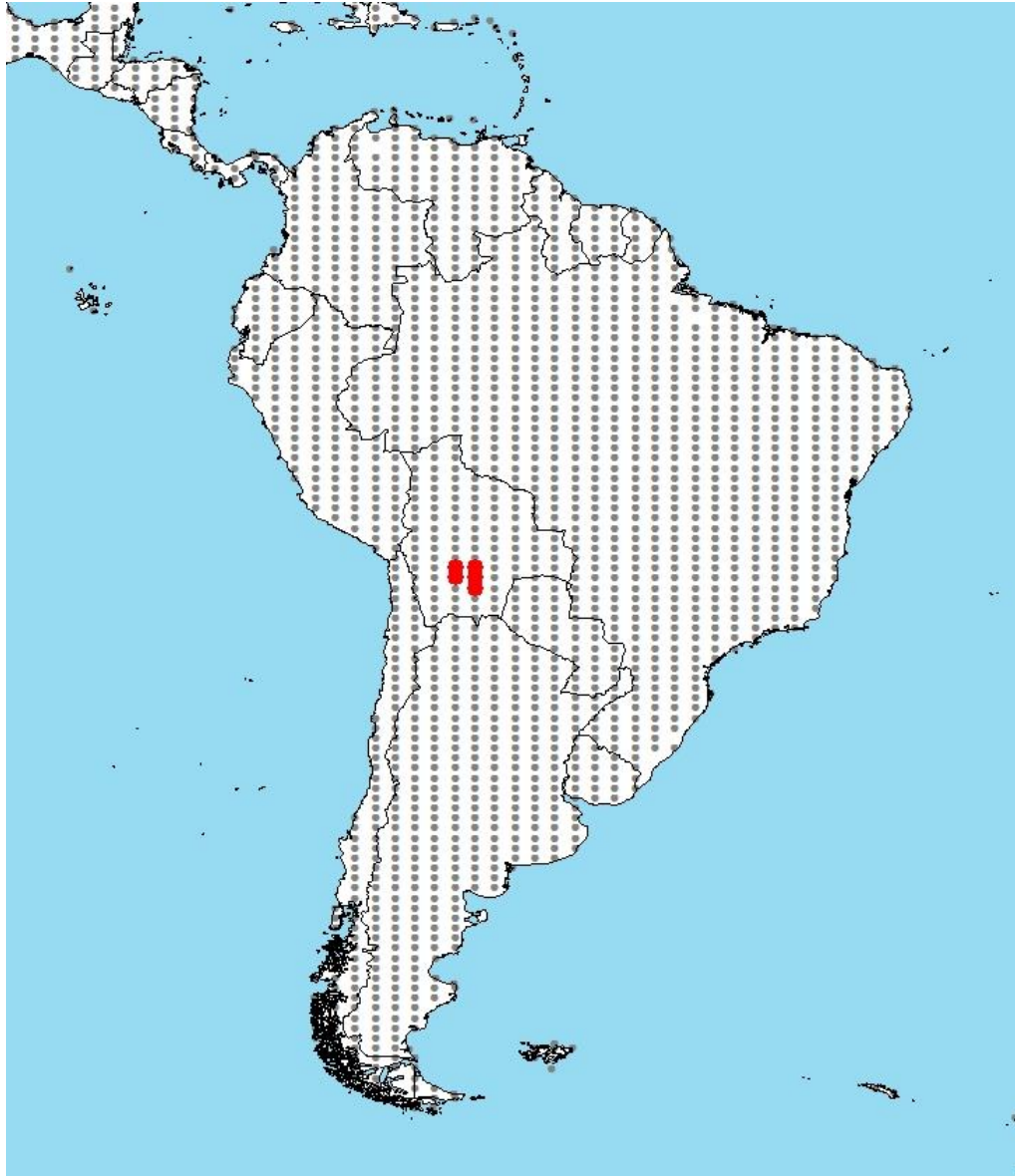


Figure 1. RAMP (Sanders et al. 2014) source map showing weather stations in Bolivia selected as source locations (red) and non-source locations (gray) for *Trichomycterus aguarague* climate matching. Source locations from GBIF (2016).

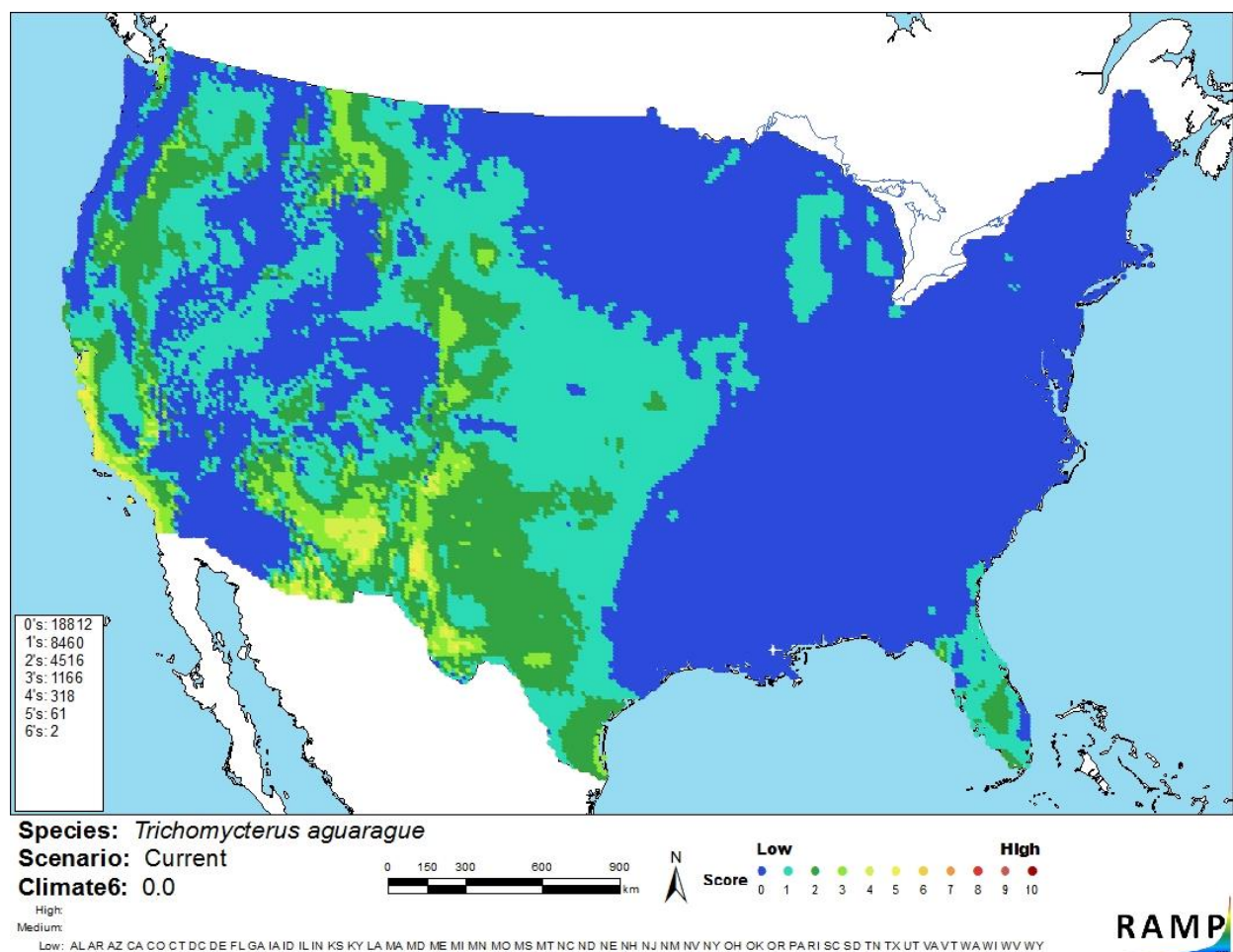


Figure 2. Map of RAMP (Sanders et al. 2014) climate matches for *Trichomycterus aguarague* in the contiguous United States based on source locations reported by GBIF (2016). 0=Lowest match, 10=Highest match. Counts of climate match scores are tabulated on the left.

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
≥ 0.103	High

7 Certainty of Assessment

There is also very limited information available on the biology and distribution of *Trichomycterus aguarague*. The potential impacts of an introduction are unknown because no introductions have been reported. Due to this lack of information, the certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Trichomycterus aguarague is a trichomycterid catfish species native to Bolivia. The species is found in clear mountain streams and rivers, and is at least partially insectivorous. *T. aguarague* has not been reported as introduced outside its native range, so impacts of introduction are unknown. Possession of *T. aguarague* is prohibited in the state of Florida, as are other members of the family Trichomycteridae. Climate match to the contiguous U.S. is low. Overall risk posed by *T. aguarague* 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

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 10.

- Carvajal, F., M. Maldonado, J. Sarmiento, and P. Van Damme. 2016. *Trichomycterus aguarague*. The IUCN Red List of Threatened Species 2016: e.T58694036A58694040. Available: <http://www.iucnredlist.org/details/full/58694036/0>. (February 2017).
- Fernández, L., and K. Osinaga. 2006. A new *Trichomycterus* (Siluriformes: Trichomycteridae) from Aguarague National Park of the Bolivian preandean region, with comments on relationships within of the genus. *Environmental Biology of Fishes* 75:385-393.
- 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, editors. 2016. *Trichomycterus aguarague* Fernández & Osinaga, 2006. FishBase. Available: <http://www.fishbase.org/summary/Trichomycterus-aguarague.html>. (January 2017).
- GBIF (Global Biodiversity Information Facility). 2016. GBIF backbone taxonomy: *Trichomycterus aguarague* Fernández & Osinaga, 2006. Global Biodiversity Information Facility, Copenhagen. Available: <http://www.gbif.org/species/2343040>. (January 2017).
- Sanders, S., C. Castiglione, and M. Hoff. 2014. Risk Assessment Mapping Program: RAMP. U.S. Fish and Wildlife Service.

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.

Casatti, L. 2003. Biology of a catfish, *Trichomycterus* sp. (Pisces, Siluriformes), in a pristine stream in the Morro do Diabo State Park, southeastern Brazil. *Studies Neotropical Fauna Environmental* 38:105-110.

Casatti, L., and R. M. C. Castro. 1998. A fish community of the Sao Francisco River headwaters riffles, southeastern Brazil. *Ichthyological Exploration of Freshwaters* 9:229-242.

Castro, R. M. C., and L. Casatti. 1997. The fish fauna from a small forest stream of the upper Paraná River basin, southeastern Brazil. *Ichthyological Exploration of Freshwaters* 7:337-352.

Fernández, L., and R. P. Vari. 2002. A new species of *Trichomycterus* from the Andes of Argentina with a redescription of *Trichomycterus alterus* (Siluriformes: Trichomycteridae). *Copeia* 2002:739-747.