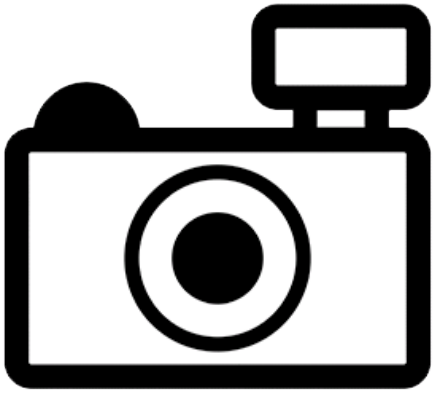
Trichomycterus fassli (a catfish, no common name)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, January 2017
Revised, May 2018
Web Version, 8/8/2019



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1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2018):

"South America: Songo River basin in Bolivia."

From Chuctaya and Sarmiento (2016):

"This species occurs in the Madre de Dios river basin in Peru (Ortega *et al.* 2012), and in the Beni, Mamoré, and Grande basins in Bolivia [Arraya et al. 2009, Carvajal-Vallejos et al. 2014]. Its type locality is the Songo River basin in North Yungas, upper Amazon River system, Bolivia."

Status in the United States

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

From Chuctaya and Sarmiento (2016):

"This species is not used or traded."

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 (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.
[The list of prohibited nonnative species includes:]
Parasitic catfishes […]
Trichomycterus emanueli"

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 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 in the United States.

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 Trichomycteridae
Subfamily Trichomycterinae
Genus *Trichomycterus*
Species *Trichomycterus fassli* (Steindachner, 1915)"

From Fricke et al. (2019):

"**Current status:** Valid as *Trichomycterus fassli* (Steindachner 1915). Trichomycteridae: Trichomycterinae."

Size, Weight, and Age Range

From Froese and Pauly (2018):

"Max length : 14.9 cm male/unsexed; [de Pínna and Wosiacki 2003]"

Environment

From Froese and Pauly (2018):

"Freshwater; benthopelagic."

From Chuctaya and Sarmiento (2016):

"It occurs at elevations between 260 and 2,500 m."

Climate/Range
From Froese and Pauly (2018):

"Tropical"

Distribution Outside the United States
Native
From Froese and Pauly (2018):

"South America: Songo River basin in Bolivia."

From Chuctaya and Sarmiento (2016):

"This species occurs in the Madre de Dios river basin in Peru [Ortega et al. 2012], and in the Beni, Mamoré, and Grande basins in Bolivia [Arraya et al. 2009, Carvajal-Vallejos et al. 2014]. Its type locality is the Songo River basin in North Yungas, upper Amazon River system, Bolivia."

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

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

Short Description
No information available.

Biology
From Chuctaya and Sarmiento (2016):

"This species inhabits fast flowing streams and rivers."

Human Uses
From Chuctaya and Sarmiento (2016):

"This species is not used or traded."

Diseases
No information available. No OIE-listed 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 *Trichomycterus fassli* have been reported outside its native range so no impacts of introduction are known.

The importation, possession, or trade of the parasitic catfish *T. fassli* is prohibited or restricted in the following states: Arizona (Arizona Secretary of State 2006), California (Dill and Cordone 1997), Florida (FFWCC 2016), Louisiana (Louisiana House of Representatives Database 2010), Mississippi (Mississippi Secretary of State 2019), Nevada (Legislative Council Bureau 2018), and Utah (Utah DNR 2012).

4 Global Distribution

Figure 1. Map of the Amazon River basin. The yellow polygon outlines the rivers in which *T. fassli* is native, according to Chuctaya and Sarmiento (2016). Map by Kmusser. Licensed under Creative Commons BY-SA 3.0. Available: https://commons.wikimedia.org/w/index.php?curid=24862395. (August 2019).

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. 2018; 16 climate variables; Euclidean Distance) for the contiguous United States was low overall, reflected in a Climate 6 score of 0.0. Scores between 0.000 and 0.005, inclusive, are classified as low. Locally, the climate match was medium in

eastern peninsular Florida and west of Gainesville, Florida. The rest of the contiguous United States had a low climate match, and all States had low individual climate scores. Source locations were approximated using occurrence records from GBIF Secretariat (2019) that provided precise verbal descriptions of occurrence locations but did not provide coordinates for these locations.

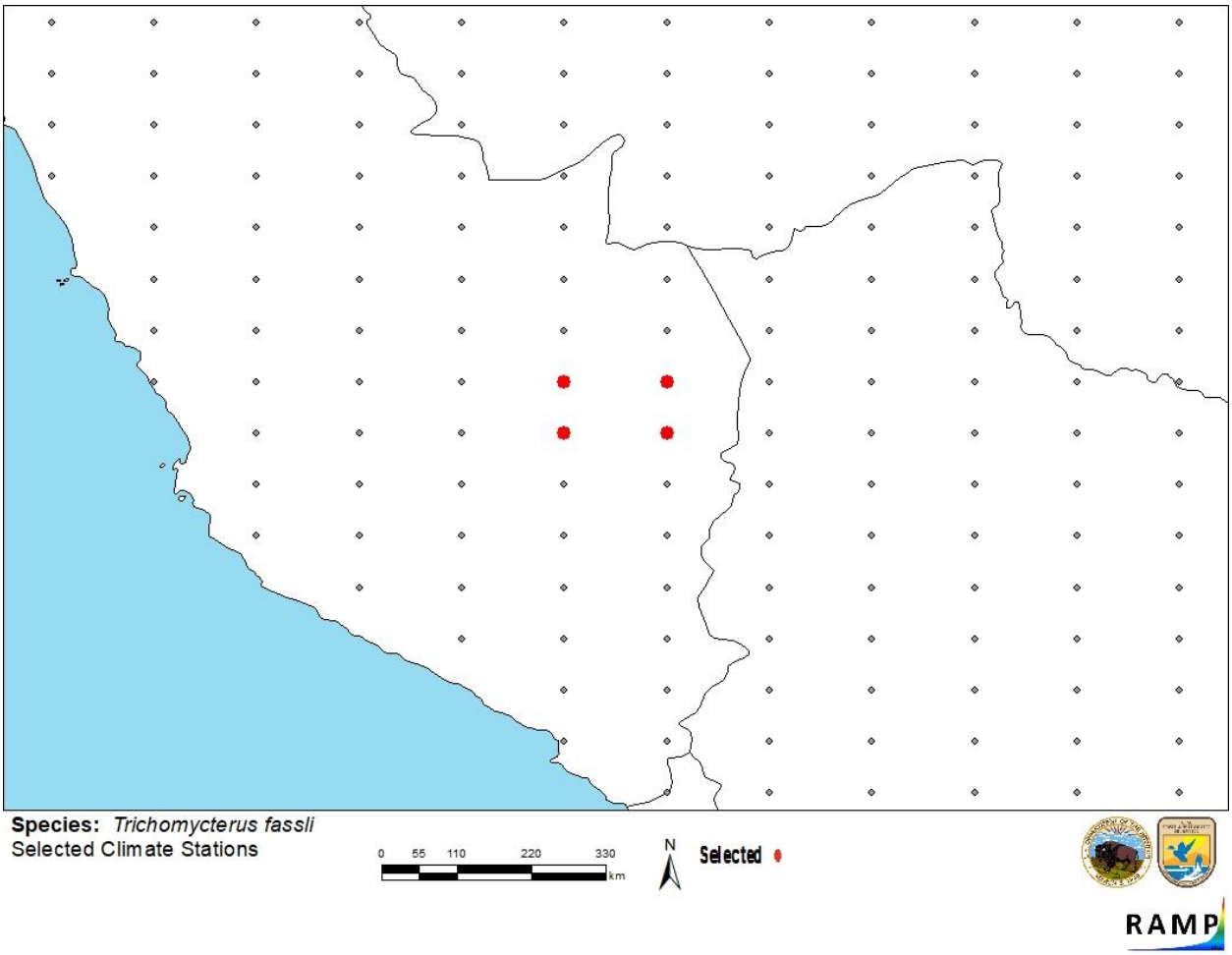

Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in southern Peru and western Bolivia selected as source locations (red; Peru) and non-source locations (gray) for *T. fassli* climate matching. Source locations from GBIF Secretariat (2019).

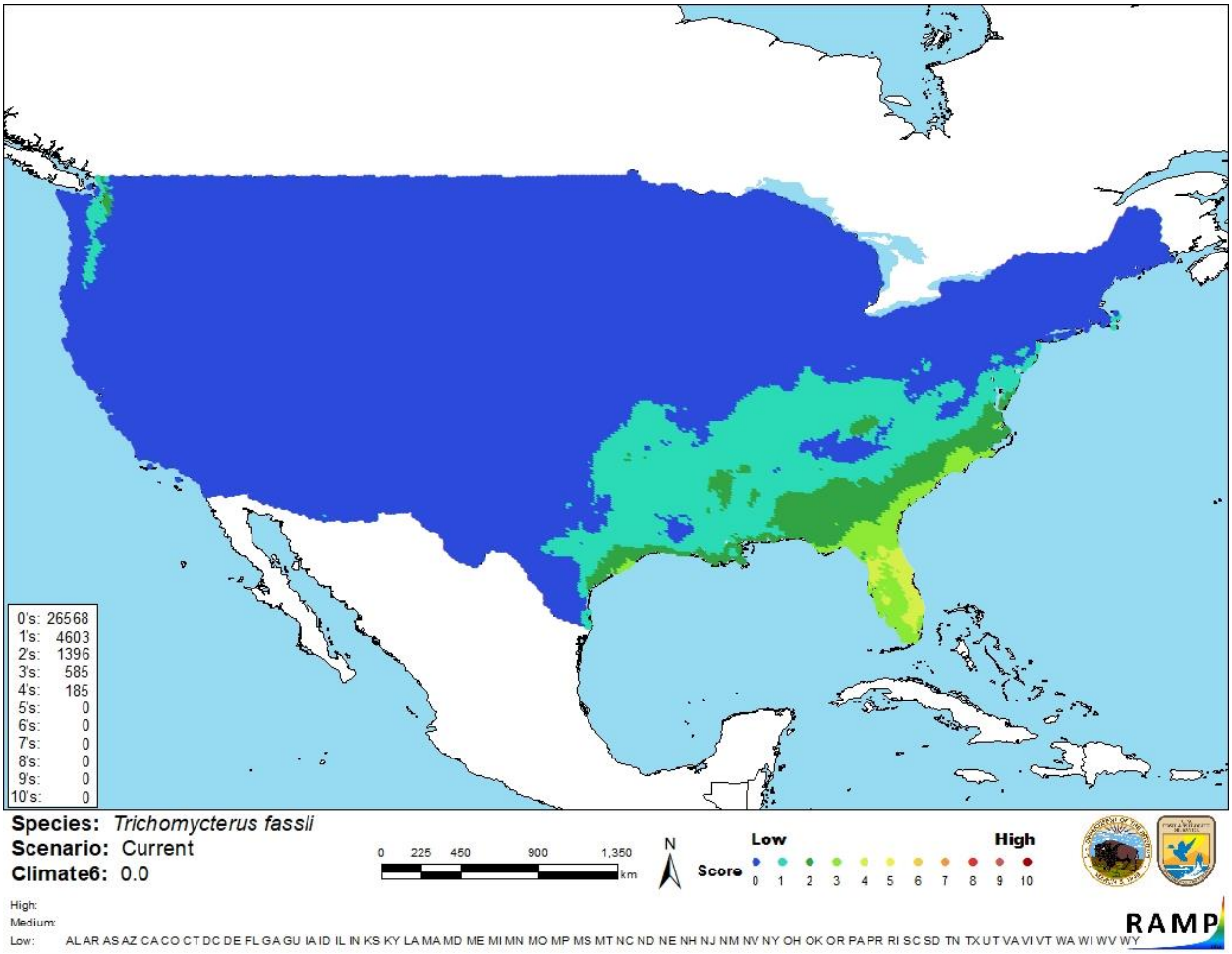

Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *T. fassli* in the contiguous United States based on source locations from GBIF Secretariat (2019). 0= Lowest match, 10=Highest match. Counts of climate match scores are tabulated on the left.

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≤X≤0.005	Low
0.005<X<0.103	Medium
≥0.103	High

7 Certainty of Assessment

There is little knowledge on the biology and ecology of *Trichomycterus fassli*. There were no georeferenced occurrences on which to base the climate match, only verbal descriptions of collection locations. There are no records showing introductions of *T. fassli* outside of its native range. Little information is known to conclude what kind of effect it could have if it were introduced. Due to lack of information, the certainty of assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Trichomycterus fassli is a freshwater parasitic catfish from South America. It has not been reported outside of its native range in western Bolivia and southern Peru. Due to lack of introduction history, the history of invasiveness is uncertain. This species has a low overall climate match with the contiguous United States, with medium match occurring only in parts of peninsular Florida. Due to the lack of information about potential introductions, the certainty of assessment is low. The overall risk assessment category for *T. fassli* 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.

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

Chuctaya, J., and J. Sarmiento. 2016. *Trichomycterus fassli*. The IUCN Red List of Threatened Species 2016: e.T49829860A53817518. http://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T49829860A53817518.en. (May 2018).

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.

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/. (December 2016).

Fricke, R., W. N. Eschmeyer, and R. Van der Laan, editors. 2019. Eschmeyer's Catalog of Fishes: genera, species, references. Available: http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp. (August 2019).

Froese, R., and D. Pauly, editors. 2018. *Trichomycterus fassli* (Steindachner, 1915). FishBase. Available: https://www.fishbase.de/summary/Trichomycterus-fassli.html. (May 2018).

GBIF Secretariat. 2019. GBIF backbone taxonomy: *Trichomycterus fassli* (Steindachner, 1915). Global Biodiversity Information Facility, Copenhagen. Available: https://www.gbif.org/species/2343013. (August 2019).

ITIS (Integrated Taxonomic Information System). 2018. *Trichomycterus fassli* (Steindachner, 1915). Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=682206#null. (May 2018).

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

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

OIE (World Organisation for Animal Health). 2019. OIE listed diseases, infections and infestations in force in 2019. Available: http:www.oie.int/animal-health-in-the-world/oie-listed-diseases-2019/. (August 2019).

Sanders, S., C. Castiglione, and M. H. Hoff. 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. Utah Division of Natural Resources, Salt Lake City, Utah. 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).

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.

Arraya, M., M. Maldonado, F. M. Carvajal-Vallejos, and L. Fernández. 2009. Contribution to the knowledge of the fish of the genus *Trichomycterus* (Siluriformes: Trichomycteridae) in the Andes of Bolivia. Bolivarian Journal of Ecology and Environmental Conservation 26:45–52.

Carvajal-Vallejos, F. M., R. Bigorne, A. J. Z. Fernández, J. Sarmiento, S. Barrera, T. Yunoki, M. Pouilly, J. Zubieta, E. D. L. Barra, M. Jegú, M. Maldonado, P. V. Damme, R. Céspedes, and T. Oberdorff. 2014. Fish-AMAZBOL: a database on freshwater fishes of the Bolivian Amazon. Hydrobiologia 732(1):1–9.

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Ortega, H., M. Hidalgo, G. Trevejo, E. Correa, A. M. Cortijo, V. Meza, and J. Espino. 2012. Annotated list of the fishes of continental waters of Peru: Current state of knowledge, distribution, uses and aspects of conservation. Ministry of Environment, General Directorate of Biological Diversity - Natural History Museum, UNMSM, Lima, Peru.