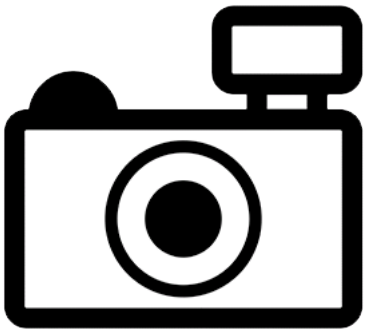
Trichomycterus chungaraensis (a catfish, no common name)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, January 2017
Revised, April 2017
Web Version, April 2018



No Photo Available

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2016):

"South America: streams of Chungará Lake in Chile."

Status in the United States

This species has not been reported in the United States.

From FFWCC (2017):

"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 chungaraensis*"

Means of Introductions in the United States

This species has not been reported in the United States.

Remarks
From Pardo and Vila (2008):

"Its habitat belongs to a protected National Park, UNESCO Biosphere Reserve, nevertheless tourism increment, associated to habitat perturbations, and Lake Chungará rainbow trout introductions are threatening this species."

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing
From ITIS (2017):

"Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Osteichthyes
Class Actinopterygii
Subclass Neopterygii
Infraclass Teleostei
Superorder Ostariophysi
Order Siluriformes
Family Trichomycteridae Bleeker, 1858
Subfamily Trichomycterinae
Genus *Trichomycterus* Valenciennes, 1832
Species *Trichomycterus chungaraensis* Arratia, 1983"

"Current Standing: valid"

Size, Weight, and Age Range
From Froese and Pauly (2016):

"Max length : 12.0 cm male/unsexed; [de Pínna and Wosiacki 2003]"

Environment
From Froese and Pauly (2016):

"Freshwater; benthopelagic."

Climate/Range
From Froese and Pauly (2016):

"Temperate, preferred ?"

From Arratia (1983):

"[…] it occupies a restricted environment at about 4,500 m[eters; 14,760 feet] above sea level."

Distribution Outside the United States
Native
From Froese and Pauly (2016):

"South America: streams of Chungará Lake in Chile."

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 Arratia (1983):

"Elongate fishes of small size, […] depth of caudal peduncle much less than the maximum depth of trunk. Head approximately triangular in shape. Maximum depth of body in the middle of predorsal length. […] Nasal barbel reaches to the anterior border or just behind the posterior border of the orbit; the maxillary barbels as the longest reaches until the interopercular; submaxillary barbel a little shorter than maxillary barbel."

"Incisiform shaped denticles in the external row on the interopercular. Pectoral, pelvic, dorsal and anal fins with rounded margin. Origin of pelvic fin in the middle of total length. Origin of dorsal fin slightly in front of anal fin or before. Caudal fin with posterior margin slightly rounded. Anus near the base of pelvic fin. Great number of small translucent papillae all over the body, including the base of fins. Preural 1 with large and strong neural apophysis (= epural)."

"Interopercular armed with 34 to 60 denticles; opercular armed with 6 to 16 denticles. 6 to 8 branchiostegals. Pectoral fin with 8 or 9 rays. First pectoral ray not included in a filament. Pelvic fin with 5 rays. Dorsal fin with 10 to 12 rays. Anal fin with 10-12 rays. Caudal fin with 38 to 46 rays. 38 to 42 vertebrae; 9 to 15 precaudal vertebrae, and 24 to 34 caudal vertebrae. 12 to 16 pairs of ribs."

Biology
From Arratia (1983):

"The fishes were collected in small streams with stony bottom. The streams are narrow and shallow (10 to 30 cm). The aquatic vegetation is scarce. These fishes have been collected with tadpoles and adults of *Telmatobius marmoratus*."

From Pardo and Vila (2008):

"It shows a gradient of abundance from the higher rithral zone (3 ind. m^{-2}) to their absence near the lake."

"*Trichomycterus chungaraensis* is benthonic, inhabiting one shallow sandy bottom, small stream, with scarce vegetation. It feeds on larvae and adults of aquatic insects, amphipods and mollusks. Growth and reproduction are unknown."

Human Uses
From Froese and Pauly (2016):

"Fisheries: of no interest"

Diseases
No information available. No OIE-reportable diseases have been documented for this species.

Threat to Humans
From Froese and Pauly (2016):

"Harmless"

3 Impacts of Introductions
No introductions of this species have been reported.

From FFWCC (2017):

The Florida Fish and Wildlife Conservation Commission has listed the parasitic catfish *Trichomycterus chungaraensis* as a prohibited species.

4 Global Distribution

Figure 1. Known global established locations of *T. chungaraensis*, reported in Chile. 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 throughout the contiguous U.S., reflected by a Climate 6 proportion that also indicated low climate match. Proportions less than or equal to 0.005 are classified as low match; the Climate 6 proportion for *T. chungaraensis* was 0.000.

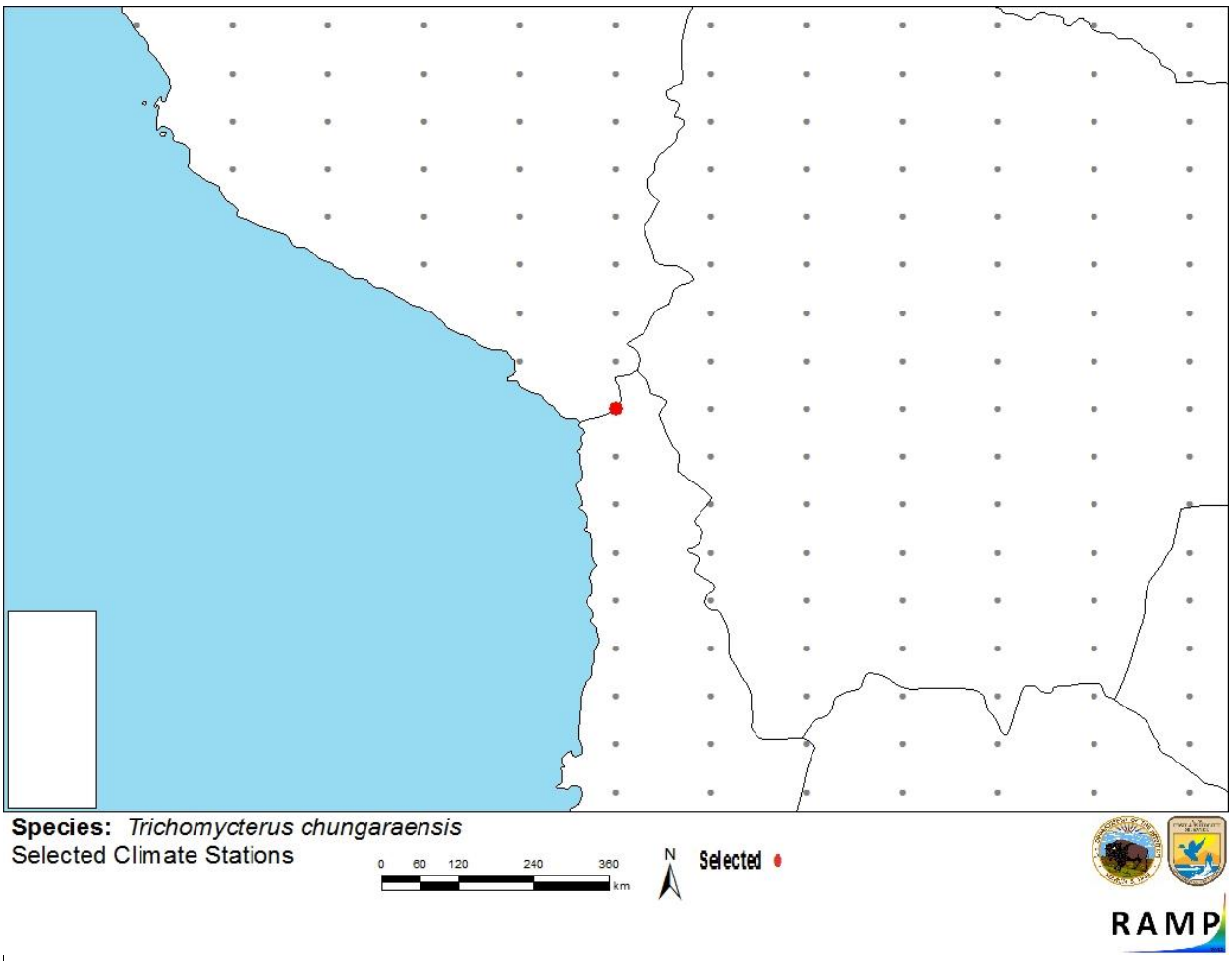


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations in northern Chile and surrounding countries selected as source locations (red; northern Chile) and non-source locations (gray) for *T. chungaraensis* climate matching. Source locations from GBIF (2016).

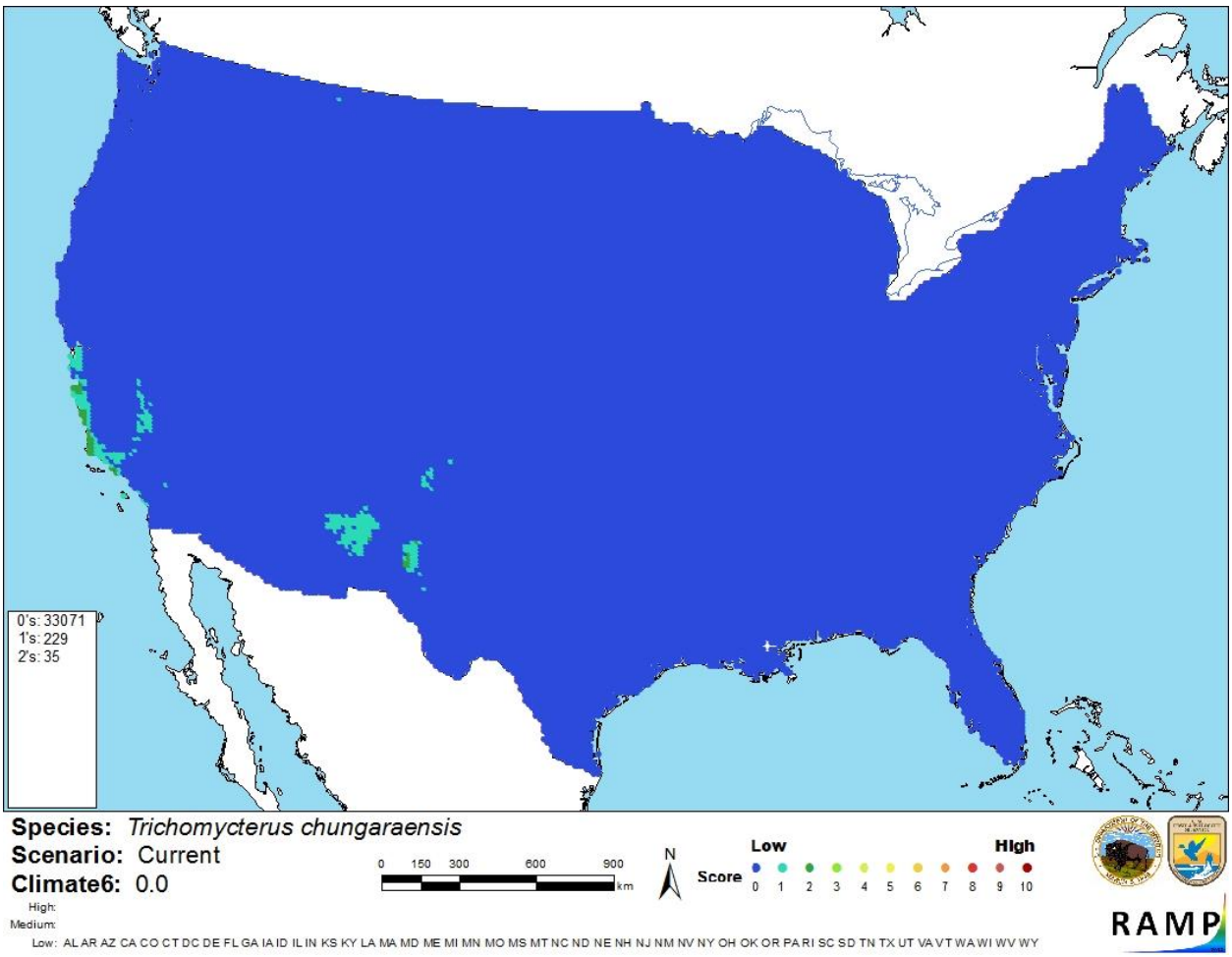


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *T. chungaraensis* in the contiguous United States based on source locations reported by GBIF (2016). 0=Lowest match, 10=Highest match. Counts of climate match scores are tabulated on the left.

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

7 Certainty of Assessment

T. chungaraensis has never been introduced outside its native range, so any impacts of introduction remain unknown. Little information is available on the biology or ecology of this species. The certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Trichomycterus chungaraensis is a small catfish endemic to a small area of northeastern Chile. It has not been introduced outside of its native range. Without being able to observe introductions in other parts of the world, it is impossible to know the potential impacts of introduction of *T. chungaraensis* to the U.S. The Florida Fish and Wildlife Conservation Commission has listed the parasitic catfish *T. chungaraensis* as a prohibited species. Climate match to the contiguous U.S. is low. The overall risk posed by this species 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.

Arratia, G. F. 1983. *Trichomycterus chungaraensis* n. sp. and *Trichomycterus laucaensis* n. sp. (Pisces, Siluriformes, Trichomycteridae) from the high Andean range. Studies on Neotropical Fauna and Environment 18(2):65-87.

FFWCC (Florida Fish and Wildlife Conservation Commission). 2017. Prohibited species list. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida. Available: http://myfwc.com/wildlifehabitats/nonnatives/regulations/prohibited/. (January 2017).

Froese, R., and D. Pauly, editors. 2016. *Trichomycterus chungaraensis* Arratia, 1983. FishBase. Available: http://www.fishbase.org/summary/10414. (January 2017).

GBIF (Global Biodiversity Information Facility). 2016. GBIF backbone taxonomy: *Trichomycterus chungaraensis* Arratia, 1983. Global Biodiversity Information Facility, Copenhagen. Available: http://www.gbif.org/species/2343192. (January 2017).

ITIS (Integrated Taxonomic Information System). 2017. *Trichomycterus chungaraensis* Arratia, 1983. Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=682195#null. (January 2017).

Pardo, R., and I. Vila. 2008. Threatened fishes of the world: *Trichomycterus chungaraensis* Arratia 1983 (Trichomycteridae). Environmental Biology of Fishes 81:369-370.

Sanders, S., C. Castiglione, and M. H. 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.

de Pínna, M. C. C., and W. Wosiacki. 2003. Trichomycteridae (pencil or parasitic catfishes). Pages 270-290 *in* R. E. Reis, S. O. Kullander, and C. J. Ferraris, Jr., editors. Checklist of the freshwater fishes of South and Central America. EDIPUCRS, Porto Alegre, Brazil.