Trichomycterus chaberti (a catfish, no common name)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, December 2016
Revised, April 2017
Web Version, 4/30/2018

Photo: Muséum National d'Histoire Naturelle. Licensed under Creative Commons Attribution-Noncommercial 3.0 Unported License. Available: http://www.fishbase.se/photos/PicturesSummary.php?ID=49985&what=species. (April 2017).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2017):

"South America: endemic to Bolivia."

From Carvajal et al. (2016):

"This species is endemic to the Torotoro National Park, in the northern Potosi Department, Bolivia and has only been observed in the Umajalanta Cave (Pouilly and Miranda 2003)."

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 chaberti*"

Means of Introduction into the United States

This species has not been reported in the United States.

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 Actinopterygii
Class Teleostei
Superorder Ostariophysi
Order Siluriformes
Family Trichomycteridae
Subfamily Trichomycterinae
Genus *Trichomycterus*
Species *Trichomycterus chaberti* Durand, 1968"

"Current Standing: valid"

Size, Weight, and Age Range

From Froese and Pauly (2017):

"Maturity: Lm ?, range 3 - 4.7 cm
Max length : 11.5 cm male/unsexed; [de Pínna and Wosiacki 2003]"

Environment

From Froese and Pauly (2017):

"Freshwater; benthopelagic."

Climate/Range

From Froese and Pauly (2017):

"Tropical, preferred ?; 18°S - 19°S, 65°W - 66°W [Pouilly and Miranda 2003]"

From Carvajal et al. (2016):

"The [Torotoro National] park is between 1,950 and 3,850 m of elevation and the Umajalanta cave is at approximately 2,700 m [8,860 ft] (Pouilly and Miranda 2003)."

Distribution Outside the United States

Native

From Froese and Pauly (2017):

"South America: endemic to Bolivia."

From Carvajal et al. (2016):

"This species is endemic to the Torotoro National Park, in the northern Potosi Department, Bolivia and has only been observed in the Umajalanta Cave (Pouilly and Miranda 2003)."

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 Romero and Paulson (2001):

"Eye size and pigmentation are variable, from almost normal for a trichomycterid (which in comparison with other fishes appears to be microphthalmic to somewhat reduced) to a typical troglomorphic fish with very reduced, not externally visible eyes."

From Pouilly and Miranda (2003):

"*Trichomycterus chaberti* did not show any evidence of increased barbel length as an adaptation to cave life, as has been observed in two species of blind Pimelodidae, *Rhamdia reddelli* Miller and the blind form of *Rhamdia laticauda* (Kner) (Wilkens, 2001)."

Biology

From Carvajal et al. (2016):

"There are no data on population size and trends for this species, but is a rare species."

"This fish is a cave-dwelling species. The park where it occurs is a small massif of Cretaceous limestone characterized by caves and canyons (Pouilly and Miranda 2003)."

From Pouilly and Miranda (2003):

"*Trichomycterus chaberti* populations are in a monospecific situation with no visual predators."

"The population of *T. chaberti* in the Umajalanta cave laid larger but fewer eggs than epigean *T. cf. barbouri* populations."

Human Uses

From Carvajal et al. (2016):

"This species is not used."

Diseases

No information available.

Threat to Humans

From Froese and Pauly (2017):

"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 *Trichomycterus chaberti* as a prohibited species (FFWCC 2017).

4 Global Distribution

Figure 1. Known global established locations of *T. chaberti*, reported 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 medium along parts of the U.S. border with Mexico and in southern coastal California and southern coastal Texas. The remainder of the contiguous U.S. showed a low climate match. Climate 6 proportion indicated that the contiguous U.S. has a low climate match overall. Proportions less than or equal to 0.005 are classified as low match; the Climate 6 proportion for *T. chaberti* was 0.000.

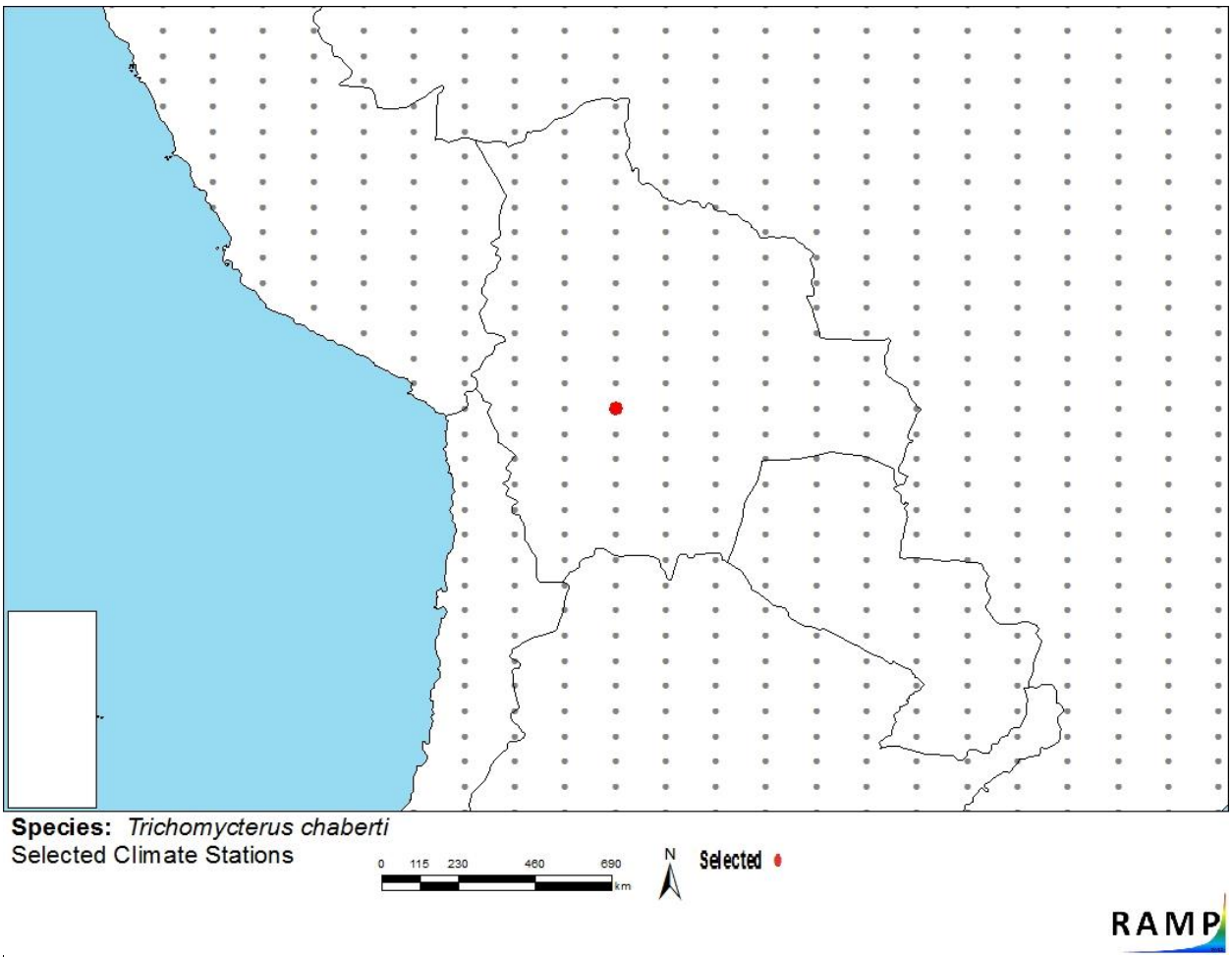

Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source location (red; Bolivia) and non-source locations (gray) for *T. chaberti* climate matching. Source locations from GBIF (2016).

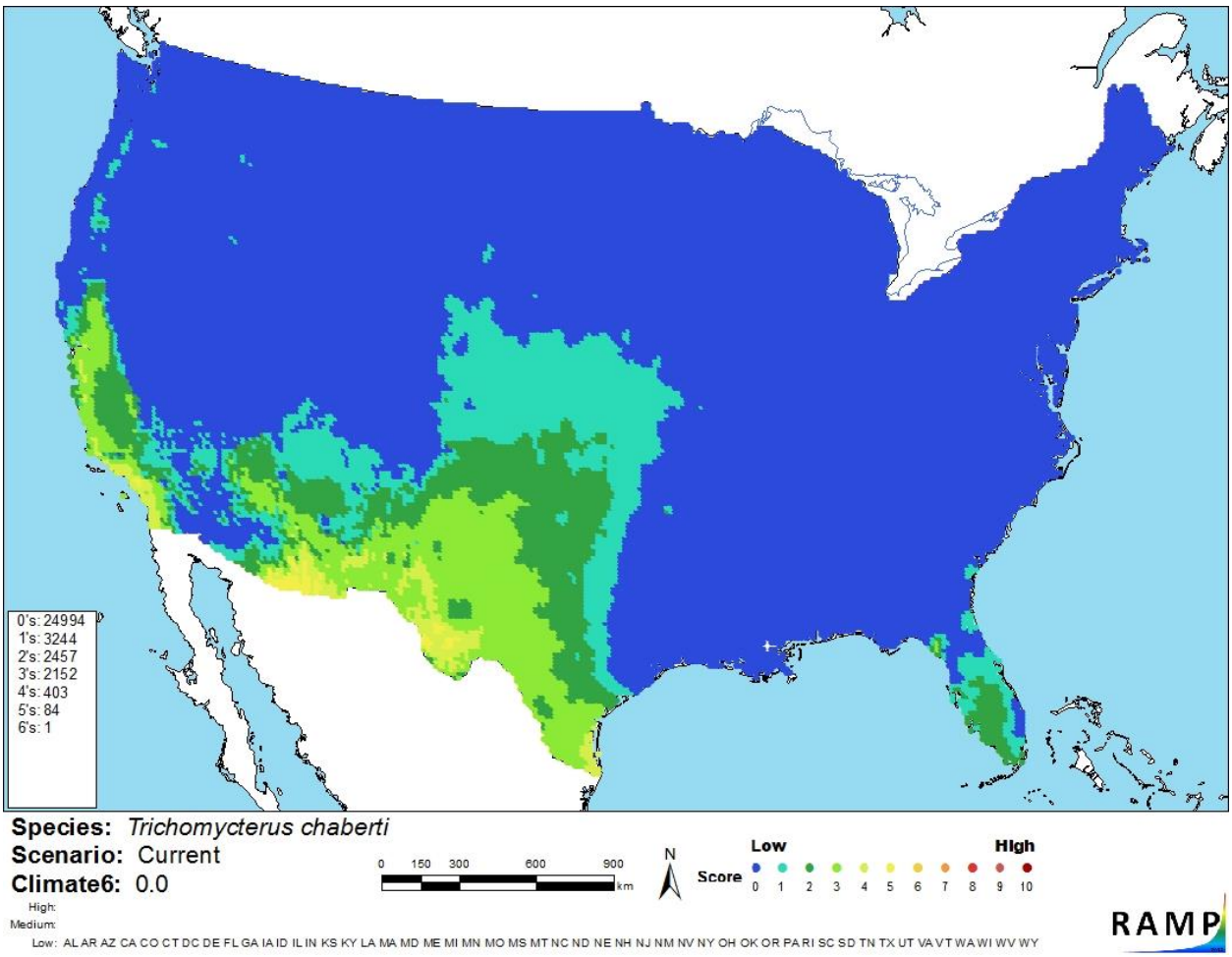

Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for T. *chaberti* in the contiguous United States based on source locations reported by GBIF (2016). 0=Lowest match, 10=Highest match. Counts of climate match scores are tabulated on the left.

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[JS1]

7 Certainty of Assessment

T. chaberti has never been introduced outside its native range, so impacts of introduction cannot yet be known. Additionally, little is currently known about the biology and ecology of this species. The certainty of this assessment is low because of the lack of information about *T. chaberti*.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Trichomycterus chaberti is a cave-dwelling catfish known only from a single cave in Bolivia. 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. chaberti* to the U.S. The Florida Fish and Wildlife Conservation Commission has listed the parasitic catfish *T. chaberti* 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.

Carvajal, F., M. Maldonado, J. Sarmiento, and P. Van Damme. 2016. *Trichomycterus chaberti*. The IUCN Red List of Threatened Species 2016: e.T22125A58720640. Available: http://www.iucnredlist.org/details/22125/0. (April 2017).

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Romero, A., and K. M. Paulson. 2001. It's a wonderful hypogean life: a guide to the troglomorphic fishes of the world. Pages 13-41 *in* A. Romero, editor. The biology of hypogean fishes. Springer-Science+Business Media, Dordrecht, The Netherlands.

Pouilly, M., and G. Miranda. 2003. Morphology and reproduction of the cavefish *Trichomycterus chaberti* and the related epigean *Trichomycterus cf. barbouri*. Journal of Fish Biology 63(2):490-505.

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.

Wilkens, H. 2001. Convergent adaptations to cave life in the *Rhamdia laticauda* catfish group (Pimelodidae, Teleostei). Environmental Biology of Fishes 62:251-261.