

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

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, August 2016

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Web Version, 5/4/2018



Photo: C. Oliviera in Torres et al. (2004). Licensed under CC-BY. Available: <http://www.scielo.br/img/revistas/ni/v2n3/a03fig01.jpg>. (January 2017).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2016):

“South America: Rio Paranapanema basin in southeastern Brazil.”

Status in the United States

This species has not been reported as introduced or established in the U.S.

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 diabolus*”

Means of Introduction into the United States

This species has not been reported as introduced or established in the U.S.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2016):

“Kingdom Animalia
Phylum Chordata
Subphylum Vertebrata
Superclass Osteichthyes
Class Actinopterygii
Subclass Neopterygii
Infraclass Teleostei
Superorder Ostariophysi
Order Siluriformes
Family Trichomycteridae
Subfamily Trichomycterinae
Genus *Trichomycterus*
Species *Trichomycterus diabolus* Bockmann, Casatti and de Pinna,
2004”

“Taxonomic Status: valid”

Size, Weight, and Age Range

From Froese and Pauly (2016):

“Max length: 6.1 cm SL male/unsexed; [Triques and Vono 2004]”

Environment

From Froese and Pauly (2016):

“Freshwater; demersal; depth range ? – 0 m [Bockmann et al. 2004]”

From Caetano et al. (2016):

“*Trichomycterus diabolus* was also associated with low temperatures, high dissolved oxygen, extensive cover of riparian vegetation (riparian vegetation width greater than 18 m) and high habitat diversity (pieces of submerged trunks, gravel). [...] Works such as those of Trajano (1997), Oliveira and Bennemann (2005), Galves et al. (2007), and Rondineli et al. (2009) considered the species of the genus *Trichomycterus* as sensitive to environmental degradation and argued that they can be used as indicators of superior environmental quality in Neotropical streams.”

Climate/Range

From Froese and Pauly (2016):

“Tropical, preferred ?”

Distribution Outside the United States

Native

From Froese and Pauly (2016):

“South America: Rio Paranapanema basin in southeastern Brazil.”

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

From Froese and Pauly (2016):

“Vertebrae: 41. Distinguished from all other species of *Trichomycterus*, except for *T. castroi*, in having a conspicuous, vertical unpigmented band across the proximal region of caudal fin. Can be further differentiated from *T. castroi* in possessing that band occupying about 30% or less than the length of the caudal fin, and being more evident in the dorsal lobe as a white ocellus (vs. that zone distinctly broader, with approximately 80% of the length of the caudal fin and better defined as a whole) [Bockmann et al. 2004]”

Biology

From Froese and Pauly (2016):

“A rheophilic species occurring solely in riffle areas of streams [Bockmann et al. 2004]. Feeds mainly on young benthic aquatic insects during the day [Bockmann et al. 2004].”

From Casatti (2005):

“*Trichomycterus diabolus* (1:1) was present in the upper and middle stretches [of a first order stream in southeastern Brazil] during all seasons and was represented by juveniles and adults. The smallest frequencies of mature individuals was obtained in September at the end of the dry season, the same situation found in *H. nigromaculatus*.”

“In the upper stretch, the shallower depth, the substrate composed of gravel and pebbles and the strong current seems to represent favorable conditions for *T. diabolus* and *H. nigromaculatus*, the most abundant species in this stretch of the stream, but which are progressively less frequent in the middle and lower stretches.”

Human Uses

No information available.

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

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

The Florida Fish and Wildlife Conservation Commission has listed the parasitic catfish *Trichomycterus diabolus* as a prohibited species (FFWCC 2017).

4 Global Distribution



Figure 1. Known global established locations of *Trichomycterus diabolus*, reported from Brazil. Map from GBIF (2016).

5 Distribution Within the United States

This species has not been reported as introduced or established in the U.S.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) was high in peninsular Florida; medium in coastal Texas, eastern Georgia, and eastern South Carolina; and low elsewhere. Climate 6 proportion indicated that the contiguous U.S. has a medium climate match. The range of values representing a medium climate match is 0.005-0.103; the Climate 6 proportion of *Trichomycterus diabolus* is 0.018.

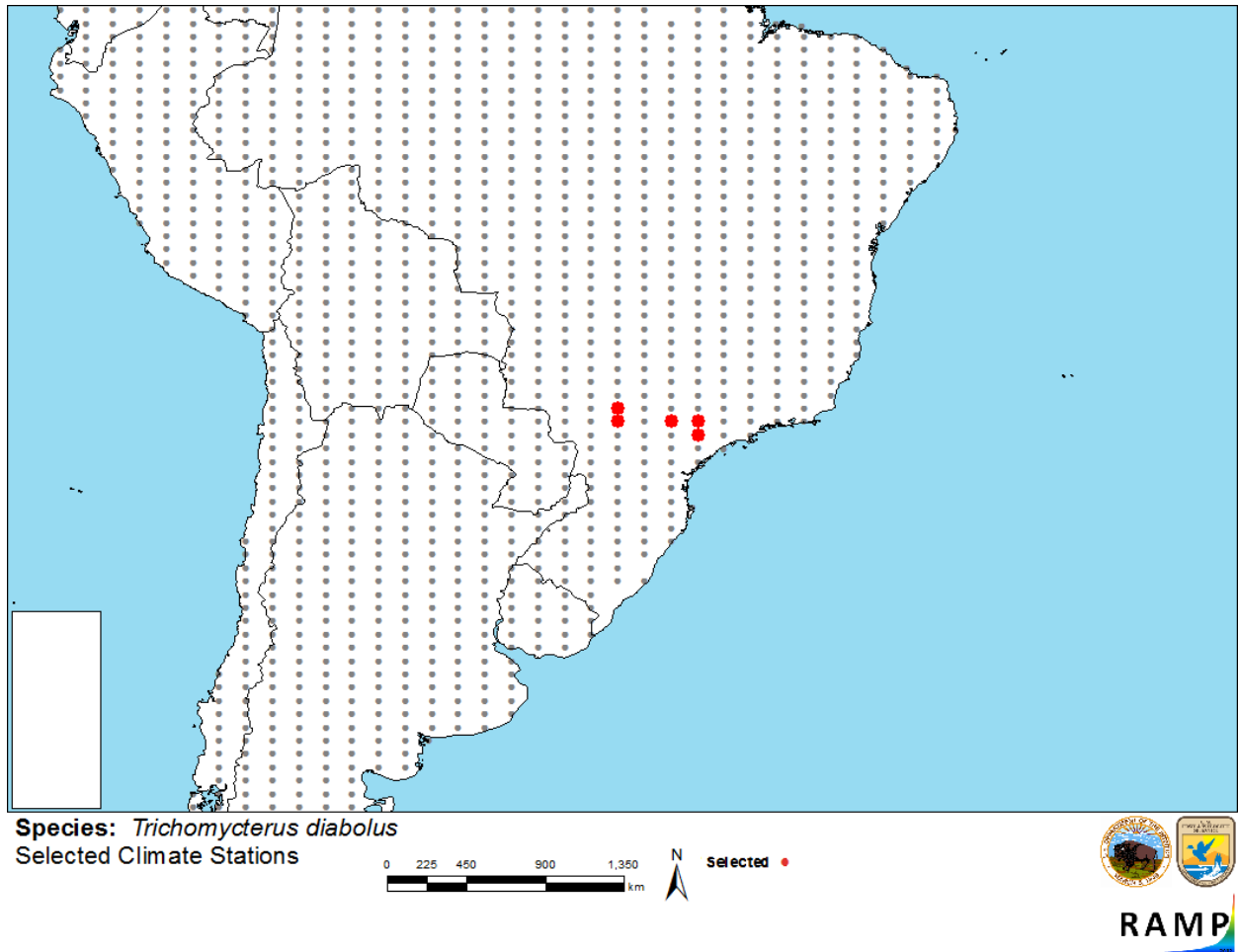


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations in South America selected as source locations (red; southern Brazil) and non-source locations (gray) for *Trichomycterus diabolus* climate matching. Source locations from GBIF (2016).

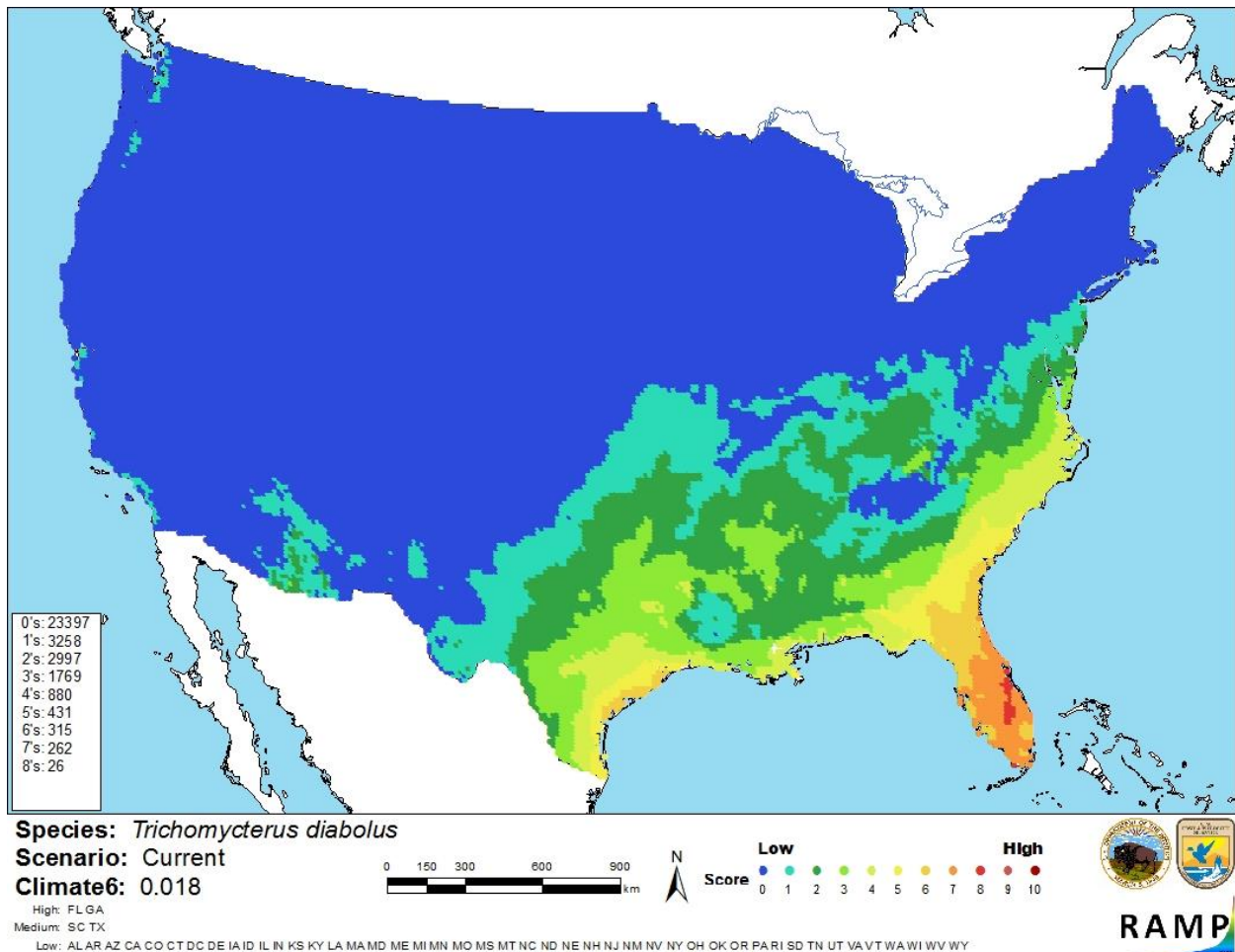


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Trichomycterus diabolus* in the contiguous United States based on source locations reported by GBIF (2016). 0= Lowest match, 10=Highest match. Counts of climate match scores are tabulated on the left.

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 some information available on the biology, habitat, and physical attributes of *T. diabolus*. No information on the invasive potential of this species is available. Certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Trichomycterus diabolus is a freshwater catfish native to the Paranapanema River basin in southeastern Brazil. The species has a medium climate match with the U.S., with highest match in Florida. The State of Florida has included the species, and all other species in the genus *Trichomycterus*, on its list of prohibited species for the State. *T. diabolus* has not been documented as introduced outside its native range, so potential impacts of introduction are unknown. Overall risk assessment category for this species is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): Medium**
- **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.

- Caetano, D. L. F., E. F. de Oliveira, and C. H. Zawadzki. 2016. Fish species indicators of environmental quality of Neotropical streams in southern Brazil, upper Paraná River basin. *Acta Ichthyologica et Piscatoria* 46(2):87-96.
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- 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/#nogo>. (January 2017).
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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.

Bockmann, F. A., L. Casatti and M. C. C. de Pinna. 2004. A new species of trichomycterid catfish from the Rio Paranapanema basin, southeastern Brazil (Teleostei: Siluriformes), with comments on the phylogeny of the family. *Ichthyological Exploration of Freshwaters* 15(3):225-242.

Galves, W., F. C. Jerep, and A. O. Shibatta. 2007. Estudo da condição ambiental pelo levantamento de três riachos na região do Parque Estadual Mata dos Godoy (PEMG), Londrina, Paraná, Brasil. [Environmental condition study through macrofauna survey of three streams around Parque Estadual Mata dos Godoy (PEMG), Londrina, PR, Brazil.] *Pan-American Journal of Aquatic Sciences* 2(1):55-65. (In Portuguese.)

Oliveira D. C., and S. T. Bennemann. 2005. Ictiofauna, recursos alimentares e relações com as interferências antrópicas em um riacho urbano no sul do Brasil. [Ichthyofauna, food resources, and relations with anthropogenic interference in an urban stream in southern Brazil.] *Biota Neotropica* 5(1):95-107. (In Portuguese.)

Sato, L. R, C. Oliveira, and F. Foresti. 2004. Karyotype description of five species of *Trichomycterus* (Teleostei, Siluriformes, Trichomycteridae). *Genetics and Molecular Biology* 27(1):45-50.

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