

# *Trichomycterus striatus* (a catfish, no common name)

## Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, December 2016

Revised, February 2018

Web Version, 2/27/2020



Photo: R. J. Eakins. Licensed under Creative Commons (CC BY-NC-SA). Available: [http://v3.boldsystems.org/index.php/Taxbrowser\\_Taxonpage?taxid=55110](http://v3.boldsystems.org/index.php/Taxbrowser_Taxonpage?taxid=55110). (February 2018).

## 1 Native Range and Status in the United States

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### Native Range

From Angulo et al. (2018):

“*Trichomycterus striatus* occurs from southern Costa Rica [from the Pirrís (herein reported for the first time), Térraba and Coto River basins] to eastern Panama (in most of the main river

basins in both the Pacific and Atlantic versants), being the sole representative of the family in lower Central American waters.”

## **Status in the United States**

This species has not been reported as introduced or established in the United States. There is no indication that this species is in trade in the United States.

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 (2019):

“Nonnative Conditional species (formerly referred to as restricted species) and Prohibited species are considered to be dangerous to Florida’s native species and habitats or could pose threats to the health and welfare of the people of Florida. These species are not allowed to be personally possessed, but can be imported and possessed by permit for research or public exhibition; Conditional species may also be possessed by permit for commercial sales. Facilities where Conditional or Prohibited species are held must meet certain biosecurity criteria to prevent escape.”

*Trichomycterus striatus* is listed as a Prohibited species in Florida.

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 [Nevada Administrative Code] 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 Cetosidae 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 or established in the United States.

## Remarks

According to Eschmeyer et al. (2016), *T. striatus* was originally described as *Pygidium striatum*. The valid scientific name, *T. striatus*, as well as synonyms *P. striatum* and *P. septentrionale* were all used to search for information on this species.

From Bussing (1998):

“Meek & Hildebrand described *P. striatum* from the Río Tuyra, eastern Panama. Behre (1928) and Loftin (1965) recorded *P. striatum* from several localities throughout Panama. Behre (1928) described *Pygidium septentrionale* of western Panama based on 12 specimens with a broad, short head. Bussing (1967) considered two Costa Rican individuals as representative of *P. striatum* on comparing them with Panamanian specimens collected by Loftin. On the basis of additional individuals of greater size from Costa Rica, I considered that the nominal species *P. septentrionale* does not present any characteristic that could not be included in the normal range of allometric variation of *P. striatum* and therefore *P. septentrionale* should be considered a synonym of *P. striatum*. *Pygidium* is a synonym of *Trichomycterus* according to the priority rules of ICZN (Arratia & Menu-Marque, 1984).”

From Angulo et al. (2018):

“[...] the examination and direct comparison of specimens collected from both the Atrato and Magdalena River basins [of Colombia] identified as *T. striatus* with specimens from Panama and Costa Rica, have revealed some morphological differences, raising doubts on the actual occurrence of the species in Colombia. The resolution of the taxonomic status of the Colombian populations of *T. striatus* is currently under study by one of the authors [C. Donascimento], thus we herein opt to defer the inclusion of these previous records of *T. striatus* from Colombian river basins.”

## 2 Biology and Ecology

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### Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2016):

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  
Subfamily Trichomycterinae  
Genus *Trichomycterus*  
Species *Trichomycterus striatus*

From Eschmeyer et al. (2016):

“Current status: Valid as *Trichomycterus striatus* (Meek & Hildebrand 1913). Trichomycteridae: Trichomycterinae.”

### Size, Weight, and Age Range

From Froese and Pauly (2016):

“Max length : 8.4 cm male/unsexed; [de Pínna and Wosiacki 2003]”

From Bussing (1998):

“[...] reaches 120 mm in length.”

### Environment

From Angulo et al. (2018):

“*Trichomycterus striatus* inhabits forest brooks and creeks, of low to moderate current velocity, with bottoms consisting mainly of sand or small to medium sized rocks, with periphytic and/or submerged vegetation usually present (Bussing 1998). In Costa Rica, *T. striatus* has been reported at elevations ranging from 20 to 660 m (Bussing 1998, Angulo et al. 2013), reaching up to 1220 m in Panama (Behre 1928, Bussing 1998).”

## **Climate/Range**

From Froese and Pauly (2016):

“Tropical [...]”

## **Distribution Outside the United States**

Native

From Angulo et al. (2018):

“*Trichomycterus striatus* occurs from southern Costa Rica [from the Pirrís (herein reported for the first time), Térraba and Coto River basins] to eastern Panama (in most of the main river basins in both the Pacific and Atlantic versants), being the sole representative of the family in lower Central American waters.”

Introduced

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

## **Means of Introduction Outside the United States**

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

## **Short Description**

From Angulo et al. (2018):

“This species can be diagnosed from all other northeastern South American congeners by its variable coloration pattern consisting of a yellowish to light brown background with a black lateral band and/or small dark brown spots on sides or uniformly light brown and by the following combination of characters: teeth conical arranged in three to four irregular rows in both jaws; anterior section of infraorbital canal (sensory pores i1 and i3) present; sensory pores s6 paired, 11–23 opercular odontodes; 27–44 interopercular odontodes; seven to eight pectoral-fin branched rays; 36–37 free vertebrae; 12–14 ribs; cleithrum pierced by several foramina; and caudal fin truncate to rounded.”

## **Biology**

From Angulo et al. (2018):

“Kramer & Bryant (1995) determined that in the Chagres River basin, Panama, this species fed almost exclusively on benthic aquatic invertebrates, mainly insect larvae.”

## **Human Uses**

No information reported for this species.

## **Diseases**

No OIE-reportable diseases (OIE 2020) have been documented for this species.

## Threat to Humans

From Froese and Pauly (2016):

“Harmless”

## 3 Impacts of Introductions

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

The importation, possession, or trade of the catfish *T. striatus* is prohibited or restricted in the following states: Arizona (Arizona Secretary of State 2006), California (Dill and Cordone 1997), Florida (FFWCC 2019), 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

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**Figure 1.** Map of known global distribution of *Trichomycterus striatus*, reported from Central and northwestern South America. Map from GBIF Secretariat (2019). Occurrences reported in Colombia were not included in the climate matching analysis because there is doubt as to whether these occurrences actually represent *T. striatus* (see Remarks).

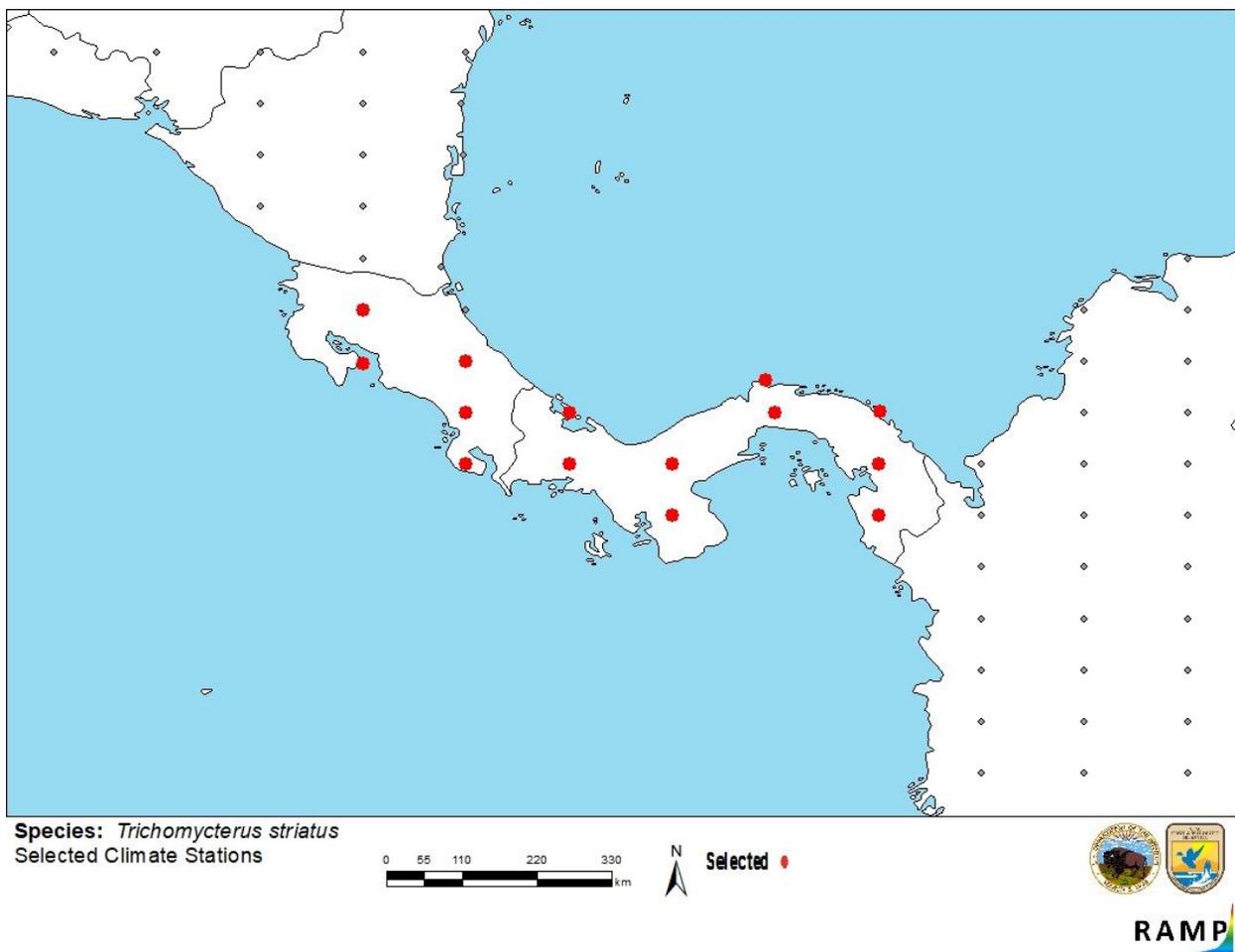
## 5 Distribution Within the United States

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

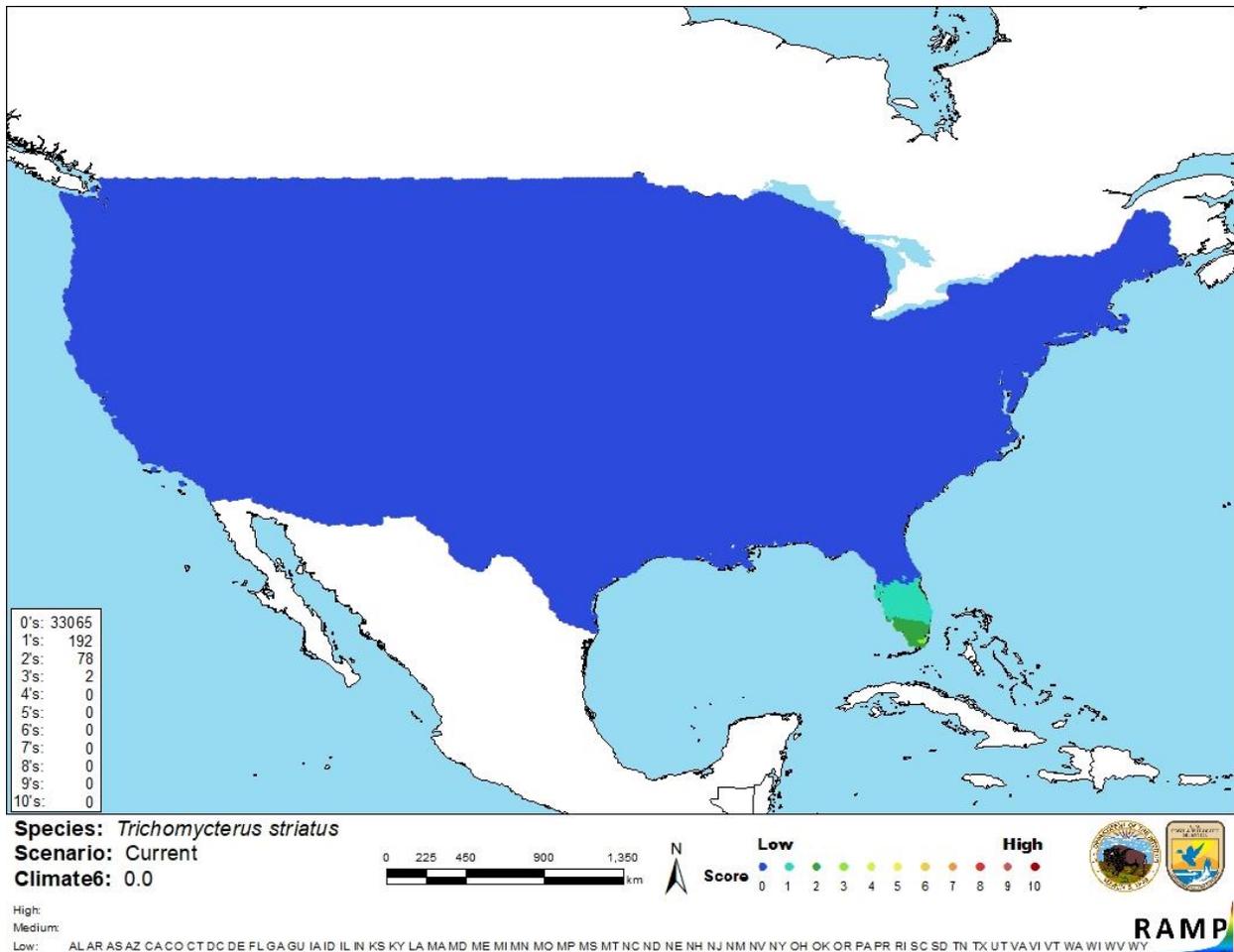
## 6 Climate Matching

### Summary of Climate Matching Analysis

The climate match (Sanders et al. 2018; 16 climate variables; Euclidean Distance) was low throughout the contiguous United States, with slightly higher—but still low—climate match in southern Florida. The Climate 6 score indicated that the contiguous United States has a low overall climate match. (Scores between 0.000 and 0.005, inclusive, are classified as low.) The Climate 6 score of *Trichomycterus striatus* is 0.0. All States had individually low climate scores.



**Figure 2.** RAMP (Sanders et al. 2018) source map showing weather stations in Central America selected as source locations (red; Panama and Costa Rica) and non-source locations (gray) for *Trichomycterus striatus* climate matching. Source locations from GBIF Secretariat (2019).



**Figure 3.** Map of RAMP (Sanders et al. 2018) climate matches for *Trichomycterus striatus* in the contiguous United States based on source locations reported by 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
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
$\geq 0.103$	High

## 7 Certainty of Assessment

Information on the distribution of *T. striatus* is available, but not fully resolved. Information on the biology of this species is limited. There are no documented introductions of this species outside of its native range. Therefore, data on the impacts of introductions are unavailable. The certainty of this assessment is low due to lack of information and uncertainty about the true native distribution.

## 8 Risk Assessment

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### Summary of Risk to the Contiguous United States

*Trichomycterus striatus* is a small catfish native to Costa Rica and Panama. Several U.S. States prohibit or restrict the possession, transport, or trade of this species along with other members of the family Trichomycteridae. There are no documented introductions of this species outside of its native range, so history of invasiveness is uncertain. The certainty of this assessment is low due to uncertainty over the native range extent and the lack of information on impacts of introduction. This species has a low overall climate match with the contiguous United States. 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

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

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- 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.
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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.
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## 10 References Quoted But Not Accessed

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**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.**

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