

***Rhizosomichthys totae* (a catfish, no common name)**

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, January 2017

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1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2016):

“South America: Lake Tota basin in Colombia.”

Status in the United States

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

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] *Rhizosomichthys totae*”

Means of Introductions in the United States

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

Remarks

From GBIF (2016):

“SYNONYMS

Pygidium totae Miles, 1942

Trichomycterus totae (Miles, 1942)”

From Mesa-Salazar and Mojica (2016):

“This species is listed as Critically Endangered (Possibly Extinct) because it is known only from Lago de Tota and has been collected in two instances, when it was described in 1942 and again in 1958. The species has not been collected since then, and it is suspected that the introduction in the lake of several fish species in 1944 has caused the decline of the population of this species. In addition, the lake is affected by pollution from agrochemicals from nearby agricultural activities. Surveys in the area in the 1990s failed to record the species in the lake.”

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
Subfamily	Trichomycterinae

Genus *Rhizosomichthys*
Species *Rhizosomichthys totae* (Miles, 1942)”

“Current Standing: valid”

Size, Weight, and Age Range

From Froese and Pauly (2016):

“Max length : 13.8 cm male/unsexed; [de Pínna and Wosiacki 2003]”

Environment

From Froese and Pauly (2016):

“Freshwater; benthopelagic.”

Climate/Range

From Froese and Pauly (2016):

“Tropical, preferred ?”

From Miles (1942):

“[...] [elevation] 10,000 feet [...]”

Distribution Outside the United States

Native

From Froese and Pauly (2016):

“South America: Lake Tota basin in Colombia.”

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 Miles (1942):

“Body cylindrical, with 6 or 7 fatty rings of blubber-like tissue around the body, and two large nuchal blisters, the tail smooth, compressed. Depth 4.75 to 5.25, c.p. 7.5 to 8. Head depressed, 4.66 to 5. Snout 2.5 to 2.66, eye small, without free margin. Longest maxillary barbel reaches to gill opening. A small group of spines in opercle and a prominent triple row along interopercle. Teeth numerous, long, prominent, sharp-pointed, slightly recurved. Pectoral slightly filamentous;

dorsal, caudal, rounded. Dorsal equidistant between free margin of caudal and eye. Origin dorsal to origin caudal 1.66 in distance of former from snout. Origin of anal under last rays of dorsal; ventrals slightly in advance of latter. Distance anal-caudal 3.5 in the length. D.9, A.6 (?). Color brown.[...]

Readily distinguished from the other known members of the family by its fatty rings and ungainly form. The flesh consists largely of oil, which burns freely when ignited.”

Biology

From Schaefer and Fernandez (2009):

“*Rhizosomichthys totae* is thought (Miles, 1943:98) to have occupied the deeper portions of Lago de Tota, which may be partly responsible for its infrequent capture and rarity in collections. [...] Our discussions with local fisherman in 2007 suggest that there exists certain historical knowledge of the fish, but the species has not been encountered within the last 20 years.”

Human Uses

From Mesa-Salazar and Mojica (2016):

“The species is not utilized.”

Diseases

No information available.

Threat to Humans

From Froese and Pauly (2016):

“Harmless”

3 Impacts of Introductions

No introductions of this species have been reported.

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] *Rhizosomichthys totae*”

4 Global Distribution

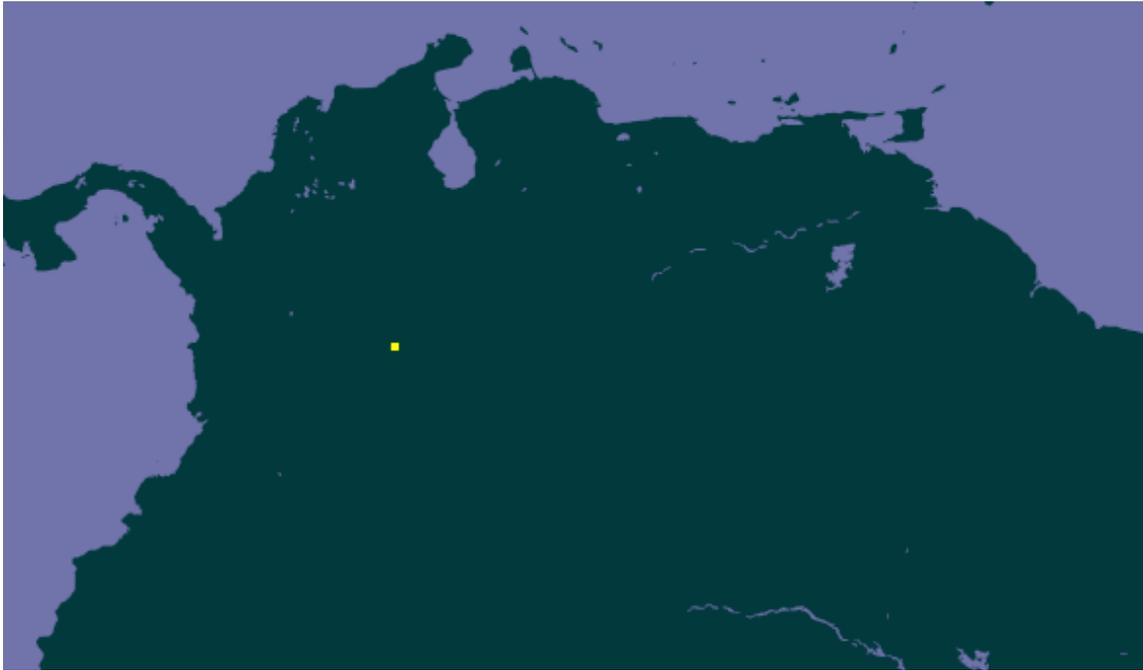


Figure 1. Known global established locations of *Rhizosomichthys totae* in Colombia. Map from GBIF (2016).

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 6 score (Sanders et al. 2014; 16 climate variables; Euclidean Distance) was low throughout the contiguous U.S., reflected in a Climate 6 proportion of 0.0. The range for Climate 6 proportions indicating a low climate match is 0.000 to 0.005. Because *R. totae* is found at 10,000 feet in elevation and the elevation effects on climate may not be fully captured by the climate stations used for matching, this climate match may be an underestimate of the true climate match of *R. totae* to the contiguous U.S.



Figure 1. RAMP (Sanders et al. 2014) source map showing weather stations in Colombia selected as source locations (red) and non-source locations (gray) for *Rhizosomichthys totae* climate matching. Source locations from GBIF (2016).

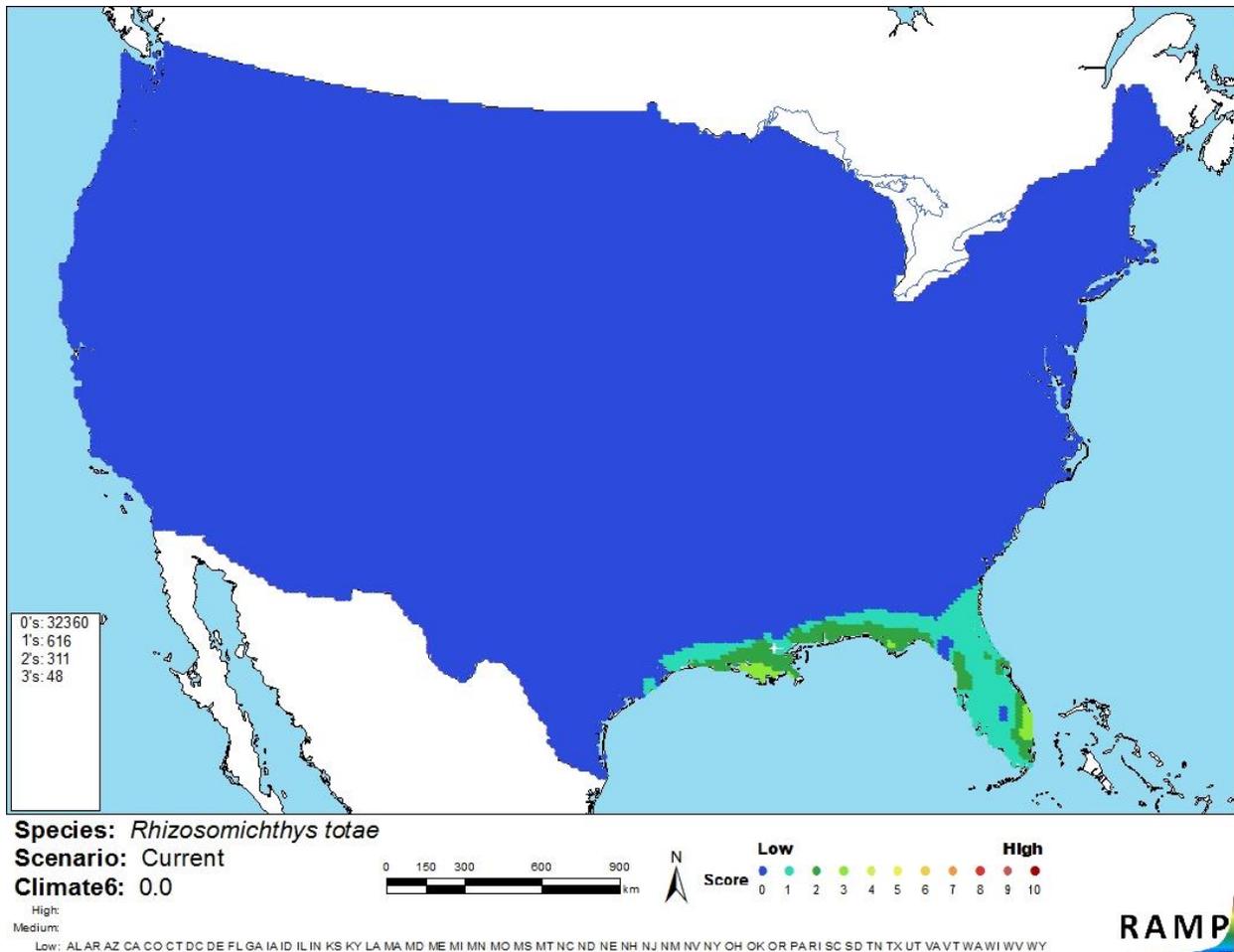


Figure 2. Map of RAMP (Sanders et al. 2014) climate matches for *Rhizosomichthys totae* in the contiguous United States based on source locations reported by GBIF (2016). 0= Lowest match, 10=Highest match. Counts of climate match scores are tabulated on the left.

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 very limited information available on the biology of *Rhizosomichthys totae* and the potential impacts of an introduction are unknown because no introductions of the species have been documented. Due to the lack of information, the certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Rhizosomichthys totae is a trichomycterid catfish species endemic to a single lake in Colombia. The species has not been sighted in decades and is probably extinct. *R. totate* has not been reported as introduced outside its native range, so impacts of introduction are unknown, but along with other members of its family, possession of the species is prohibited in the state of Florida. Climate match to the contiguous U.S. is low. Overall risk posed by *R. totae* 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.

- 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/#nogo>. (December 2016).
- Froese, R., and D. Pauly, editors. 2016. *Rhizosomichthys totae* (Miles, 1942). FishBase. Available: <http://www.fishbase.org/summary/Rhizosomichthys-totae.html>. (January 2017).
- GBIF (Global Biodiversity Information Facility). 2016. GBIF backbone taxonomy: *Rhizosomichthys totae* (Miles, 1942). Global Biodiversity Information Facility, Copenhagen. Available: <http://www.gbif.org/species/2343238>. (January 2017).
- ITIS (Integrated Taxonomic Information System). 2017. *Rhizosomichthys totae* (Miles, 1942). Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=682157#null. (January 2017).
- Mesa-Salazar, L., and J. Mojica. 2016. *Rhizosomichthys totae*. The IUCN Red List of Threatened Species 2016: e.T19661A61472482. Available: <http://www.iucnredlist.org/details/19661/0>. (January 2017).
- Miles, C. 1942. Descripción sistemática del "pez graso" del Lago de Tota (Boyacá). *Caldasia* 5:55-58.

Sanders, S., C. Castiglione, and M. H. Hoff. 2014. Risk Assessment Mapping Program: RAMP. U.S. Fish and Wildlife Service.

Schaefer, S. A., and L. Fernández. 2009. Redescription of the Pez Graso, *Rhizosomichthys totae* (Trichomycteridae), of Lago de Tota, Colombia, and aspects of cranial osteology revealed by microtomography. *Copeia* 2009(3):510-522.

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.

Miles, C. 1943. On three recently described species and a new genus of pygidiid fishes from Colombia. *Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales* 5:367-369.