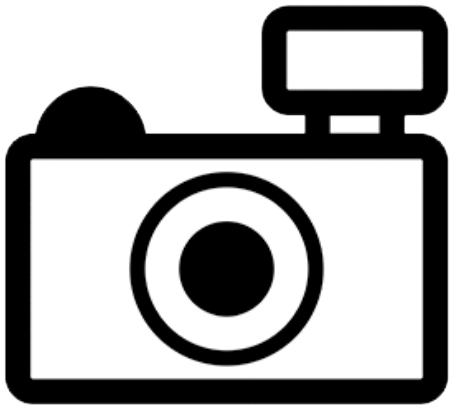
Tridensimilis venezuelae (a catfish, no common name)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, January 2017
Revised, June 2018
Web Version, 11/1/2019



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1 Native Range and Status in the United States

Native Range

From Reis and Lima (2009):

"This species occurs in Venezuela and is endemic to the Maracaibo Lake basin."

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, according to the literature and a search of online aquarium retailers.

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."

Tridensimilis venezuelae 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 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 Cetopsidae 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

General references (Froese and Pauly 2016; Eschmeyer et al. 2018) report this species as native to the Orinoco River basin in Venezuela, rather than the Maracaibo Lake basin. This discrepancy may stem from de Pinna and Wosiacki (2003), a source cited by both Froese and Pauly (2016) and Eschmeyer et al. (2018), which lists the type locality of *T. venezuelae* as the Maracaibo basin but the distribution as the Orinoco River basin. Scientific literature focused specifically on Venezuelan ichthyofauna appears to agree with Reis and Lima (2009) that *T. venezuelae* is native or endemic to that region (DoNascimiento and Provenzano 2006; Pérez Lozáno and Taphorn 2009; Rodgríguez-Olarte et al. 2009), so the Maracaibo basin was treated as the native range of *T. venezuelae* within this report.

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 Tridentinae
Genus *Tridensimilis*
Species *Tridensimilis venezuelae* Schultz, 1944"

From Eschmeyer et al. (2018):

"Current status: Valid as *Tridensimilis venezuelae* Schultz 1944. Trichomycteridae: Tridentinae."

Size, Weight, and Age Range

From Froese and Pauly (2016):

"Max length : 2.5 cm TL male/unsexed; [de Pínna and Wosiacki 2003]"

Environment
From Froese and Pauly (2016):

"Freshwater; demersal. […] 22°C - 28°C [Baensch and Riehl 1997; assumed to be recommended aquarium temperature range]"

Climate/Range
From Froese and Pauly (2016):

"Tropical;"

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

"South America: Orinoco River basin."

From Reis and Lima (2009):

"This species occurs in Venezuela and is endemic to the Maracaibo Lake basin."

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 Schultz (1944):

"Measurements of the holotype and one paratype, expressed in hundredths of the standard length are recorded below, first for the holotype, then for the paratype in parentheses."

"Length of head 16.9 (15.7); width of head across eyes 14.9 (15.7); greatest depth of body 16.9 (17.1); length of snout 8.72 (8.82); diameter of eye 4.62 (3.92); width of interorbital space 8.72 (9.32); postorbital length of head 6.16 (5.88) ; length of longest ray of anal fin 6.66 (7.35); longest ray of dorsal fin 8.20 (8.33); longest ray of pelvics 7.18 (7.84); longest ray of pectorals 10.2 (9.80); least depth of caudal peduncle 6.66 (6.86); length of caudal peduncle 17.9 (17.6); longest ray of caudal fin 14.9 (16.7); distance from tip of snout to origin of dorsal fin 7.08 (6.96); snout to anal origin 55.9 (64.2); snout to pelvics 45.1 (44.6)."

"The following counts were made: Dorsal rays iii,8 (iii,8) and, in addition, 6 paratypes had iii,8, and 3, iii,9 rays; anal rays iii,l8 (iii,20), in addition one paratype had iii, 18, 2, iii,19, 3, iii,20, and

2, iii,21 anal rays; pectoral rays i,5 (i,5) and i,5 in 9 other examples counted; pelvic rays always i,4; branched caudal fin rays always 11, with 5 above and 6 below."

"The head is greatly depressed forward, the body becoming rounded opposite pectoral fins and much compressed from pelvic fins posteriorly; the greatest depth occurs between pelvics and anal origin; the greatest width is across the eyes; mouth inferior but lower lip not reverted except at corner of mouth; a single maxillary barbel not reaching past pupil; margin of eyes not free; pupil round; gill membranes joined across isthmus with wide free fold; pectorals reaching about one-third the way to pelvics; pelvics short, the distance between pelvic insertion and anal origin about 6 times in standard length; pelvics inserted closer to tip of snout than to base of caudal fin by 2 eye diameters; anal origin about 1 $^{4}/_{5}$ eye diameters in front of a vertical line through dorsal origin; first rays of anal longest, tapering to shorter rays posteriorly; caudal fin concave; nostrils widely separated, connected by a tube, the anterior nostril with a raised rim, posterior opening covered by a valvular flap; anus immediately in front of anal origin."

"Color (in alcohol).— White, eyes black; a series of black pigment cells along bases of dorsal and anal fins, and a line of larger black pigment cells extends from below and behind pectoral fins to anal origin ; caudal fin slightly dusky posteriorly, other fins translucent. No pigment spots on top of the head."

Biology
No information available.

Human Uses
No information available.

Diseases
No information available. No OIE-reportable diseases (OIE 2019) 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 or established outside of its native range, so no information is available on impacts of introduction.

The importation, possession, or trade of the parasitic catfish *T. brevis* 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

Figure 1. Known global distribution of *Tridensimilis venezuelae*, reported from Colombia and Venezuela. Map from GBIF Secretariat (2019). Occurrences in the Orinoco River basin were excluded from the climate matching analysis (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 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.001, which is a low climate match. (Scores between 0.000 and 0.005, inclusive, are classified as low.) Florida had a medium climate score. All other states had a low climate score. Southern Florida and coastal southeastern Texas had a medium climate match. The rest of the contiguous United States had a low match.

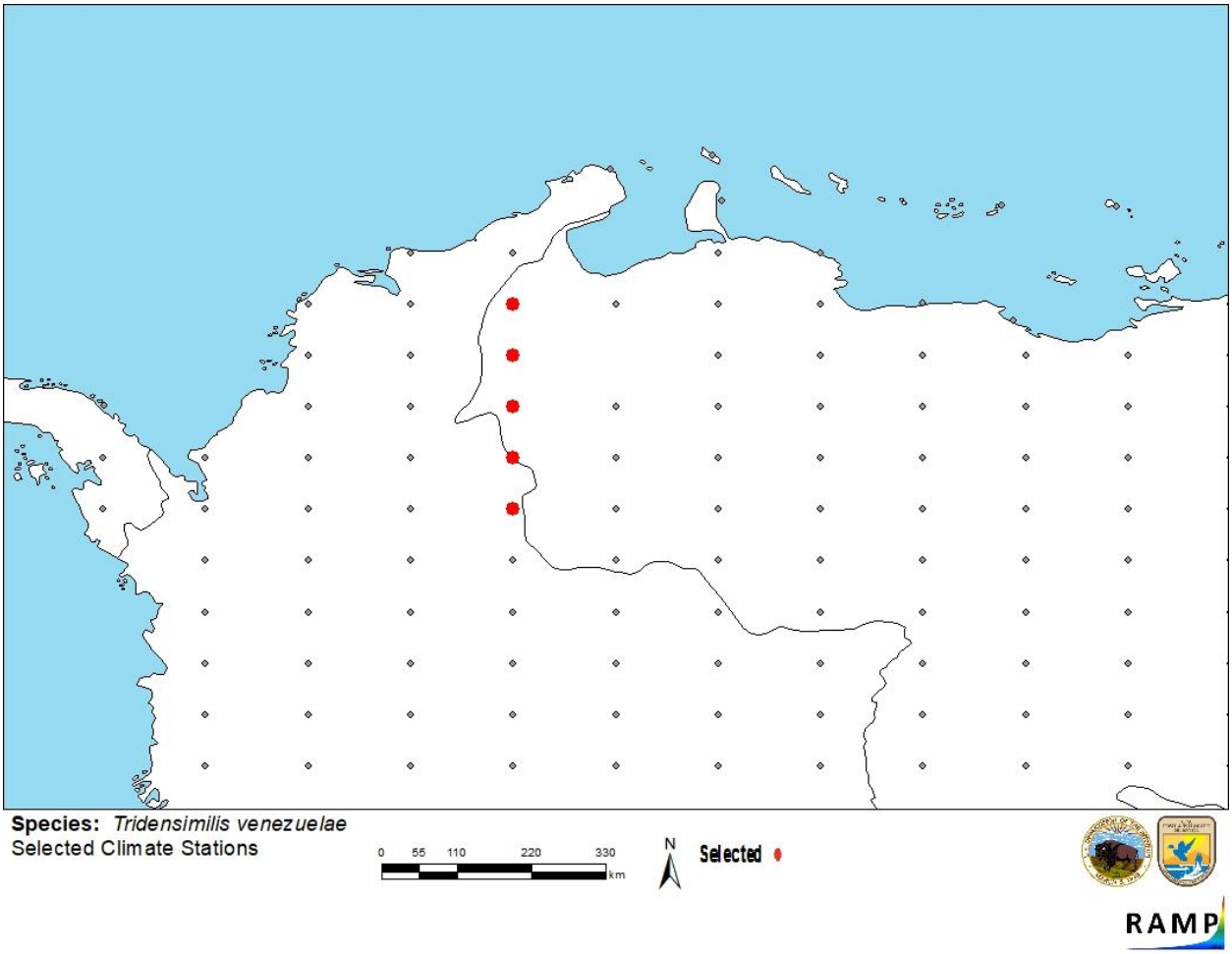

Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations selected as source locations (red; Colombia, Venezuela) and non-source locations (gray) for *Tridensimilis venezuelae* climate matching. Source locations from GBIF Secretariat (2019).

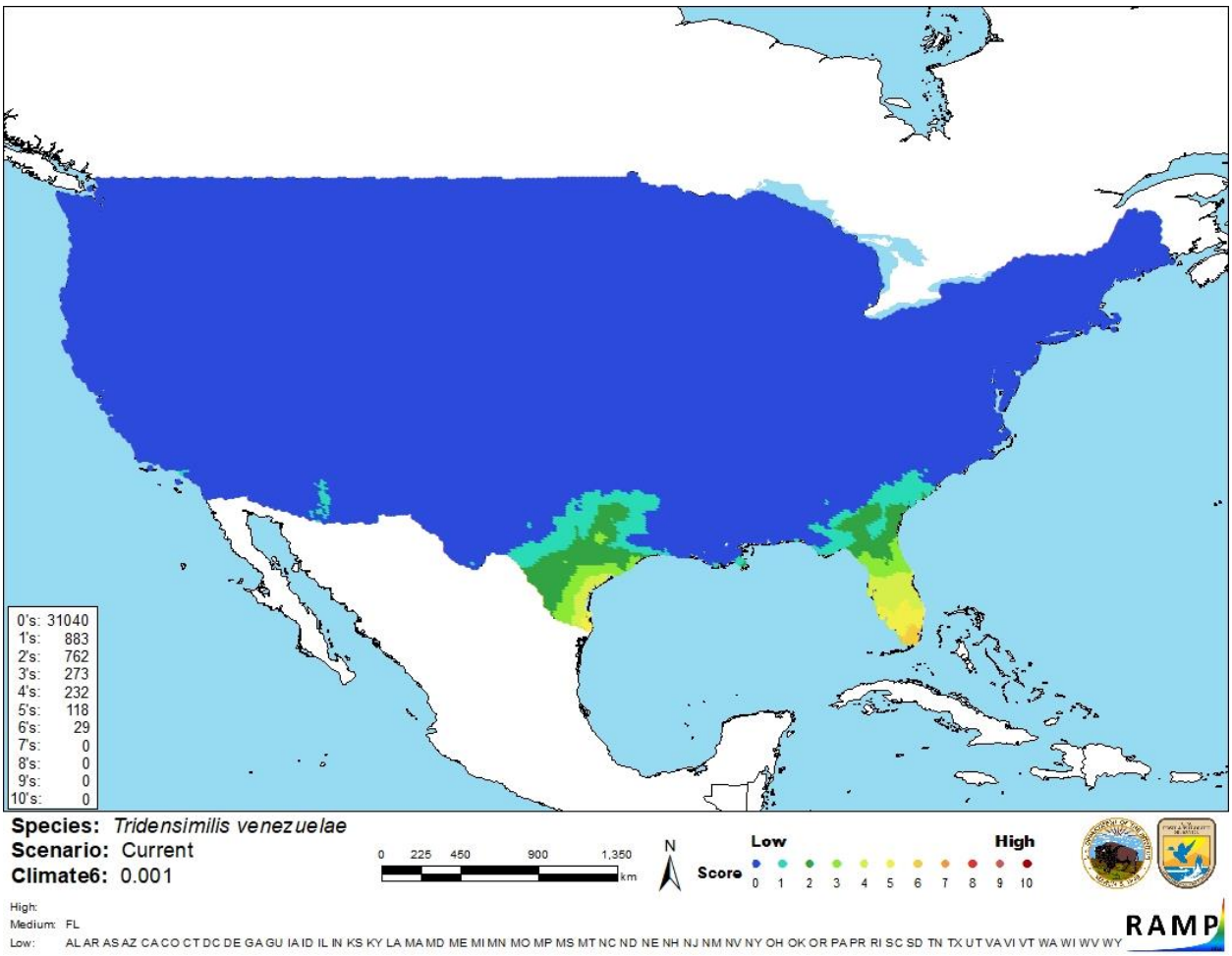

Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Tridensimilis venezuelae* in the contiguous United States based on source locations reported by GBIF Secretariat (2019). 0= Lowest match, 10=Highest match.

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

Trichomycterus venezuelae has never been documented as introduced outside its native range. There is no information available about the biology of this species. Additionally, there are discrepancies among sources about the extent of the native range. The certainty of this assessment is low because of the lack of information about the species and potential impacts of its introduction.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Tridensimilis venezuelae is a parasitic catfish native to the Lake Maracaibo basin in Venezuela, on the border with Colombia. This species has a low climate match to the contiguous United States. It has not been documented as introduced outside of its native range, so history of invasiveness is uncertain. Several U.S. States prohibit or restrict the possession, transport, or trade of this species along with other members of the family Trichomycteridae. There is very little information available about this species, so the certainty of this assessment is low. The overall risk assessment category of 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.

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OIE (World Organisation for Animal Health). 2019. OIE listed diseases, infections and infestations in force in 2019. Available: http:www.oie.int/animal-health-in-the-world/oie-listed-diseases-2019/. (August 2019).

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Rodríguez-Olarte, D., D. C. Taphorn, and J. Lobón-Cerviá. 2009. Patterns of freshwater fishes of the Caribbean versant of Venezuela. International Review of Hydrobiology 94(1):67-90.

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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.

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