

Trichomycterus nigricans (a catfish, no common name)

Ecological Risk Screening Summary

Lucas Shea, January 2017
Katie Reed, June 2018

Organism Type: Fish
Overall Risk Assessment Category: Uncertain



Photo: Hautecoeur M., 2005. Licensed under CC BY-NC-ND. Available: <https://science.mnhn.fr/institution/mnhn/collection/ic/item/b-0251>. (June 2018).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2018):

“South America: coastal drainages in Santa Catarina, Brazil”

Status in the United States

Trichomycterus nigricans has not been reported in the United States. No information on trade in the United States of *T. nigricans* was found.

From Arizona Office of the Secretary of State (2013):

“I. Fish listed below are considered restricted wildlife: [...]”

9. All species of the family Cetopsidae and Trichomycteridae. Common name: South American catfish.”

From California Department of Fish and Wildlife (2019):

“It shall be unlawful to import, transport, or possess live animals restricted in subsection (c) below except under permit issued by the department. [...] Family Trichomycteridae (Pygidiidae)-Parasitic Catfishes.: All species”

The Florida Fish and Wildlife Conservation Commission has listed *T. nigricans* as a prohibited species. Prohibited nonnative species (FFWCC 2017), "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.

From Georgia DNR (2020):

“The exotic species listed below, except where otherwise noted, may not beheld as pets in Georgia. This list is not all inclusive. [...]

Parasitic catfishes; all species”

From Louisiana State Legislature (2019):

“No person, firm, or corporation shall at any time possess, sell, or cause to be transported into this state 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: freshwater electric eel (*Electrophorus* sp.); rudd (*Scardinius erythrophthalmus*); all members of the families Synbranchidae (Asian swamp eels); Channidae (snakeheads); Clariidae (walking catfishes); 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. However, species listed as prohibited may be allowed under a permitting process where environmental impact has been assessed. [...]

Pencil or parasitic catfishes Family Trichomycteridae **** [indicating all species within the family are included in the regulation]”

From State of Nevada (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: [...]

South American Parasitic Catfish.....All species in the families Cetopsidae and Trichomycteridae”

From Oklahoma Secretary of State (2019):

“Until such time as is necessary for the Department of Wildlife Conservation to obtain adequate information for the determination of other harmful or potentially harmful exotic species, the importation into the State and/or the possession of the following exotic fish or their eggs is prohibited: [...]

Parasitic South American Catfish group (Candiru), genera & species of the Trichomycteridae family. Vandellia spp., Tridens spp., and Pygidium spp.”

From Texas Parks and Wildlife (2020):

“The organisms listed here are legally classified as exotic, harmful, or potentially harmful. No person may possess or place them into water of this state except as authorized by the department. Permits are required for any individual to possess, sell, import, export, transport or propagate listed species for zoological or research purposes; for aquaculture(allowed only for Blue, Nile, or Mozambique tilapia, Triploid Grass Carp, or Pacific White Shrimp); or for aquatic weed control (for example, Triploid Grass Carp in private ponds). [...]

South American Parasitic Candiru Catfishes, Family Trichomycteridae All species”

From Utah Office of Administrative Rules (2019):

“All species of fish listed in Subsections (2) through (30) are classified as prohibited for collection, importation and possession, [...] Parasitic catfish (candiru, carnero) family Trichomycteridae (All species).”

Means of Introductions in the United States

Trichomycterus nigricans has not been reported in the United States.

Remarks

No additional remarks.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Eschmeyer et al. (2018), *Trichomycterus nigricans* Valenciennes 1832 is the current valid name of this species; it is also the original name.

From ITIS (2018):

Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii
Class Teleostei
Superorder Ostariophysii
Order Siluriformes
Family Trichomycteridae
Subfamily Trichomycterinae
Genus *Trichomycterus*
Species *Trichomycterus nigricans* Valenciennes, 1832

Size, Weight, and Age Range

From Froese and Pauly (2017):

“Max length : 8.9 cm male/unsexed; [de Pinna and Wosiacki, 2003]”

From Arratia (1998):

“Body measurements of holotype (in mm): standard length 124.0; [...]”

Environment

From Froese and Pauly (2018):

“Freshwater; benthopelagic.”

Climate

From Froese and Pauly (2018):

“Tropical”

Distribution Outside the United States

Native

From Froese and Pauly (2018):

“South America: coastal drainages in Santa Catarina, Brazil”

Introduced

Trichomycterus nigricans is not reported as introduced or established anywhere in the world.

Means of Introduction Outside the United States

Trichomycterus nigricans is not reported as introduced or established anywhere in the world.

Short Description

From Froese and Pauly (2018):

“Dorsal soft rays (total): 13; Anal soft rays: 10; Vertebrae: 36”

From Arratia (1998):

“The counts of fin rays done directly on the specimen are similar to those given by Valenciennes (in Cuvier & Valenciennes, 1846: 494) for pectoral (9), pelvic (5), anal (10), and caudal (13 principal rays) fins. The total number of caudal fin-rays given by Valenciennes was 28; however, the radiographs show a high number of small precurrent rays and the total count is 42 caudal rays. [...] The number of branchiostegal rays (7) given by Valenciennes was corrected from Valenciennes (in Humboldt & Valenciennes, 1833 [Humboldt 1833]: 6 branchiostegal rays) after dissection of the specimen.”

“Body measurements of holotype (in mm): standard length 124.0; head length 22.0; predorsal length 75.8; prepelvic length 68.3; preanal length 86.3; nasal barbel length 11.0; maxillary barbel length 10.5; submaxillary barbel length 9.7; dorsal fin base length 15.6; anal fin base length 10.6; maximum body depth 18.8; peduncle depth 14.2; interorbital width 5.3; mouth width 7.5; eye diameter 2.8.”

“The body is elongated and its dorsal margin nearly straight. The distal ends of the caudal rays are damaged, but the total length of the fish is approximately 150 mm. The dorsal fin is posteriorly placed, as well as the pelvic and anal fins. The origin of the pelvic fins is slightly posterior to that of the pelvics and the origin of the pelvic fins is slightly posterior to the half

length of the body. The origin of the anal fin is in front of the insertion of the last pair of dorsal rays.”

Biology

No information on the biology of *Trichomycterus nigricans* is available.

Human Uses

No information could be found on human use of *Trichomycterus nigricans*.

Diseases

No records could be found on pathogens and parasites associated with *Trichomycterus nigricans*.
No records of OIE-reportable diseases (OIE 2021) were found for *T. nigricans*.

Threat to Humans

From Froese and Pauly (2018):

“Harmless”

3 Impacts of Introductions

Trichomycterus nigricans has not been reported as introduced anywhere in the world.

T. nigricans is regulated in multiple States.

4 History of Invasiveness

There were no records of introduction found for *Trichomycterus nigricans* and there was no indication of this species in trade. Therefore, the history of invasiveness is classified as No Known Nonnative Population.

5 Global Distribution



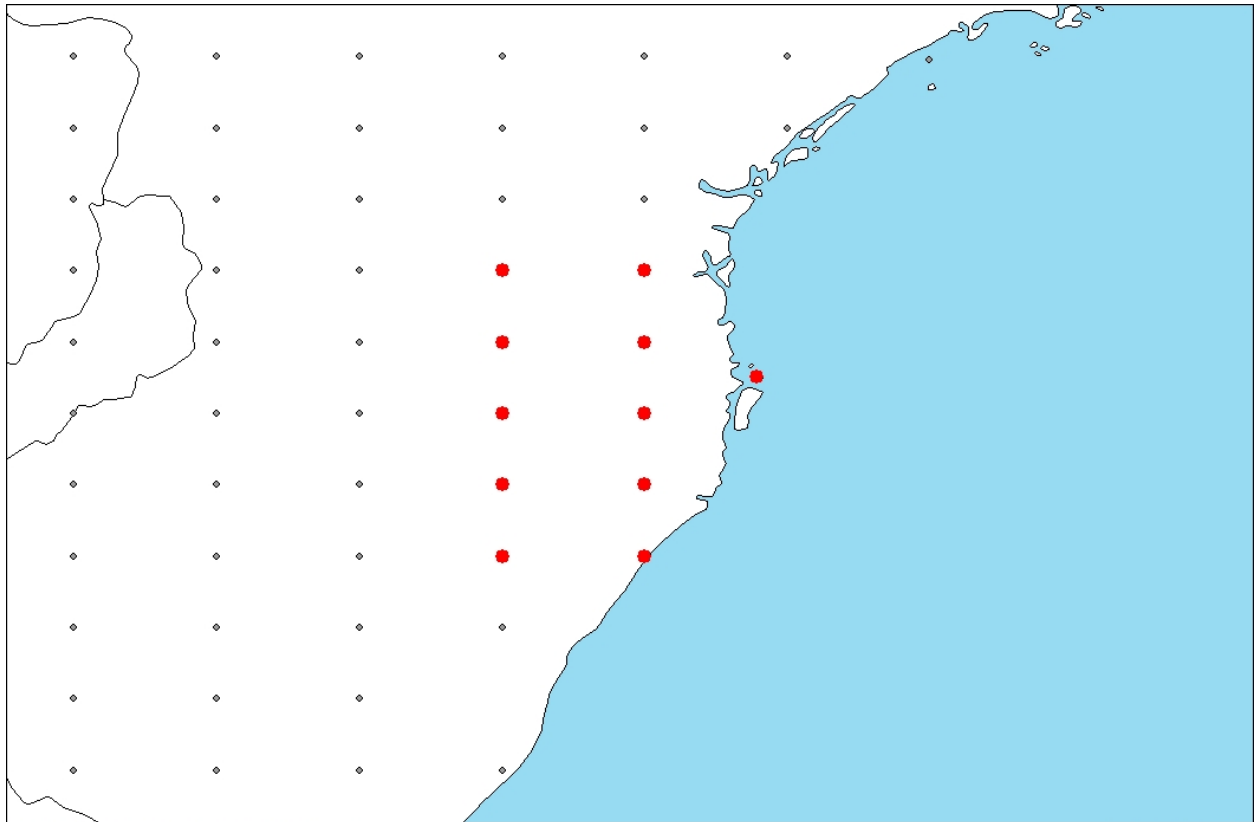
6 Distribution Within the United States

Trichomycterus nigricans has not been reported in the United States.

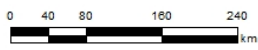
7 Climate Matching

Summary of Climate Matching Analysis

Much of the contiguous United States had a low climate match. Areas of medium match were found along the Gulf and Atlantic coasts from eastern Texas to New Jersey and extending inland to Tennessee. The overall Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.012, medium (scores between 0.005 and 0.103, exclusive, are considered medium). Florida and Louisiana had high individual Climate 6 scores. Alabama, Mississippi, North Carolina, South Carolina, and Texas had medium individual scores. All other States had low individual scores. Since no georeferenced observations were available to use in selecting source points, the certainty in the interpretation of the climate match results is reduced.



Species: *Trichomycterus nigricans*
Selected Climate Stations



Selected ●



RAMP

DEW

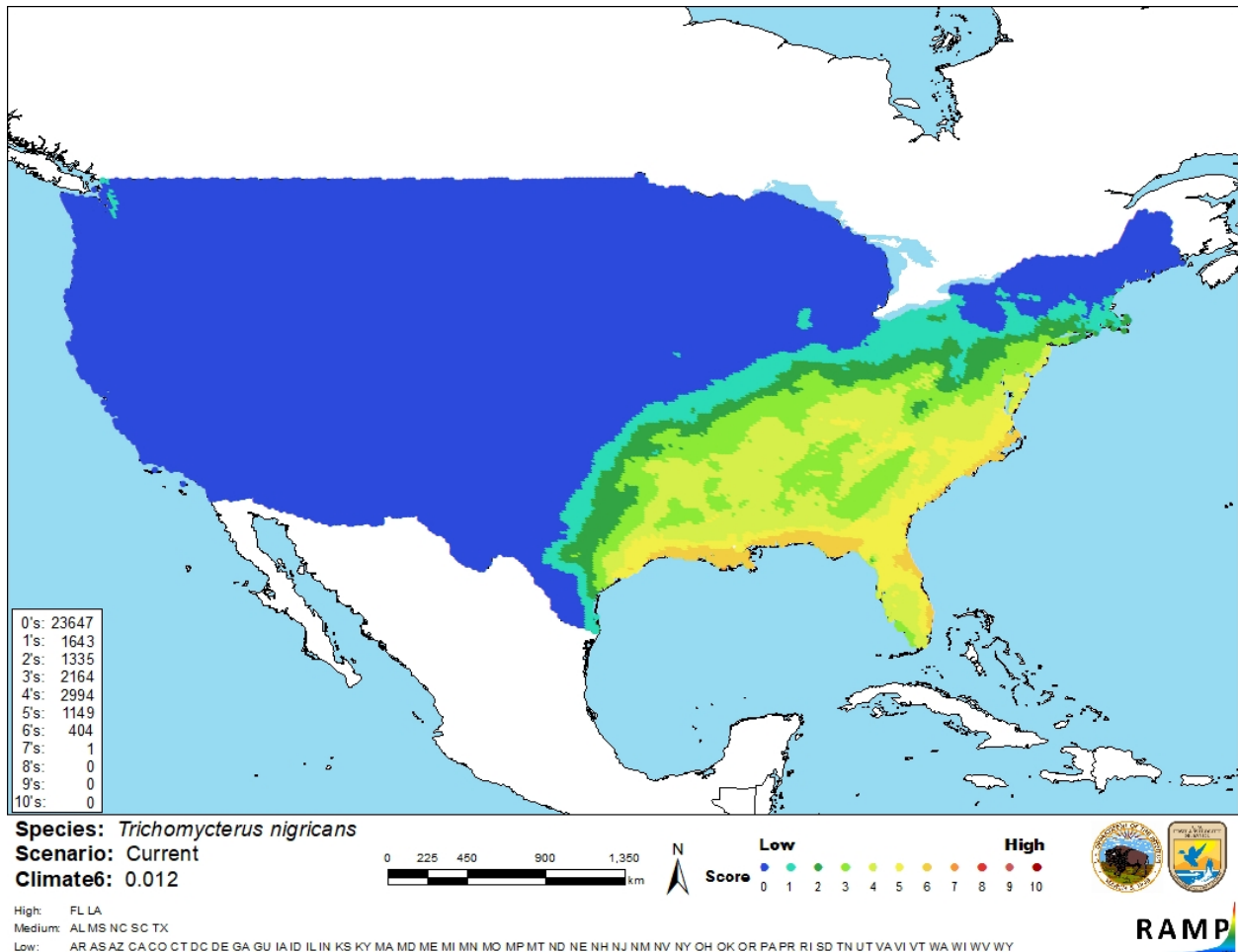


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Trichomycterus nigricans* in the contiguous United States based on estimations of the general range given by Froese and Pauly (2018). Counts of climate match scores are tabulated on the left. 0/Blue = Lowest match, 10/Red = Highest match.

The High, Medium, and Low Climate match Categories are based on the following table:

Climate 6: (Count of target points with climate scores 6-10)/ (Count of all target points)	Overall Climate Match Category
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

8 Certainty of Assessment

Very little information is available on *Trichomycterus nigricans*. There are no records of introductions or impacts of introductions for *T. nigricans*. There were no georeferenced observations available to use in selecting source points for the climate match, reducing the

certainty in the interpretation of the climate match results. Due to the lack available information and peer reviewed literature the certainty of this assessment is low.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Trichomycterus nigricans is a species of catfish native to southern Brazil. There is no indication this species is in trade or has other human uses. *T. nigricans* is regulated in multiple States. There are no records of introductions for *Trichomycterus nigricans* so the history of invasiveness is classified as No Known Nonnative Population. The overall climate match for *T. nigricans* was Medium. Most of the contiguous United States had a low match except for the southeast which was generally medium. The lack of georeferenced observations to use in the climate match reduces the certainty in the interpretation of the results. There was very little information available for *T. nigricans* and the certainty of assessment was Low. The overall risk assessment category is Uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 4): No known nonnative population**
- **Overall Climate Match (Sec. 7): Medium**
- **Certainty of Assessment (Sec. 8): Low**
- **Remarks/Important additional information: No additional remarks.**
- **Overall Risk Assessment Category: Uncertain**

10 Literature Cited

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 11.

Arizona Office of the Secretary of State. 2013. Live wildlife. Arizona Administrative Code, Game and Fish Commission, Title 12, Chapter 4, Article 4.

Arratia G. 1998. *Silvinichthys*, a new species of trichomycterid catfishes from the Argentinian Andes, with redescription of *Trichomycterus nigricans*. *Ichthyological Exploration of Freshwaters* 9:347–370.

California Department of Fish and Wildlife. 2019. Restricted species laws and regulations manual. Available: <https://wildlife.ca.gov/Conservation/Invasives/Regulations> (November 2020).

[FFWCC] Florida Fish and Wildlife Conservation Commission. 2017. Prohibited species list. Tallahassee: Florida Fish and Wildlife Conservation Commission. Available: <http://myfwc.com/wildlifehabitats/nonnatives/regulations/prohibited/#nogo> (January 2017).

- Froese R, Pauly D, editors. 2018. *Trichomycterus nigricans* Valenciennes, 1832. FishBase. Available: <http://www.fishbase.se/summary/Trichomycterus-nigricans.html> (June 2018).
- GBIF Secretariat. 2018. GBIF backbone taxonomy: *Trichomycterus nigricans* Valenciennes, 1832. Copenhagen: Global Biodiversity Information Facility. Available: <https://www.gbif.org/occurrence/583545601> (June 2018).
- Georgia [DNR] Department of Natural Resources. 2020. Wild animals/exotics. Social Circle: Georgia Department of Natural Resources Law Enforcement Division. Available: <http://gadnrle.org/exotics> (November 2020).
- Google Maps. 2018. State of Santa Catarina, Brazil. Google. Available: <https://www.google.com/maps/place/State+of+Santa+Catarina,+Brazil/@-27.6356281,-53.3272058,7z/data=!3m1!4b1!4m5!3m4!1s0x94d94d25c052fff9:0x2b277580ed7fab2b!8m2!3d-27.2423392!4d-50.2188556> (June 2018).
- [ITIS] Integrated Taxonomic Information System. 2018. *Trichomycterus nigricans* Valenciennes, 1832. Reston, Virginia: Integrated Taxonomic Information System. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=682239 (June 2018).
- Louisiana State Legislature. 2019. Exotic fish; importation, sale, and possession of certain exotic species prohibited; permit required; penalty. Louisiana Revised Statutes, Title 56, Section 319.
- Mississippi Secretary of State. 2019. Guidelines for aquaculture activities. Mississippi Administrative Code, Title 2, Part 1, Subpart 4, Chapter 11. Jackson: Office of the Mississippi Secretary of State, Regulatory and Enforcement Division.
- [OIE] World Organisation for Animal Health. 2021. Animal diseases. Available: <https://www.oie.int/en/what-we-do/animal-health-and-welfare/animal-diseases/> (September 2021).
- Oklahoma Secretary of State. 2019. List of restricted exotic species. Oklahoma Administrative Code, Title 800, Chapter 20-1-2.
- Sanders S, Castiglione C, Hoff M. 2018. Risk Assessment Mapping Program: RAMP. Version 3.1. U.S. Fish and Wildlife Service.
- State of Nevada. 2018. Restrictions on importation, transportation and possession of certain species. Nevada Administrative Code, Chapter 503, Section 110.
- Texas Parks and Wildlife. 2020. Invasive, prohibited and exotic species. Austin: Texas Parks and Wildlife. Available:

https://tpwd.texas.gov/huntwild/wild/species/exotic/prohibited_aquatic.phtml (November 2020).

Utah Office of Administrative Rules. 2019. Classification and specific rules for fish. Utah Administrative Code, Rule R657-3-23.

11 Literature Cited in Quoted Material

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.

Cuvier G, Valenciennes A. 1846. Histoire naturelle des poissons. Tome dix-huitième. Paris: Bertrand; Strasbourg, France: Levrault.

de Pinna MCC, Wosiacki W. 2003. Trichomycteridae (pencil or parasitic catfishes). Pages 270–290 in Reis RE, Kullander SO, Ferraris CJ Jr, editors. Checklist of the freshwater fishes of South and Central America. Porto Alegre, Brazil: EDIPUCRS.

Humboldt A de. 1833. Nouvelles observations sur l'Eremophilus. Pages 347–348 in Humboldt A. de, Bonpland A. Voyage aux regions equinox-iales du nouveau continent, fait en 1799, 1800, 1801, 1802, 1803 et 1804. Deuxieme partie. Recueil d'observations de zoologie et d'anatomie corn-parees faites dans l'Ocean Atlantique, dans l'in-terieur du nouveau continent et dans la mer du sud pendant les annees 1799, 1800, 1801, 1802, 1803 et 1804. Volume 2. Paris: Smith.