

***Cambeva davisii* (a catfish, no common name)**

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, December 2016

Revised, May 2018

Web Version, 8/8/2019

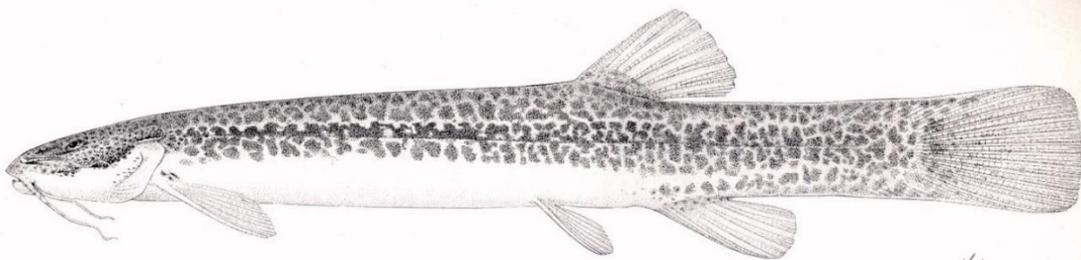


Image: John D. Haseman. Freshwater and Marine Image Bank. Public domain. Available: https://commons.wikimedia.org/wiki/File:FMIB_52321_Pygidium_davisii_Haseman_Type.jpeg. (May 2018).

1 Native Range and Status in the United States

Native Range

From Fricke et al. (2019):

“South America: upper Paraná River and Iguazu and Ribeira de Iguapé River basins: Argentina and Brazil.”

Status in the United States

This species has not been reported as introduced in the United States. There is no evidence that this species is in trade in the United States, based on a search of the literature and 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 (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:]

Parasitic catfishes [...]

Trichomycterus davisi”

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 in the United States.

Remarks

From Katz et al. (2018):

“*Cambeva* **gen. n.** is distinguished from all other trichomycterines by the presence of a bony flap on the channel of the maxillo-dentary ligament, the interopercle shorter than the opercle, a deep constriction on the basal portion of the antero-dorsal arm of the quadrate, absence of teeth in the coronoid process of the dentary, the maxilla shorter than the premaxilla, the cranial fontanel extending from the the medial posterior of frontal to the medial region of supraoccipital, and absence of the postorbital process of the sphenotic-prootic-pterosphenoid.”

“**Included species.** *Cambeva davisii* (Haseman, 1911) [...]”

Both the valid scientific name *Cambeva davisii*, as well as the synonym *Trichomycterus davisii*, were used in searching for information on this species.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

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 davisii* (Haseman, 1911)”

From Fricke et al. (2019):

“**Current status:** Valid as *Cambeva davisii* (Haseman 1911). Trichomycteridae: Trichomycterinae.”

Size, Weight, and Age Range

From Froese and Pauly (2018):

“Max length: 6.3 cm SL male/unsexed; [Triques and Vono 2004]”

Environment

From Froese and Pauly (2018):

“Freshwater; benthopelagic.”

Climate/Range

From Froese and Pauly (2018):

“Tropical”

Distribution Outside the United States

Native

From Fricke et al. (2019):

“South America: upper Paraná River and Iguazu and Ribeira de Iguapé River basins: Argentina and Brazil.”

Introduced

No introductions of this species have been reported.

Means of Introduction Outside the United States

No introductions have been reported for this species.

Short Description

No information available.

Biology

No information available.

Human Uses

No information available.

Diseases

No information available. No OIE-listed diseases (OIE 2019) have been documented in this species.

Threat to Humans

From Froese and Pauly (2018):

“Harmless”

3 Impacts of Introductions

No introductions of *C. davis* have been reported outside its native range so no impacts of introduction are known.

The importation, possession, or trade of the parasitic catfish *C. davis* is prohibited or restricted in the following states: Arizona (Arizona Secretary of State 2006), California (Dill and Cordone 1997), Florida (FFWCC 2016), 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. Reported global distribution for *Cambeva davis*, reported from southern Brazil and southeastern Paraguay. Map from GBIF Secretariat (2019). No georeferenced occurrences were available for the part of the species range in Argentina. Although Paraguay is not reported as part of the species range, the records from Paraguay are within the river basins included in the native range, close to borders with Brazil and Argentina where the species is known to be established, and there are no issues with the records to suggest invalidity. For these reasons, the Paraguayan occurrences were included in the climate matching analysis.

5 Distribution Within the United States

This species has not been recorded in the United States.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2018; 16 climate variables; Euclidean Distance) for the contiguous United States was medium overall, reflected in a Climate 6 score of 0.047. (Scores between 0.005 and 0.103 are classified as medium.) The climate match was high in peninsular Florida and along the Gulf Coast from Florida to eastern Texas. Much of the southeastern United States had a medium climate match, with low climate matches to the north and west. The States of Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, and South Carolina had high climate scores. Texas had a medium climate score. All other States had low climate scores.

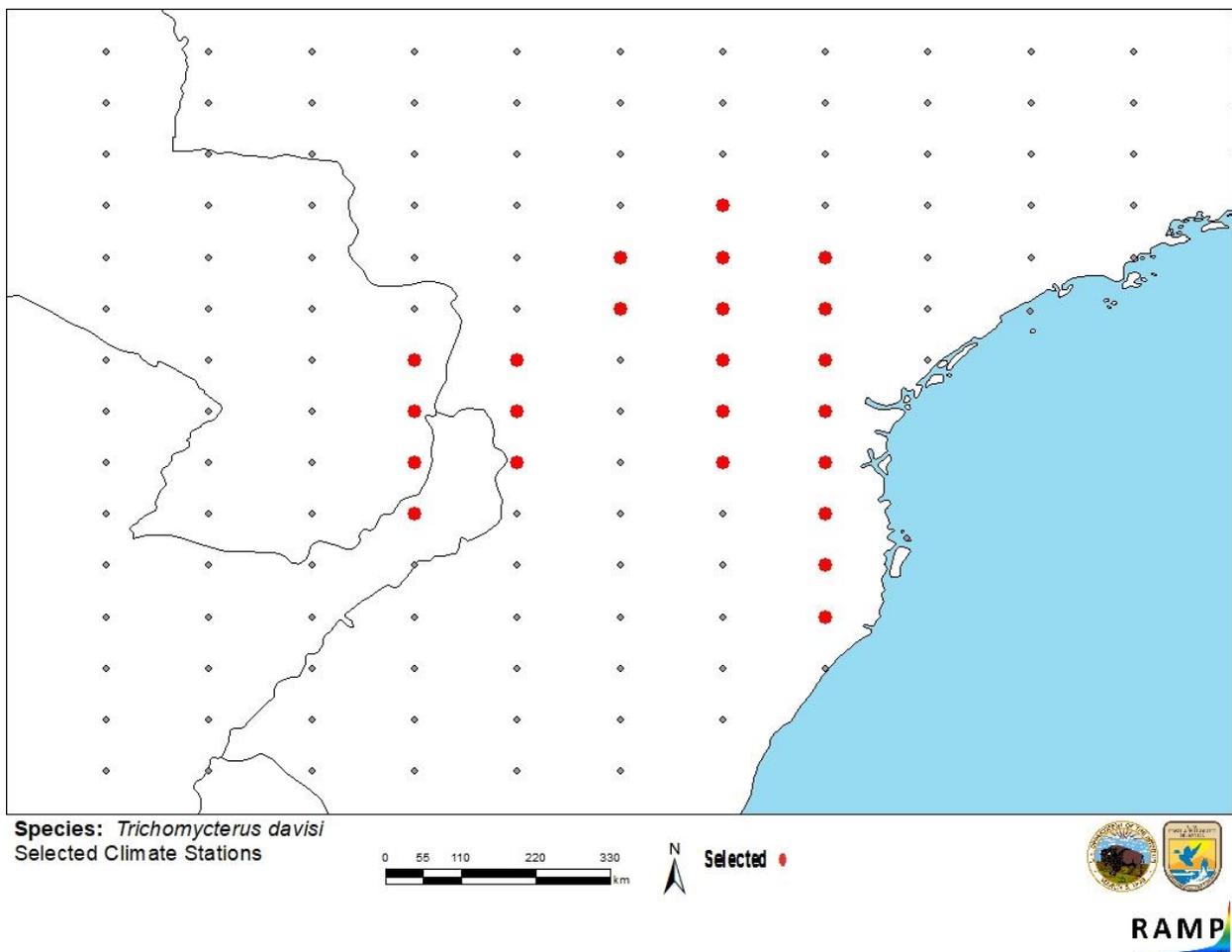


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in east central South America selected as source locations (red; Brazil, Paraguay, Argentina) and non-source locations (gray) for *Cambeva davisii* climate matching. Source locations from GBIF Secretariat (2019).

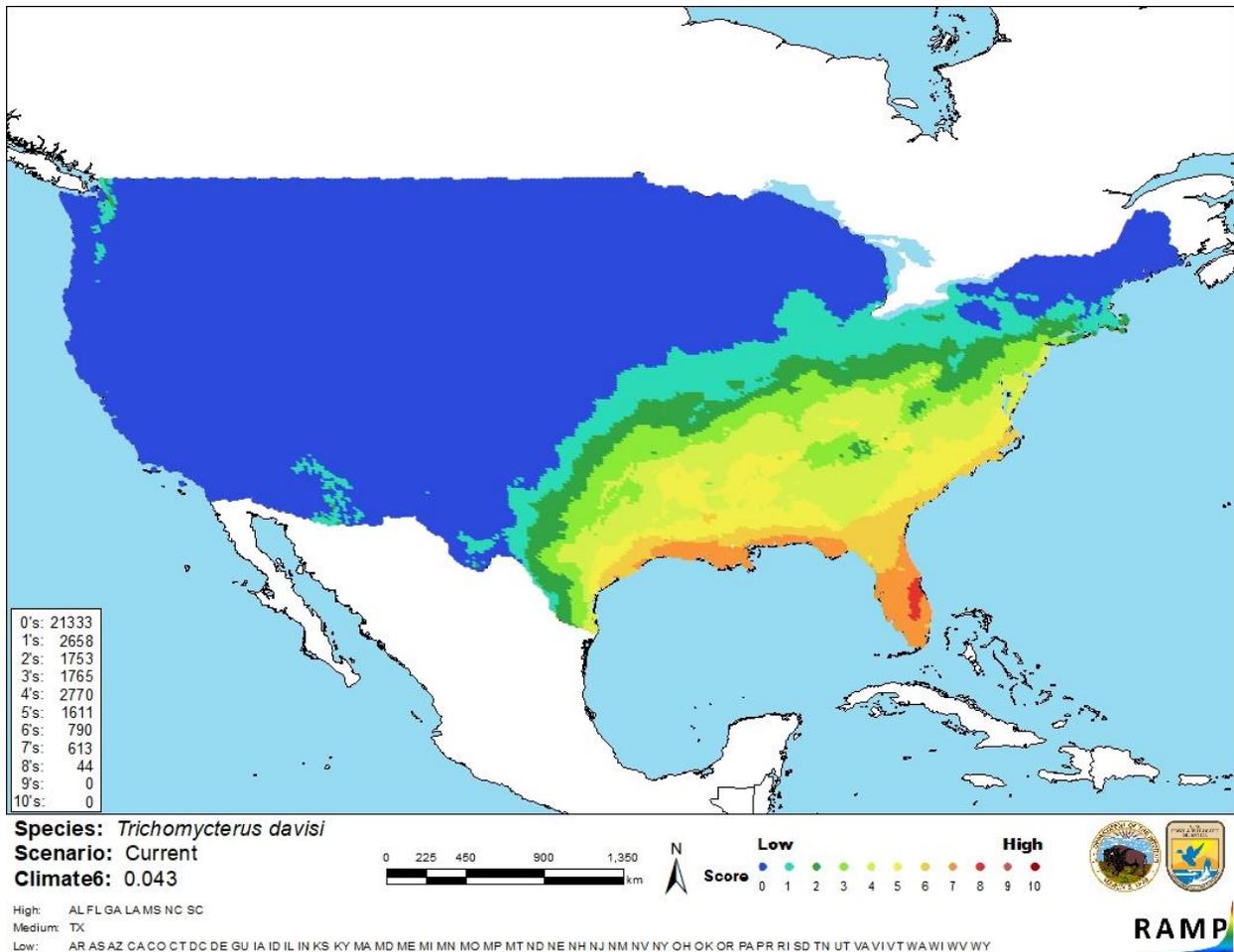


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Cambeva davisi* in the contiguous United States based on source locations reported by GBIF Secretariat (2019). 0=Lowest match, 10=Highest match.

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
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

7 Certainty of Assessment

The biology and ecology of *C. davisi* are poorly known. There are no records showing introductions of this species outside of its native range. Little information is known to conclude what kind of effect it could have if it were introduced. Due to lack of information, the certainty of assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Cambeva davisi is a freshwater parasitic catfish from east-central South America. It has not been reported as being introduced anywhere across the globe and can only be found in its native range in the upper Paraná River and Iguazu and Ribeira de Iguapé River basins. Due to lack of introduction history, the history of invasiveness is uncertain. This species had a medium overall climate match with the contiguous United States, with high climate match in Florida and along the Gulf Coast. Due to lack of information about potential introductions, the certainty of assessment is low. The overall risk posed by 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.

Arizona Secretary of State. 2006. Restricted live wildlife. Arizona Administrative Code, R12-4-406.

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.

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/>. (December 2016).

Fricke, R., W. N. Eschmeyer, and R. Van der Laan, editors. 2019. Eschmeyer's Catalog of Fishes: genera, species, references. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (August 2019).

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GBIF Secretariat. 2019. GBIF backbone taxonomy: *Trichomycterus davisi* Haseman, 1911. Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/2343000>. (August 2019).

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- Katz, A. M., M. A. Barbosa, J. L. O. Mattos, and W. J. E. M. da Costa. 2018. Multigene analysis of the catfish genus *Trichomycterus* and description of a new South American trichomycterine genus (Siluriformes, Trichomycteridae). *Zoosystematics and Evolution* 94(2):557-566.
- Legislative Council Bureau. 2018. Restrictions on importation, transportation and possession of certain species. Nevada Administrative Code, Section 503.110.
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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.
- 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).
- Sanders, S., C. Castiglione, and M. H. Hoff. 2018. Risk Assessment Mapping Program: RAMP, version 3.1. U.S. Fish and Wildlife Service.
- Utah DNR. 2012. R657-3 – collection, importation, transportation, and possession of animals. Utah Division of Natural Resources, Salt Lake City, Utah. Available: <https://wildlife.utah.gov/hunting-in-utah/guidebooks/46-rules/rules-regulations/940-r657-3--collection-importation-transportation-and-possession-of-animals.html>. (March 2018).

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.

- Triques, M. L., and V. Vono. 2004. Three new species of *Trichomycterus* (Teleostei: Siluriformes: Trichomycteridae) from the Rio Jequitinhonha basin, Minas Gerais, Brazil. *Ichthyological Exploration of Freshwaters*. 15(2):161–172.