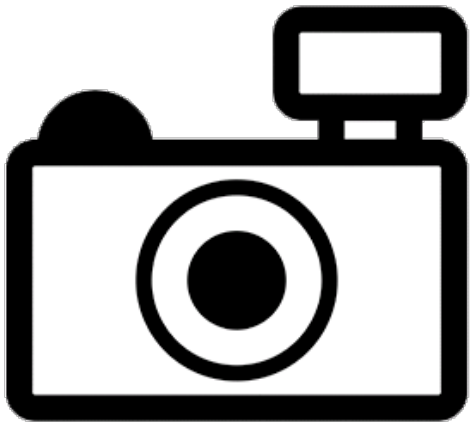
Silvinichthys mendozensis (a catfish, no common name)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, May 2012
Revised, December 2018
Web Version, 4/16/2021

Organism Type: Fish
Overall Risk Assessment Category: Uncertain



1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2018):

"South America: Mendoza River basin in Argentina."

Status in the United States

No records of *Silvinichthys mendozensis* in the wild or in trade in the United States were 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 the parasitic catfish *Silvinichthys mendozensis* as a prohibited species. Prohibited nonnative species (FFWCC 2020), "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); all species of tilapia [*Sarotherodon caroli* is a species of tilapia], […]"

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 Pyqidium 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

No records of *Silvinichthys mendozensis* in the wild in the United States were found.

Remarks

No additional remarks.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Fricke et al. (2018), *Silvinichthys mendozensis* (Arratia, Chang, Menu-Marque and Rojas 1978) is the current valid name of this species. *Silvinichthys mendozensis* was originally described as *Trichomycterus mendozensis* Arratia, Chang, Menu-Marque and Rojas 1978.

From ITIS (2018):

Kingdom Animalia
  Subkingdom Bilateria
    Infrakingdom Deuterostomia
      Phylum Chordata
        Subphylum Vertebrata

Infraphylum Gnathostomata
Superclass Actinopterygii
Class Teleostei
Superorder Ostariophysi
Order Siluriformes
Family Trichomycteridae
Subfamily Trichomycterinae
Genus *Silvinichthys*
Species *Silvinichthys mendozensis* (Arratia, Chang, Menu-Marque and Rojas, 1978)"

Size, Weight, and Age Range

From Froese and Pauly (2018):

"Max length : 7.3 cm male/unsexed; [Arratia 1998]"

Environment

From Froese and Pauly (2018):

"Freshwater; demersal."

Climate

From Froese and Pauly (2018):

"Temperate"

Distribution Outside the United States

Native

From Froese and Pauly (2018):

"South America: Mendoza River basin in Argentina."

Introduced

No records of introductions of *Silvinichthys mendozensis* were found.

Means of Introduction Outside the United States

No records of introductions of *Silvinichthys mendozensis* were found.

Short Description

From Froese and Pauly (2018):

"Dorsal soft rays (total): 11-14; Anal soft rays: 10 - 12; Vertebrae: 39 - 43. Entire surface of body skin perforated by pores of ampullary organs; cephalic sensory canal system represented only by anterior portion of supraorbital canal enclosed by nasal bone, and posterior portion of

postotic canal enclosed by pterotic and posttemporosupracleithrum; two anteriormost pores of supraorbital canal present medial to anterior and posterior nostrils, respectively; one or two pores of postotic canal on pterotic and between pterotic and posttemporosupracleithrum; body lateral line represented only by portion posterior to head, with one or two pores; head and body pit lines absent in most individuals; peritoneum and wall of pleuroperitoneal cavity blackish due to presence of many melanophores; eye small and supported by membranous outgrowth of hyomandibula and by membrane; and ceratobranchial and epibranchial bones without ossified gill rakers. The short dorsal fin has 5 precurrent rays plus 6 to 9 principal rays; anal fin has 4 precurrent rays and 6 to 8 principal rays."

From Arratia (1998):

"Coloration and skin. The coloration is variable, depending mainly on the type of substrate."

"The skin of young individuals does not have epidermal papillae; papillae appear during growth. Adult males have more epidermal papillae than females, so that the whole skin of males is papillose. The most remarkable feature of the skin is the large quantity of pores of ampullary organs which appear all over the skin surface, and the presence of transparent conical epidermal papillae with papillate superficial neuromasts […]."

Biology

From Fernandez (2005):

"As with many subterranean forms, *Silvinichthys* sp. displays many typically Troglobitic specializations, such as reduced pigmentation, ocular regression, well-developed chemical and mechanical receptors, reduced body size, vermiform morphology, slower metabolism and ontogenetic development, greater longevity, loss of cryptic behavior, less frequent reproduction, and reproduced reproductive output in comparison with epigean relatives (e.g. *Silvinichthys mendozensis* Arratia, Chang, Menu-Marque, and Rojas)."

Human Uses

No information on human uses of *Silvinichthys mendozensis* was found.

Diseases

No information on diseases of *Silvinichthys mendozensis* was found. **No records of OIE-reportable diseases (OIE 2021) were found for *S. mendozensis.***

Threat to Humans

From Froese and Pauly (2018):

"Harmless"

3 Impacts of Introductions

No records of introductions of *Silvinichthys mendozensis* were found.

S. mendozensis is regulated in multiple States.

4 History of Invasiveness

No records of introductions of *Silvinichthys mendozensis* were found. Therefore, the history of invasiveness is classified as No Known Nonnative Populations for *S. mendozensis*.

5 Global Distribution

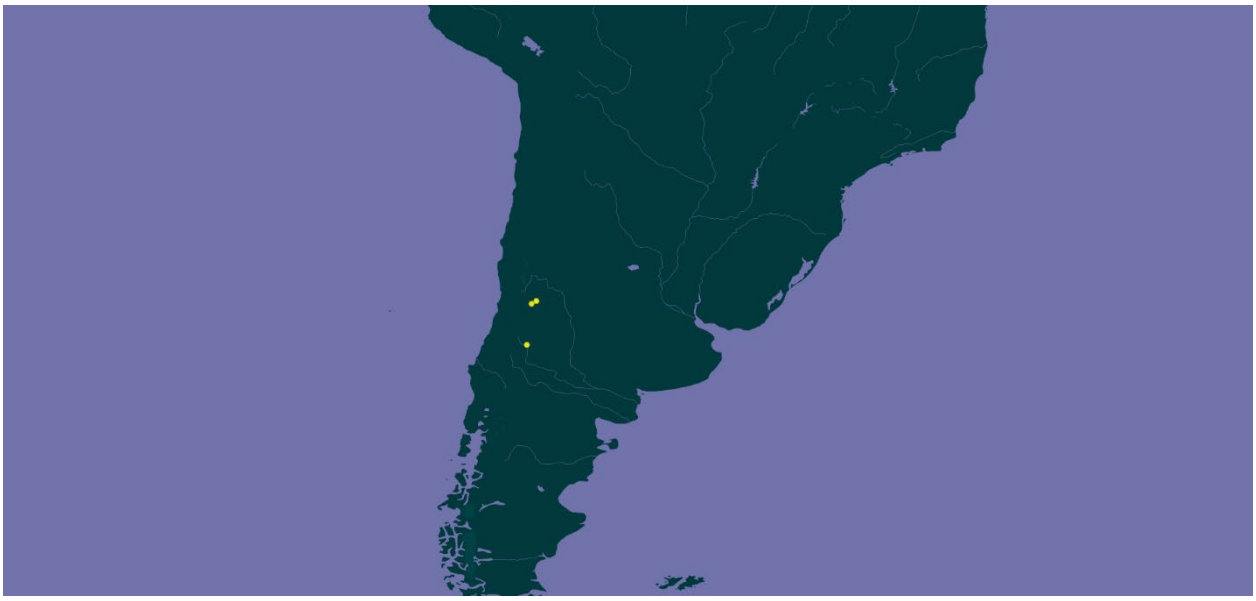


Figure 1. Known global distribution of *Silvinichthys mendozensis.* Locations are in Argentina. Map from GBIF Secretariat (2018).

6 Distribution Within the United States

No records of *Silvinichthys mendozensis* in the wild in the United States were found.

7 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Silvinichthys mendozensis* was low for the majority of the eastern United States. Majority of the Midwest has medium match with areas of high match in the Southwest and California, Oregon, and Washington. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.099, medium (scores between 0.005 and 0.103, exclusive, are considered medium), with Arizona, California, New Mexico, Nevada, Oregon, Texas and Washington having high individual climate scores.

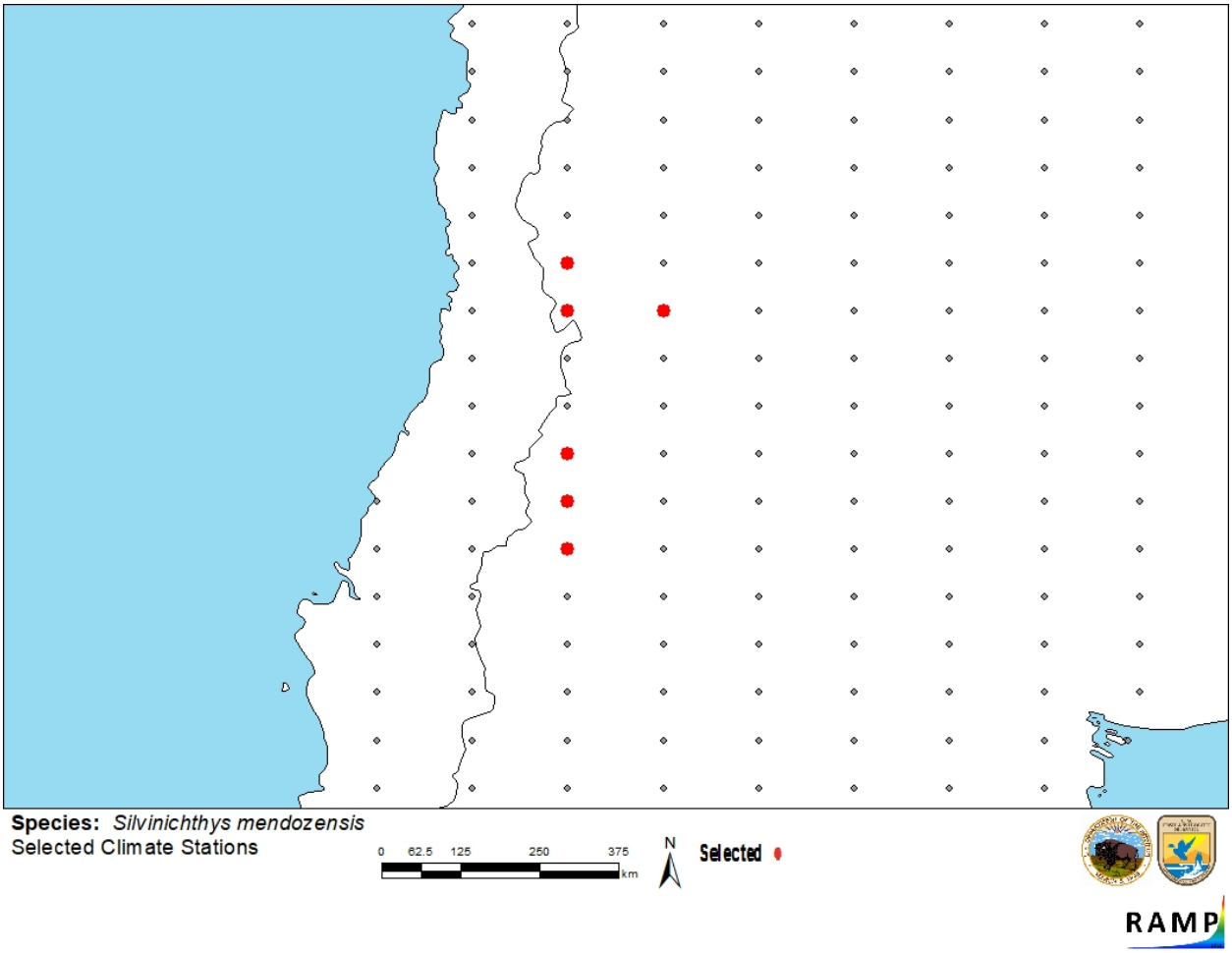


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in South America selected as source locations (red; Argentina) and non-source locations (gray) for *Silvinichthys mendozensis* climate matching. Source locations from GBIF Secretariat (2018). Selected source locations are within 100 km of one or more species occurrences and do not necessarily represent the locations of occurrences themselves.

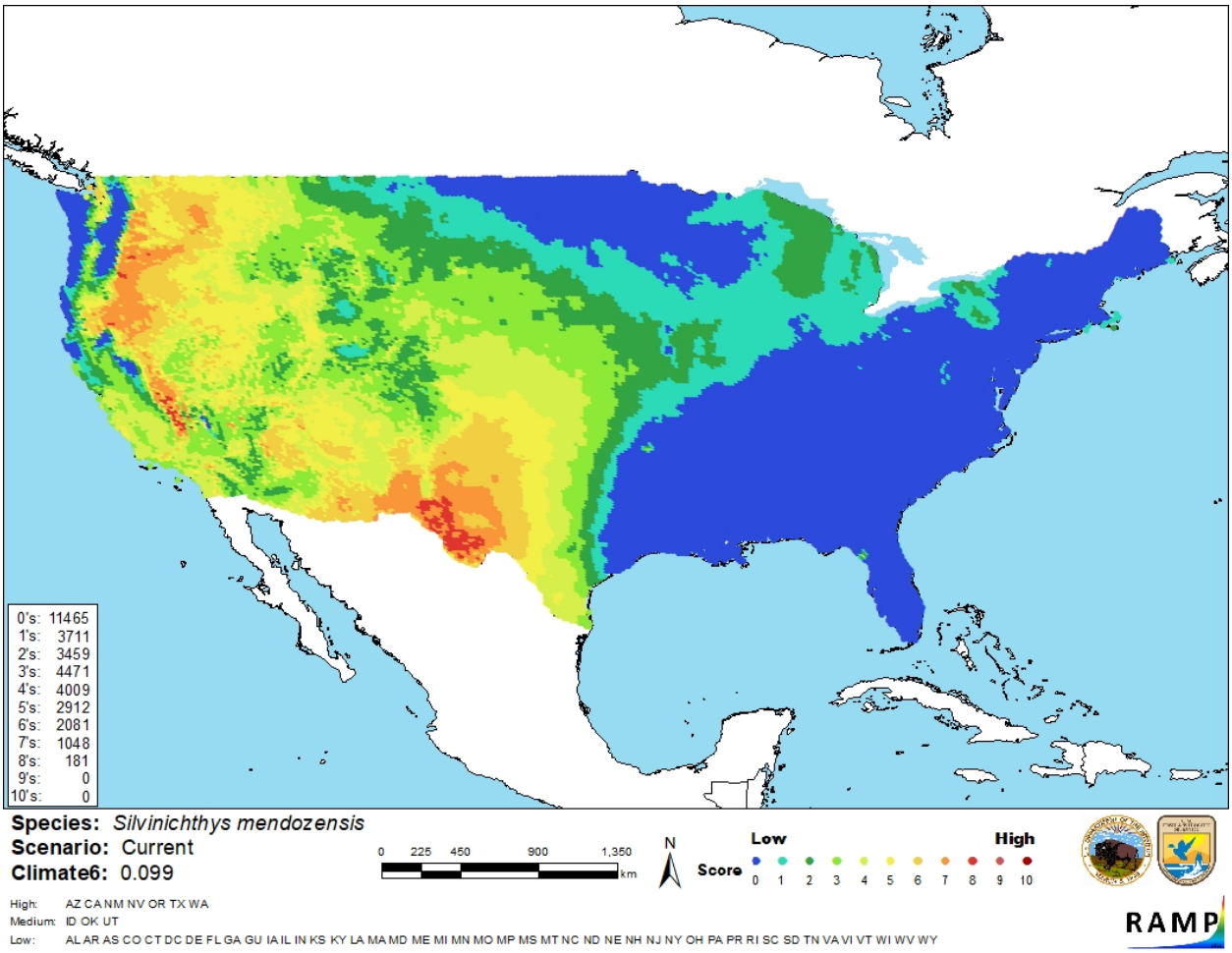


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Silvinichthys mendozensis* in the contiguous United States based on source locations reported from GBIF Secretariat (2018). Counts of climate match scores are tabulated on the left. 0/Blue = Lowest match, 10/Red = Highest match.

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≤X≤0.005	Low
0.005<X<0.103	Medium
≥0.103	High

8 Certainty of Assessment

The certainty of assessment for *Silvinichthys mendozensis* is low. There is minimal information available for this species. No information on introductions of *Silvinichthys mendozensis* was found.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Silvinichthys mendozensis is a South American catfish native to Argentina. The history of invasiveness is No Known Nonnative Population. It has not been reported as introduced or established anywhere in the world. *S. mendozensis* is regulated in multiple States. The climate match for the contiguous United States was medium with Arizona, California, New Mexico, Nevada, Oregon, Texas and Washington having individually high climate matches. The certainty of assessment is low. The overall risk assessment category is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): No Known Nonnative Population**
- **Climate Match (Sec. 6): Medium**
- **Certainty of Assessment (Sec. 7): Low**
- **Remarks/Important additional information:** *S. mendozensis* is regulated in multiple States.
- **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.

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Arratia G. 1998. *Silvinichthys*, a new genus 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).

Fernandez L. 2005. Risk of extinction of a rare catfish of Andean groundwater and its priority for conservation. Natural Science Collection 34:269–270.

[FFWCC] Florida Fish and Wildlife Conservation Commission. 2020. Prohibited species list. Tallahassee: Florida Fish and Wildlife Conservation Commission. Available: http://myfwc.com/wildlifehabitats/nonnatives/regulations/prohibited/ (October 2020).

Fricke R, Eschmeyer WN, van der Laan R, editors. 2018. Catalog of fishes: genera, species, references. California Academy of Science. Available: http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp (December 2018).

Froese R, Pauly D, editors. 2018. *Silvinichthys mendozensis* Arratia, Chang G., Menu-Marque, and Rojas M., 1978. FishBase. Available: https://www.fishbase.de/summary/Silvinichthys-mendozensis.html (December 2018).

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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).

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Mississippi Secretary of State. 2019. Guidelines for aquaculture activities. Mississippi Administrative Code, Title 2, Part 1, Subpart 4, Chapter 11. Jackson, Mississippi: Regulatory and Enforcement Division, Office of the Mississippi Secretary of State.

[OIE] World Organisation for Animal Health. 2021. OIE-listed diseases, infections and infestations in force in 2021. Available: http://www.oie.int/animal-health-in-the-world/oie-listed-diseases-2021/ (April 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.

Arratia G, Chang A, Menu-Marque S, Rojas G. 1978. About *Bullockia* gen. nov., *Trichomycterus mendozensis* n. sp. and revision of the family Trichomycteridae (Pisces, Siluriformes). Studies on Neotropical Fauna and Environment 13(3–4):157–194.