

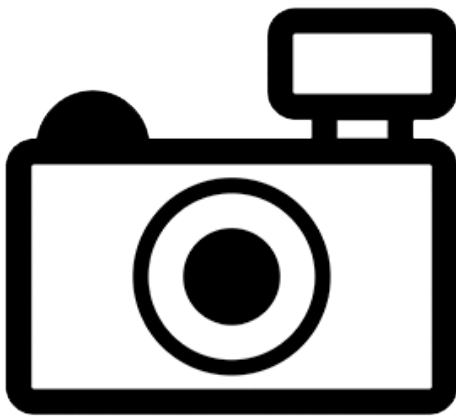
Ghost Candiru (*Stauroglanis gouldingi*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, December 2016

Revised, February 2017

Web Version, 7/3/2018



No Photo Available

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2016):

“South America: Daraá River, Negro River basin.”

Status in the United States

This species has not been reported as introduced or established in the U.S.

The ghost candiru, *Stauroglanis gouldingi*, is a prohibited nonnative species in Florida. According to the FFWCC (2017), “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.”

Means of Introductions in the United States

This species has not been reported as introduced or established in the U.S.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2016):

“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 Sarcoglanidinae
Genus *Stauroglanis*
Species *Stauroglanis gouldingi* de Pinna, 1989”

“Current Standing: valid”

Size, Weight, and Age Range

From Zuanon et al. (2006):

“*S. gouldingi* (19.1-26.5) [mm SL]”

From Froese and Pauly (2016):

“Max length : 2.7 cm SL male/unsexed; [Zuanon and Sazima 2004]”

Environment

From Froese and Pauly (2016):

“Freshwater; demersal.”

From Zuanon and Sazima (2004):

“During the day *S. gouldingi* is found on patches of loose sand where the water flow forms ephemeral sand ripples.”

Climate/Range

From Froese and Pauly (2016):

“Tropical, preferred ?”

Distribution Outside the United States

Native

From Froese and Pauly (2016):

“South America: Daraá River, Negro River 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 de Pinna (1989):

“Body elongate, roughly rounded in cross section in trunk region and gradually more compressed toward caudal region. Dorsal surface of body flat along its whole length.”

“Dorsal profile of head flat, nearly continuous in straight line with dorsal profile of body.”

“Myotomes conspicuous, readily visible along whole body, more prominent along region from anal-fin base to middle length of caudal peduncle. Myotomes progressively narrower and more angled toward caudal fin.”

“Long lateral band of apparently adipose tissue running from region of pectoral-fin attachment to posterior margin of anal-fin base, becoming narrower posteriorly.”

“Integument very thin and transparent, superficial muscles, and some other internal structures readily visible. Papillae not visible on skin, even on lips and barbels of holotype, but visible in paratype as tiny alcian-blue stained dots over entire skin.”

“Eyes very large and conspicuous, dorsally located.”

“Bony base of maxillary barbel very large, but more slender than in *Sarcoglanis*, *Malacoglanis*, and *Scleronema*. Distance between tips of bony portions of barbels approximately equal to head width, when maxillae completely protruded. Soft portion of maxillary barbel very slender, about of same length as bony section. Rictal barbel of approximately same length and diameter as soft portion of maxillary barbel. Origin of rictal barbel under anterior part of bony base of maxillary barbel. Maxillary and rictal barbels with slender central rods. Nasal barbel very short and thin,

hardly visible from above, its origin at rim of anterior nare. Nares tiny and difficult to see, due to combination of reduced size and general transparency of tissues.”

Biology

From Zuanon and Sazima (2004):

“This species is a mostly visually oriented microcarnivore, foraging on immature aquatic insects. One foraging tactic of the species is movement along the ripple grooves while scanning the bottom back and forth, alternating between adjacent grooves. Feeding activity peaks at late morning and afternoon. When disturbed *S. gouldingi* buries in the sand, and at night it remains completely buried. Seasonal reproduction was indicated by 13 mature females caught in the wet months, whereas no reproductive individuals were found in the dry months.”

From Zuanon et al. (2006):

“*Stauroglanis gouldingi* feeds on small food items in a microhabitat apparently not exploited by the other sand dwellers, which may contribute to reduce diet overlapping between the fish species (e.g. Greenberg, 1991; Sabino & Zuanon, 1998).”

Human Uses

No information available.

Diseases

No information available. No OIE-reportable diseases 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.

The ghost candiru, *Stauroglanis gouldingi*, is a prohibited nonnative species in Florida. According to the FFWCC (2017), “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.”

4 Global Distribution

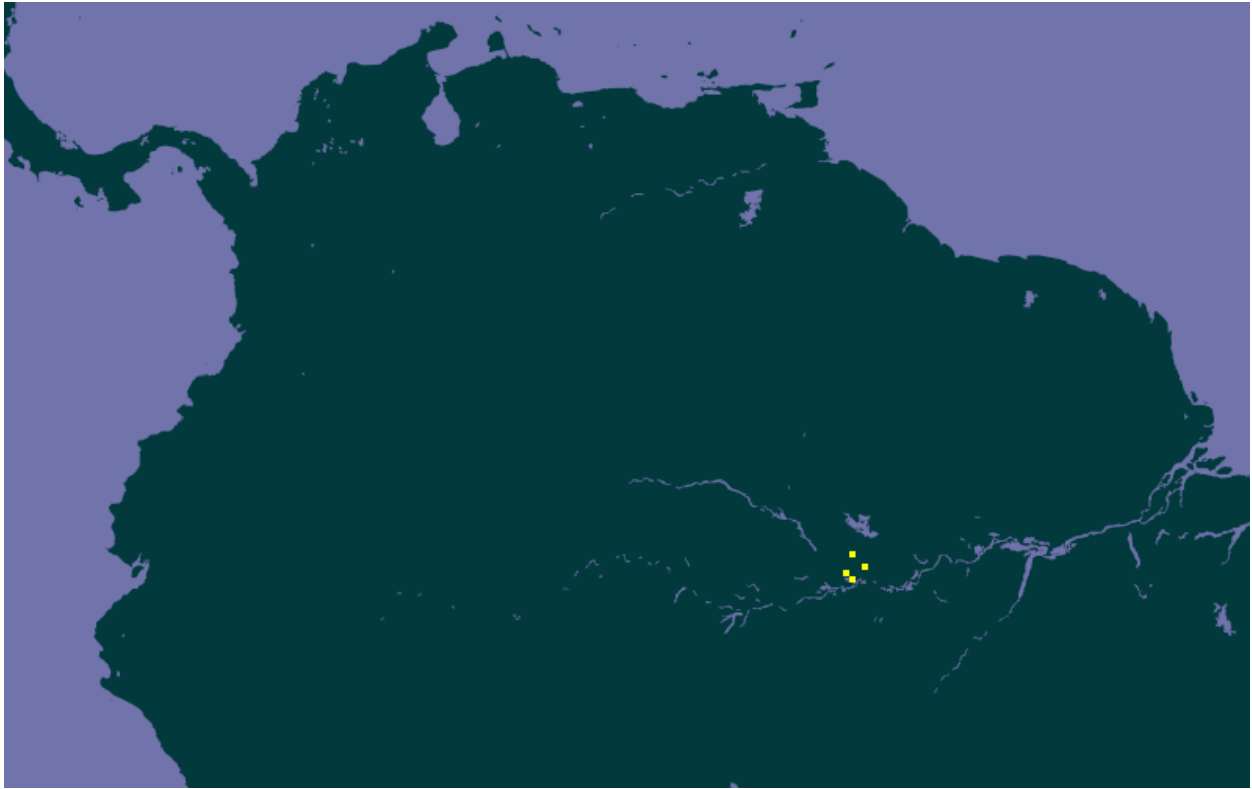


Figure 1. Known global established locations of *Stauroglanis gouldingi* in the Amazon Basin in Brazil. Map from GBIF (2016).

5 Distribution Within the United States

This species has not been reported as introduced or established in the U.S.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) was low throughout the United States. Climate 6 proportion indicated that the contiguous U.S. has a low climate match. Climate 6 proportion indicates a low climate match for proportions 0.000-0.005; the Climate 6 proportion of *Stauroglanis gouldingi* was 0.0.

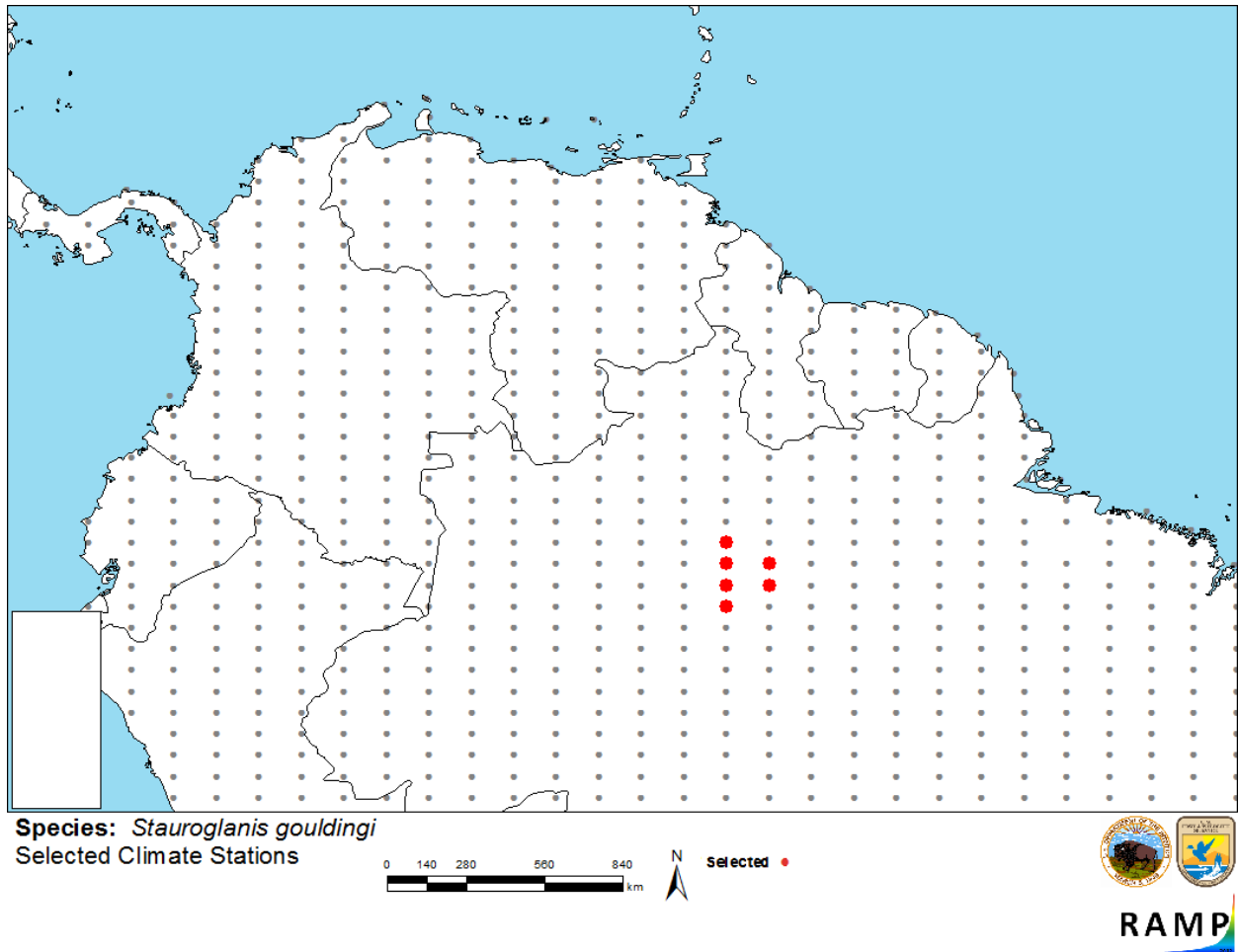


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations in Brazil selected as source locations (red) and non-source locations (gray) for *Stauroglanis gouldingi* climate matching. Source locations from GBIF (2016).

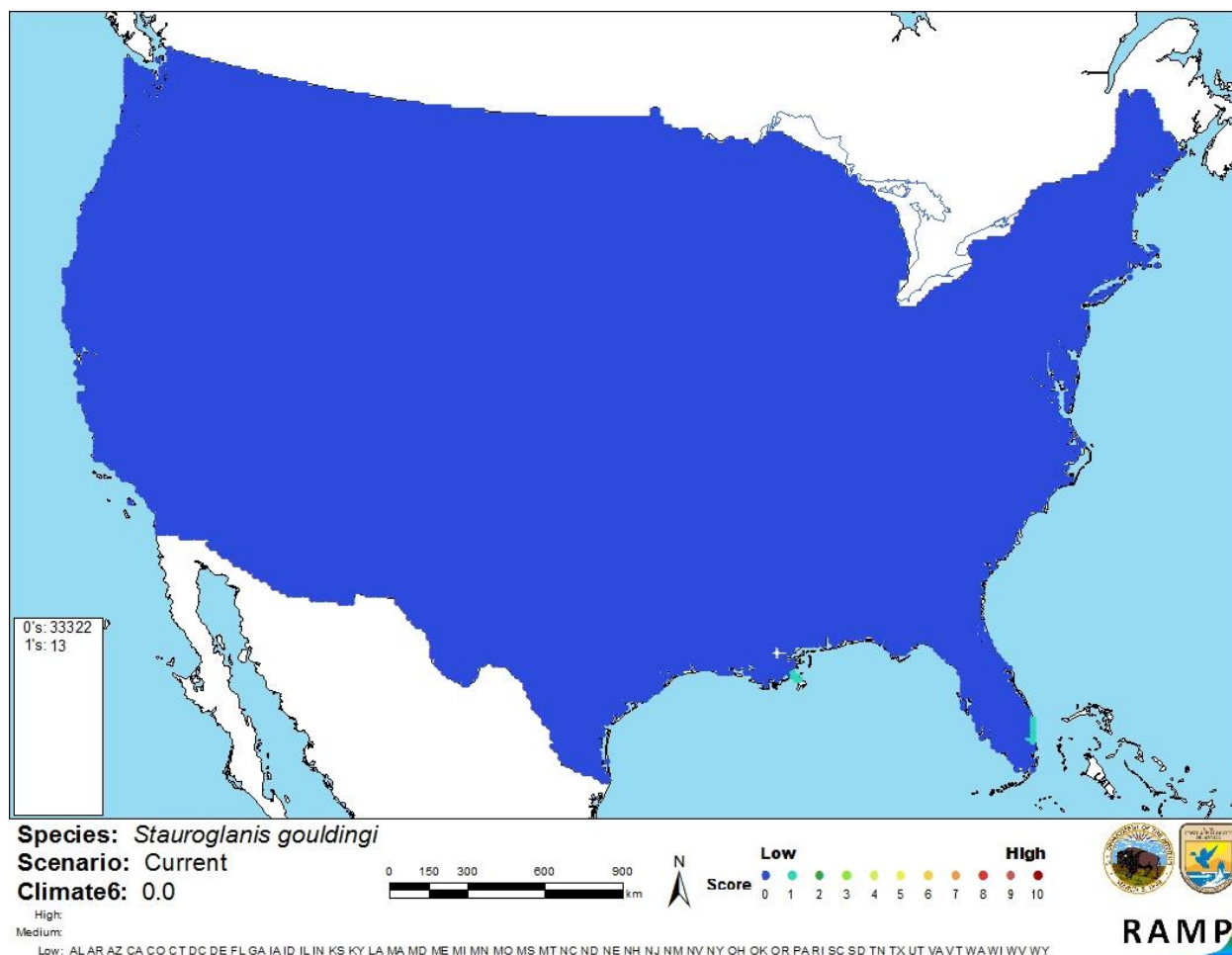


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Stauroglanis gouldingi* in the contiguous United States based on source locations reported by GBIF (2016). 0= Lowest match, 10=Highest match. Counts of climate match scores are tabulated on the left.

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 some information available on the morphology, habitat preference, and feeding habits of *S. gouldingi*. No introductions of this species have been reported, so impacts of introduction are unknown. Certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Stauroglanis gouldingi is a small catfish native to sandy streams of the Negro River in Brazil. This species has a low climate match with the contiguous United States and no documented history of introduction outside its native range. Further information is needed to assess the risk posed by *S. gouldingi*. Overall risk assessment category for 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.

- de Pinna, M. C. C. 1989. A new sarcoglanidine catfish, phylogeny of its subfamily, and an appraisal of the phyletic status of the Trichomycterinae (Teleostei, Trichomycteridae). *American Museum Novitates* 2950:1-39.
- FFWCC (Florida Fish and Wildlife Conservation Commission). 2017. Prohibited species list. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida. Available: <http://myfwc.com/wildlifehabitats/nonnatives/regulations/prohibited/>. (February 2017).
- Froese, R., and D. Pauly, editors. 2016. *Stauroglanis gouldingi* de Pinna, 1989. FishBase. Available: <http://www.fishbase.org/summary/53644>. (December 2016).
- GBIF (Global Biodiversity Information Facility). 2016. GBIF backbone taxonomy: *Stauroglanis gouldingi* de Pinna, 1989. Global Biodiversity Information Facility, Copenhagen. Available: <http://www.gbif.org/species/2343264>. (December 2016).
- ITIS (Integrated Taxonomic Information System). 2016. *Stauroglanis gouldingi* de Pinna, 1989. Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=682166#null. (December 2016).
- Sanders, S., C. Castiglione, and M. Hoff. 2014. Risk Assessment Mapping Program: RAMP. U.S. Fish and Wildlife Service.
- Zuanon, J., F. A. Bockmann, and I. Sazima. 2006. A remarkable sand-dwelling fish assemblage from central Amazonia, with comments on the evolution of psammophily in South American freshwater fishes. *Neotropical Ichthyology* 4(1):107-118.

Zuanon, J., and I. Sazima. 2004. Natural history of *Stauroglanis gouldingi* (Siluriformes: Trichomycteridae), a miniature sand-dwelling candiru from central Amazonia streamlets. *Ichthyological Exploration of Freshwaters* 15(3):201-208.

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.

Greenberg, L. A. 1991. Habitat use and feeding behavior of thirteen species of benthic stream fishes. *Environmental Biology of Fishes* 31(4):389-401.

Sabino, J., and J. Zuanon. 1998. A stream fish assemblage in Central Amazonia: distribution, activity patterns and feeding behavior. *Ichthyological Exploration of Freshwaters* 8(3):201-210.