

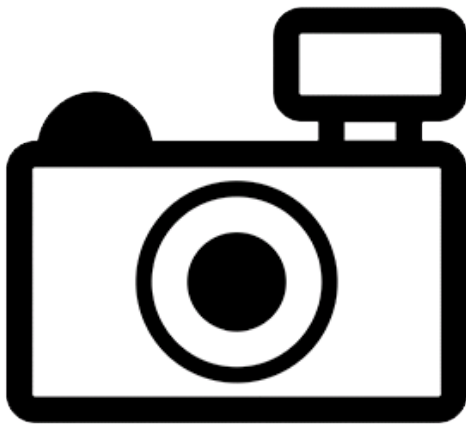
***Hypostomus heraldoi* (a catfish, no common name)**

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, January 2013

Revised, August 2018

Web Version, 9/11/2018



No Photo Available

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2018):

“South America: Rio Corumbá and rio Grande drainages of the upper rio Paraná basin in Brazil.”

From Zawadzki et al. (2008):

“*Hypostomus heraldoi* is known from the rio Corumbá and rio Grande drainages, upper rio Paraná basin [...]. The Corumbá Reservoir and its tributary rio Pirapitinga are the main sites where *H. heraldoi* was collected.”

Status in the United States

No records of *Hypostomus heraldoi* in trade or in the wild in the United States were found.

Means of Introductions in the United States

No records of *Hypostomus heraldoi* in the wild in the United States were found.

Remarks

Hypostomus heraldoi was first described in 2008 (Zawadzki et al. 2008).

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Eschmeyer et al. (2018), *Hypostomus heraldoi* Zawadzki, Weber, and Pavanelli 2008 is the valid name for this species; it is also the original name.

From Bailly (2017):

“Biota Animalia (Kingdom) > Chordata (Phylum) > Vertebrata (Subphylum) > Gnathostomata (Superclass) > Pisces (Superclass) > Actinopterygii (Class) > Siluriformes (Order) > Loricariidae (Family) > Hypostominae (Subfamily) > *Hypostomus* (Genus) > *Hypostomus heraldoi* (Species)”

Size, Weight, and Age Range

From Froese and Pauly (2018):

“Max length : 23.6 cm SL male/unsexed; [Zawadzki et al. 2008]”

Environment

From Froese and Pauly (2018):

“Freshwater; demersal.”

Climate/Range

From Froese and Pauly (2018):

“Tropical”

Distribution Outside the United States

Native

From Froese and Pauly (2018):

“South America: Rio Corumbá and rio Grande drainages of the upper rio Paraná basin in Brazil.”

From Zawadzki et al. (2008):

“*Hypostomus heraldoi* is known from the rio Corumbá and rio Grande drainages, upper rio Paraná basin [...]. The Corumbá Reservoir and its tributary rio Pirapitinga are the main sites where *H. heraldoi* was collected.”

Introduced

No records of introduction were found for *Hypostomus heraldoi*.

Means of Introduction Outside the United States

No records of introduction were found for *Hypostomus heraldoi*.

Short Description

From Zawadzki et al (2008):

“Body relatively short with rough plates. Cleithral width greater than head depth. Dorsal profile rising convexly at an angle of approximately 30° from snout tip to dorsal-fin origin, then decreasing linearly to end of caudal peduncle. Head broad and depressed, dorsally covered with dermal ossifications, except for small naked area on snout tip. Anterior profile of snout rounded in dorsal view. Median longitudinal bulge associated with mesethmoid usually conspicuous from snout tip to transverse line between nares. Eye small (12.0 to 13.7% of HL), dorsolaterally placed. Interorbital space straight or slightly convex in frontal view. A pair of weak ridges on dorsal surface of head, each one beginning lateral to naris, passing through upper margin of orbit and finishing on central portion of pterotic-supracleithrum. Supraoccipital bone with out median ridge, and with short and rounded posterior process bordered by partially divided predorsal plate.”

“Lips small and transversely ellipsoid. Lower lip not reaching transverse line between gill openings, its inner surface covered with numerous small papillae. Maxillary barbel very short, largely coalesced with lower lip but with free tip. Mouth moderate. Teeth medium sized, robust, bicuspid, and curved inward distally; inner cusp with elongated crown, about twice length of lateral cusp. Dentary teeth usually not overlapping medially. Dentary ramus forms angle of approximately 140°.”

“Five rows of slightly spinulose plates on side of body. Predorsal region and all plates in lateral series usually without conspicuous keels. Dorsal series of plates starting at vertical through dorsal-fin origin. Mid-dorsal series interrupted by first plate of dorsal series. Median series bearing lateral line; interrupted by ventrally oriented expansions of plates in mid-dorsal series in region just below dorsal-fin base. Midventral series without keel or with very weak keel restricted to first three plates. Plates in ventral series weakly angled transversely on caudal peduncle; angle more pronounced posteriorly. Caudal peduncle roughly triangular in cross section.”

“Ventral surface of head mostly covered with minute platelets except beneath lower lip and along outer edge of upper lip. Abdomen covered with minute platelets, even in smaller

specimens, except for small naked areas near pectoral and pelvic-fin insertions and surrounding urogenital opening in some specimens. Preanal plate partially exposed.”

“Dorsal-fin origin situated two lateral plates anterior to vertical through pelvic-fin origin. Dorsal fin small with flexible spine and seven branched rays; two posteriormost rays touching second plate anterior to azygous pre-adipose plate. Adipose-fin spine well developed in most specimens, straight or slightly curved inward. Pectoral fin with slightly inwardcurved spine and six branched rays; posterior margin straight. Pectoral-fin spine covered with poorly-developed odontodes; odontodes more developed distally in larger specimens. Pectoral fin inserted on same horizontal plane as pelvic fin such that pectoral spine, when adpressed, lies on top of and reaches between basal one-fourth to one-third of pelvic-fin spine. Pelvic fin with flexible and slightly inward-curved spine and five branched rays; distal margin straight. Pelvic-fin spine slightly flattened ventrally; when adpressed, tip reaches to distal one-third of anal-fin spine. Anal fin with flexible spine and four branched rays; spine tip reaches to sixth plate posterior to its origin. Caudal fin slightly forked, with two outer spines and 14 inner branched rays; ventral lobe longer than dorsal lobe.”

Biology

From Zawadzki et al (2008):

“The water was turbid, substrates rocky with sand, and riparian vegetation variable and remnant. This species was not found associated with woody debris, and, like *H. denticulatus*, occurs syntopically with *H. ancistroides*, *H. iheringii*, *H. margaritifer*, *H. regani* and *Hypostomus* sp.”

Human Uses

No information on human uses of *Hypostomus heraldoi* was found.

Diseases

No records of diseases were found for *Hypostomus heraldoi*.

Threat to Humans

From Froese and Pauly (2018):

“Harmless”

3 Impacts of Introductions

No records of introduction were found for *Hypostomus heraldoi*; therefore, there is no information on impacts of introductions.

4 Global Distribution

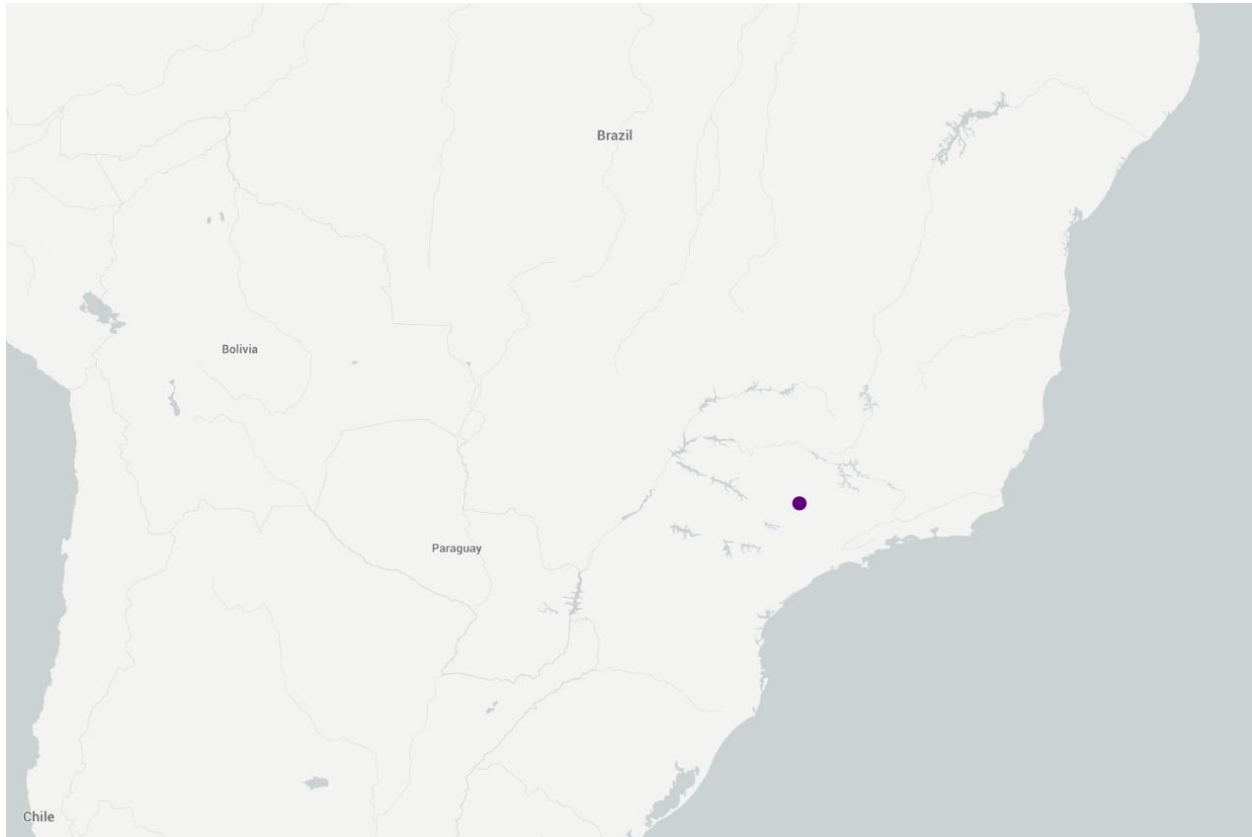


Figure 1. Known global distribution of *Hypostomus heraldoi*. Location is in Brazil. Map from GBIF Secretariat (2018).

5 Distribution Within the United States

No records of *Hypostomus heraldoi* in the wild in the United States were found.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Hypostomus heraldoi* was low for the majority of the contiguous United States with a patch of high match in southern Florida. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.003, low. Florida had a high individual climate score.

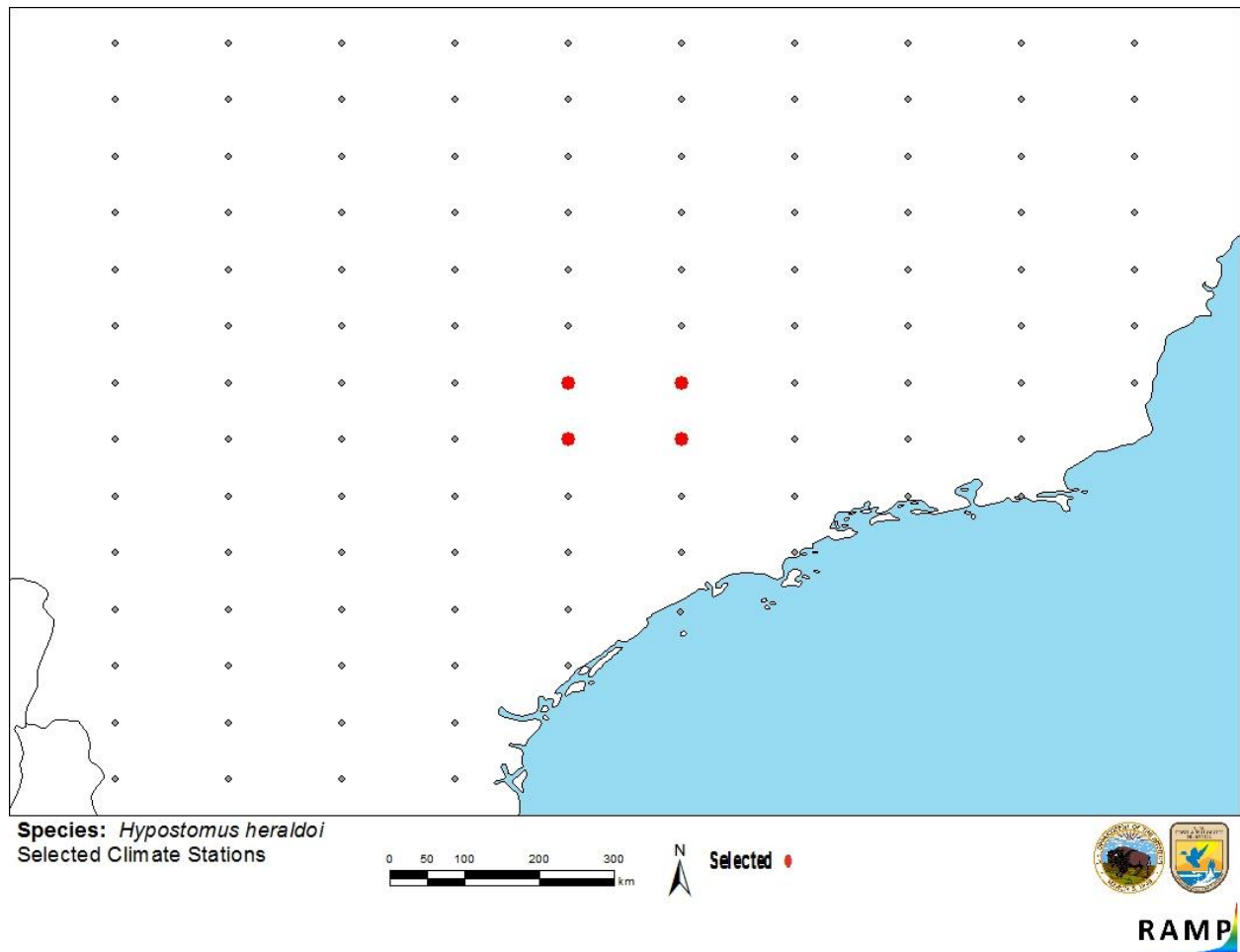


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in Brazil selected as source locations (red) and non-source locations (gray) for *Hypostomus heraldoi* climate matching. Source locations from GBIF Secretariat (2018).

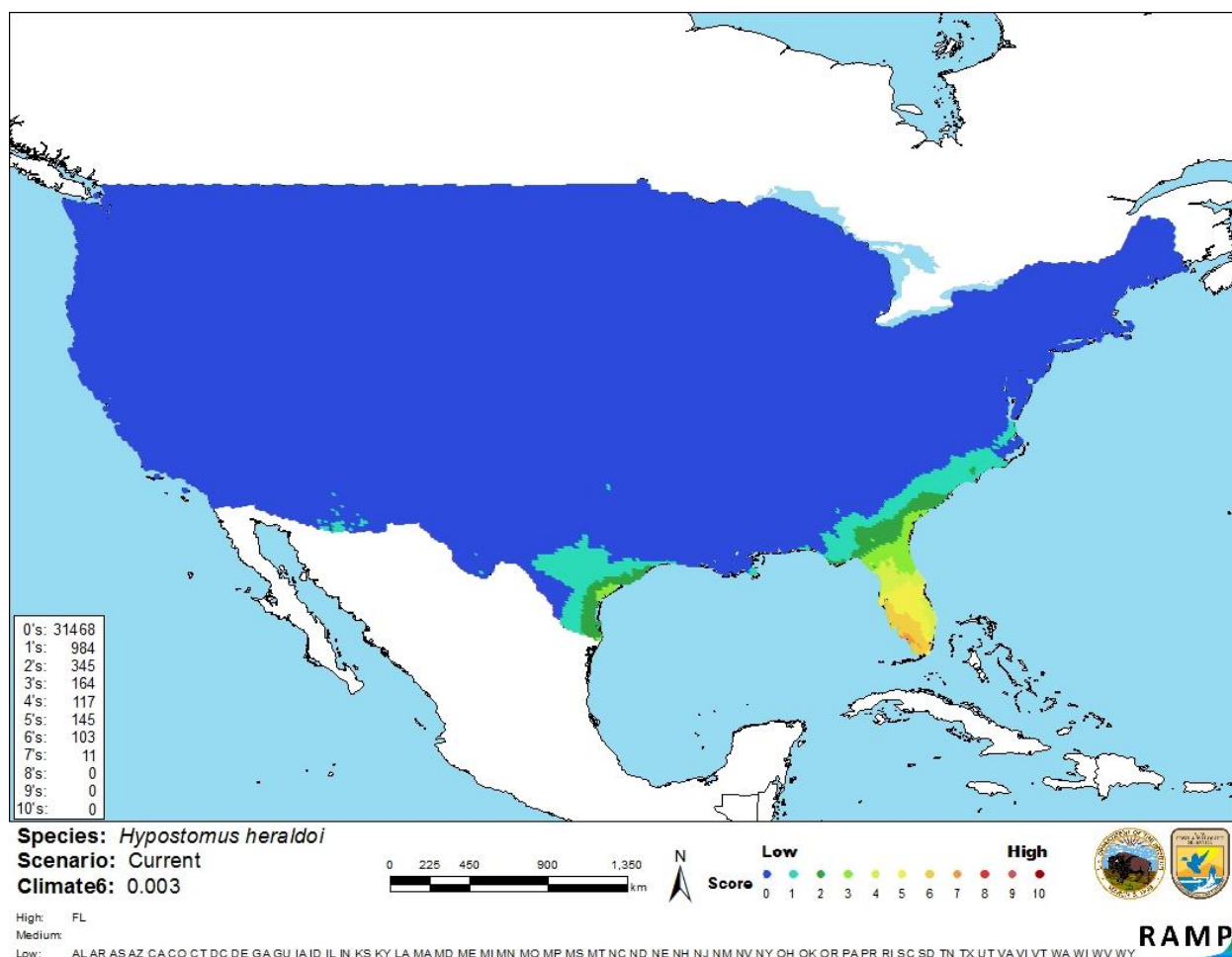


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Hypostomus heraldoi* in the contiguous United States based on source locations reported by GBIF Secretariat (2018). 0 = Lowest match, 10 = Highest match.

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 certainty of assessment is low. There was minimal biological information available for this species. There were no records of introductions found.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Hypostomus heraldoi is a member of the suckermouth armored catfish family (*Loricariidae*), native to South America. The history of invasiveness is uncertain. No records of introductions were found. The climate match was low for the contiguous United States. However, Florida had a high individual climate score. The certainty of assessment is low; the overall risk assessment category is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): Low**
- **Certainty of Assessment (Sec. 7): Low**
- **Remarks/Important additional information:** This species was described in 2008.
- **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.

Bailly, Nicolas. 2017. *Hypostomus heraldoi*. In World Register of Marine Species. Available: <http://www.marinespecies.org/aphia.php?p=taxdetails&id=1008411>. (August 2018).

Eschmeyer, W. N., R. Fricke, and R. van der Laan, editors. 2018. Catalog of fishes: genera, species, references. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (August 2018).

Froese, R., and D. Pauly, editors. 2018. *Hypostomus heraldoi* Zawadzki, Weber & Pavanelli, 2008. FishBase. Available: <https://www.fishbase.de/summary/Hypostomus-heraldoi.html>. (August 2018).

GBIF Secretariat. 2018. GBIF backbone taxonomy: *Hypostomus heraldoi* Zawadzki, Weber & Pavanelli, 2008. Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/5202233>. (August 2018).

Sanders, S., C. Castiglione, and M. Hoff. 2018. Risk assessment mapping program: RAMP, version 3.1. U.S. Fish and Wildlife Service.

Zawadzki, C. H., C. Weber, and C. S. Pavanelli. 2008. Two new species of *Hypostomus* Lacépède (Teleostei: Loricariidae) from the upper rio Paraná basin, central Brazil. *Neotropical Ichthyology* 6(3):403–412.

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.

No references in this section.