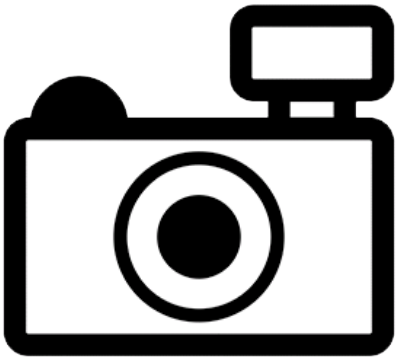
Hypostomus roseopunctatus (a catfish, no common name)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, April 2017
Revised, August 2017
Web Version, 12/11/2017



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1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2016):

"South America: La Plata system: Uruguay basin."

From Eschmeyer et al. (2017):

"Uruguay River basin: Uruguay, Argentina and Brazil."

Status in the United States

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

Means of Introductions in the United States

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

Remarks

From Nico et al. (2017):

"The genus *Hypostomus* contains about 116 species (Burgess 1989). Highlighting the serious need for additional taxonomic and systematic work, Armbruster (1997) concluded that it is currently impossible to identify most species in the genus. Several apparently different *Hypostomus* species have been collected in the United States but not definitively identified to species level (Page and Burr 1991; Courtenay and Stauffer 1990). Distinguishing characteristics of the genus and a key to loricariid genera were provided by Burgess (1989) and Armbruster (1997). Photographs appeared in Burgess (1989) and Ferraris (1991). *Hypostomus* has officially replaced the generic name *Plecostomus*. The genus was included in the key to Texas fishes of Hubbs et al. (1991) and several identifying traits were also given by Page and Burr (1991)."

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2017):

"Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Class Actinopterygii
Infraclass Teleostei
Superorder Ostariophysi
Order Siluriformes
Family Loricariidae
Subfamily Hypostominae
Genus *Hypostomus*
Species *Hypostomus roseopunctatus*"

From Eschmeyer et al. (2017):

"Current status: Valid as *Hypostomus roseopunctatus* Reis, Weber & Malabarba 1990. Loricariidae: Hypostominae."

Size, Weight, and Age Range

From Froese and Pauly (2016):

"Max length: 23.3 cm SL male/unsexed; [Weber 2003]; max. published weight: 329.00 g [Zaniboni Filho et al. 2004]"

Environment
From Froese and Pauly (2016):

"Freshwater; demersal."

Climate/Range
From Froese and Pauly (2016):

"Temperate, preferred ?"

Distribution Outside the United States
Native
From Froese and Pauly (2016):

"South America: La Plata system: Uruguay basin."

From Eschmeyer et al. (2017):

"Uruguay River basin: Uruguay, Argentina and Brazil."

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 Reis et al. (1990):

"*Hypostomus roseopunctatus* sp. n. is distinguished from other *Hypostomus* species inhabiting Southern Brazil by the lower number of teeth in each premaxillary or dentary (6-16 versus more than 21 in the remaining species). The new species is similar to *H. microstomas* Weber (1987) in the small number of teeth in each premaxillary and dentary (6-16) differing in the size of the mandibular ramus; in the proportion of its length in the interorbital width 2.1-3.6 in the former versus 3.8-5.5 in *H. microstomus*; and in the possession of 3 scutes bordering the posterior margin of the supraoccipital, versus only one in *H. microstomus* (but one *H. microstomus* paratype with 3). Furthermore, *H. roseopunctatus* presents 9-10 scutes accompanying the dorsal fin base, and *H. microstomus* presents 6-7, usually 7. Another species from the upper rio Parana system, *H. margaritifer* (Regan, 1908), has a small number of teeth. That species, however, shows 18-31 teeth in both upper and lower jaws, versus a maximum of 16 in *H. roseopunctatus*."

"Colour in alcohol: ground colour of dorsal surface grey-brown; whitish to pale yellowish or also grey-brown ventrally. Body covered with roundish or ovate whitish to reddish-brown dots, smaller and more numerous on head; sometimes aligned on flanks. Spines, rays, and membranes

of all fins with same dots irregularly arranged. Fin membranes slightly darker than scutes. Colour in life: living specimens darker and slightly bluish with light pink dots."

Biology
No information available.

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
The following information discusses the impacts of loricariid, or suckermouth, catfishes in general. *Hypostomus roseopunctatus* is assumed to have similar traits and behave similarly to other members of its family, but there is no information available to confirm this assumption.

From Nico et al. (2017):

"The effects of these loricariid catfish is largely unknown. In Texas, Hubbs et al. (1978) reported possible local displacement of algae-feeding native fishes such as *Campostoma anomalum* by *Hypostomus*, and López-Fernández and Winemiller (2005) suggest that reductions in *Dionda diaboli* abundance in portions of San Felipe Creek are due to population increases of *Hypostomus*. Because of their abundance in Hawaii, introduced *Hypostomus, Pterygoplichthys*, and *Ancistrus* may compete for food and space with native stream species (Devick 1989; Sabaj and Englund 1999)."

From Hoover et al. (2014):

"Suckermouth catfishes burrow into banks and bottom sediments to create chambers in which females lay eggs and males guard the developing mass of eggs (Burgess 1989; Ferraris 1991). Burrows may be especially evident in highly disturbed urban ponds (ERDC) and streams (Tompkins 2004). When burrows are dense, erosion, sedimentation, and elevated turbidity may result (Devick 1988, 1989, 1991[b]). Bank failure, shoreline collapse, and a characteristic terracing have been observed in Mexico, Texas, and Florida where burrow densities were high […] Not all infested waters, however, exhibit significant erosion."

"[…] sheer numbers of these large, grazing animals can create problems for other animals (e.g., competition for food or space with like-sized aquatic organisms, or interference with other

animals. Competition has apparently taken place in Hawaiian streams where native species no longer exist in the presence of high densities of suckermouth catfishes (Englund et al. 2000) or are threatened by low water quality after fishkills (Honolulu Advertiser 2006)."

"Suckermouth catfishes produce copious and conspicuous feces (Sandford and Crow 1991, Ferraris 1991 […]) which, in aquatic systems, transforms and translocates nutrients, alters sediment characteristics, and impacts microbial and benthic communities (Wotton and Malmqvist 2001), notably so in subtropical environments (e.g., Iovino and Bradley 1969, Frouz et al. 2004)."

"Economic impacts of suckermouth catfishes have been quantified for commercial tilapia fishing in Florida and for Mexico (Mendoza-Alfaro et al. 2009). In Florida, during the period 1993-2006, tilapia catch in six lakes decreased from 45- 80% to 17-30% after suckermouth catfishes became established, after which they represented 11-65% of the commercial catch."

"Social impacts resulting from economic impacts have been most pronounced in Mexico, where thousands of livelihoods in the Balsas Basin have been affected by the collapse of commercial fisheries. The collapse has impacted health status (e.g., wounds, infections, vaccinations), unemployment, emigration, and has created changes in household structure (Mendoza-Alfaro et al. 2009)."

4 Global Distribution

Figure 1. Map of La Plata basin and Uruguay River. This is the river where *Hypostomus roseopunctatus* is native (Froese and Pauly 2016). Image: Kmusser. Available: https://en.wikipedia.org/wiki/Uruguay_River. (April 2017).

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 medium along the Gulf Coast from southern Louisiana to the Florida Panhandle, in isolated locations in the Southern Appalachians, and in coastal North Carolina. The remainder of the contiguous U.S. showed a low climate match. Climate 6 score indicated a low climate match overall for the contiguous U.S. Scores of 0.005 or less are classified as low match; Climate 6 score for *H. roseopunctatus* was 0.002.

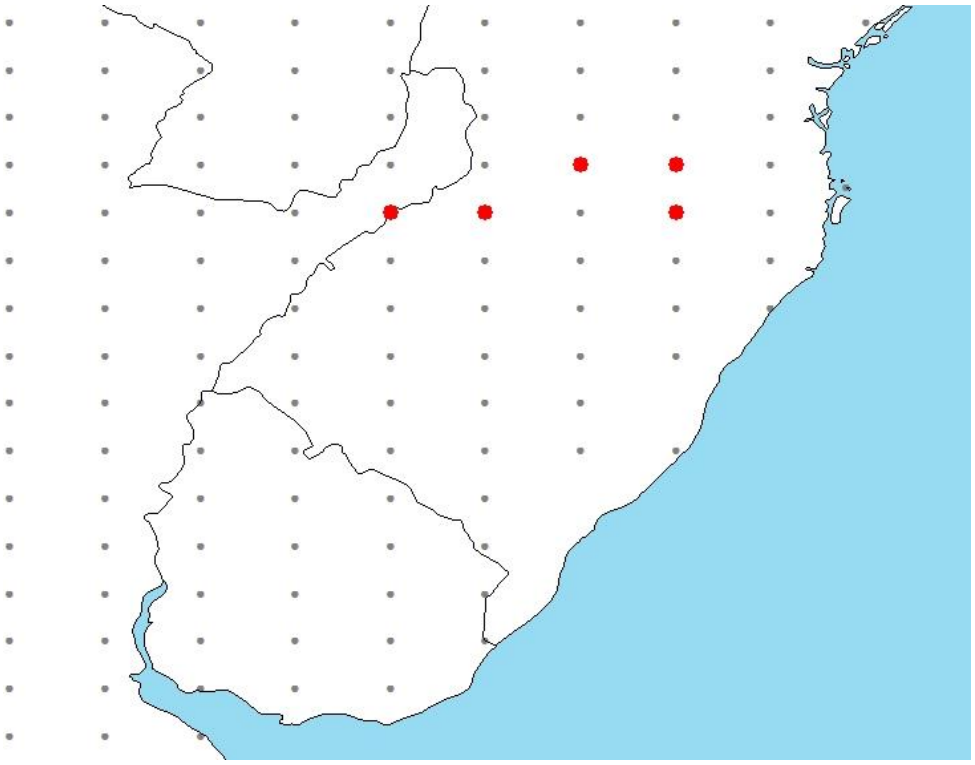

Figure 2. RAMP (Sanders et al. 2014) source map of southern Brazil, Uruguay, and northern Argentina showing weather stations selected as source locations (red) and non-source locations (gray) for *Hypostomus roseopunctatus* climate matching. Source locations from Reis et al. (1990).

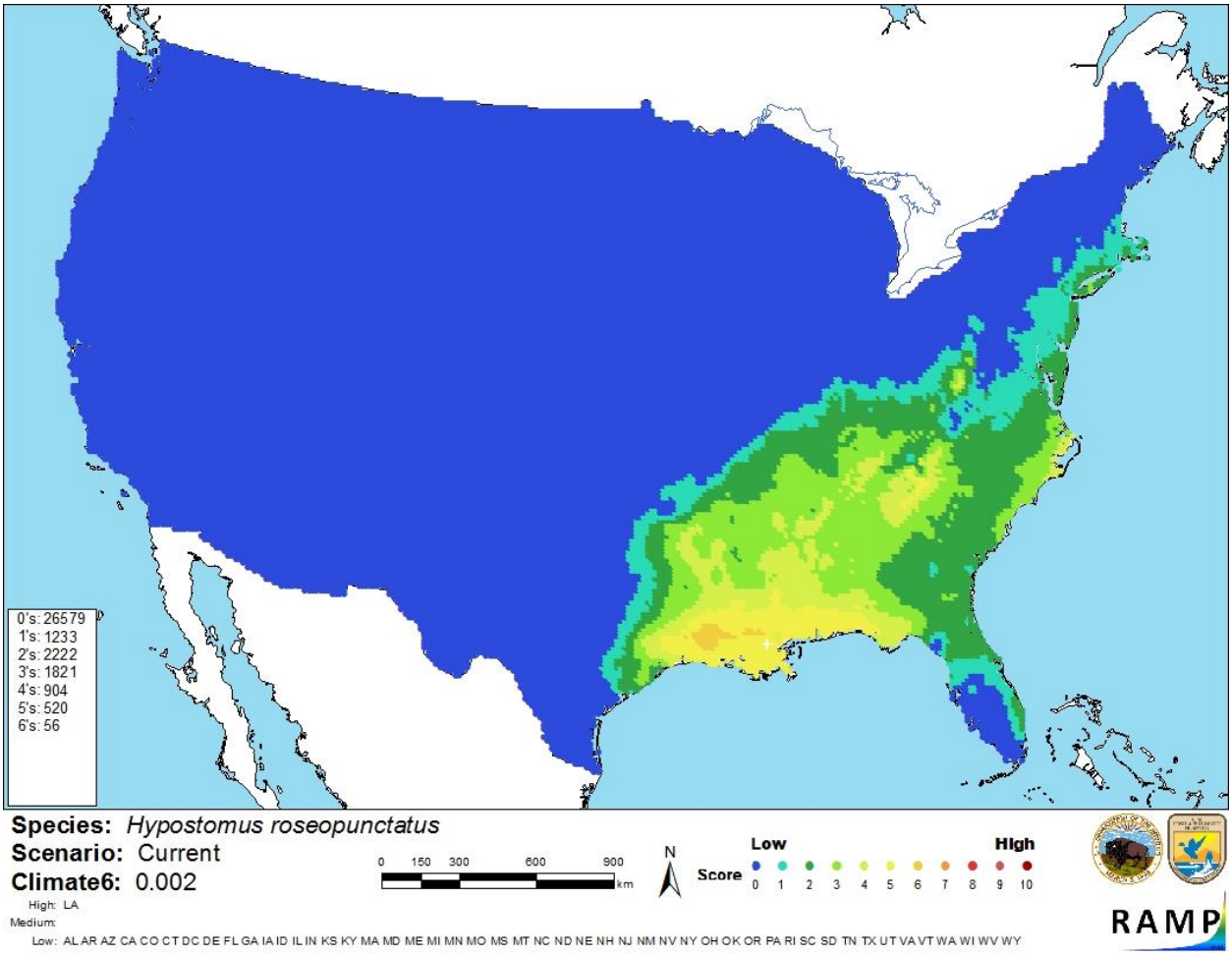

Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Hypostomus roseopunctatus* in the contiguous United States based on source locations reported by Reis et al. (1990). 0=Lowest match, 10=Highest match.

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

7 Certainty of Assessment

There is little information available on *Hypostomus roseopunctatus*, including no information on the biology of this species. No introductions of this species outside of its native range have been documented. Certainty of this assessment is low due to a lack of information.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Hypostomus roseopunctatus is a suckermouth catfish native to the Uruguay River basin. No introductions of this particular species have been reported but unidentified species of *Hypostomus* are documented as established in the U.S., with a variety of potential physical, chemical, and biological impacts where introduced. *H. roseopunctatus* has a low climate match with the contiguous U.S. Overall, there is little information available on this species. More information is needed to adequately assess the risk this species poses. Overall risk category 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.

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