Payara (*Hydrolycus tatauaia*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, April 2014
Revised, February 2018
Web Version, 7/31/2018

Photo: © Miloslav Petrtyl. Licensed under Creative Commons (CC-BY-NC). Available: http://eol.org/data_objects/5825564 (February 2018).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2017):

"South America: Amazon and upper Orinoco River basins [Brazil, Colombia, Venezuela] and rivers of Guyana."

Status in the United States

This species has not been reported as introduced or established in the United States. Review of aquarium hobbyist online forums suggests that this species is present in trade in the United States, although no aquarium retailers were found listing the species for sale to the public.

Means of Introductions in the United States

This species has not been reported as introduced or established in the United States.

Remarks
The common name "Paraya" is applied to multiple species in the genus *Hydrolycus*.

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 Osteichthyes
Class Actinopterygii
Subclass Neopterygii
Infraclass Teleostei
Superorder Ostariophysi
Order Characiformes
Family Cynodontidae
Subfamily Cynodontinae
Genus Hydrolycus
Species *Hydrolycus tatauaia*"

"Taxonomic Status: valid"

Size, Weight, and Age Range
From Froese and Pauly (2017):

"[…] Max length : 45.5 cm SL male/unsexed; [Toledo-Piza 2003]"

Environment
From Froese and Pauly (2017):

"Freshwater; pelagic."

Climate/Range
From Froese and Pauly (2017):

"Tropical"

Distribution Outside the United States

Native

From Froese and Pauly (2017):

"South America: Amazon and upper Orinoco River basins [Brazil, Colombia, Venezuela] and rivers of Guyana."

Introduced

This species has not been reported as introduced outside of its native range.

Means of Introduction Outside the United States

This species has not been reported as introduced outside of its native range.

Short Description

From Seriously Fish (2018):

"It can be told apart from all congeners by the following combination of characters: head and body silvery with dark dorsal surface; an elongate dark blotch posterior to the opercle; dorsal, caudal and anal-fin rays reddish to orange proximally with some individual variation in intensity and tonality; adipose fin dark, with diffuse black pigmentation."

Biology

From Melo et al. (2009):

"Stomach content analyses indicated that all four species [includes *Hydrolycus tatauaia*] are strictly piscivorous."

Human Uses

Review of aquarium hobbyist online forums suggests that this species is present in trade in the United States, although no aquarium retailers were found listing the species for sale to the public.

From Seriously Fish (2018):

"We know of only a handful of private aquarists with the facilities required to house this species long-term since its adult size and natural behaviour preclude its suitability as a fish for the home aquarium."

Diseases

No information available. No OIE reportable diseases have been documented for this species.

Threat to Humans

From Froese and Pauly (2017):

"Harmless"

3 Impacts of Introductions

There are no reported introductions of this species. Data on the impacts of introductions are lacking.

4 Global Distribution

Figure 1. Map of known global distribution of *Hydrolycus tatauaia*. Map from GBIF Secretariat (2017).

5 Distribution Within the United States

This species has not been reported as established or introduced in the United States.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) was medium in peninsular Florida and far southern Louisiana, and low for the remaining contiguous United States. Climate 6 match indicated that the contiguous United States has a low climate match overall. The range for a low climate match is from 0.0 to 0.005, inclusive; Climate 6 match of *Hydrolycus tatauaia* is 0.002.

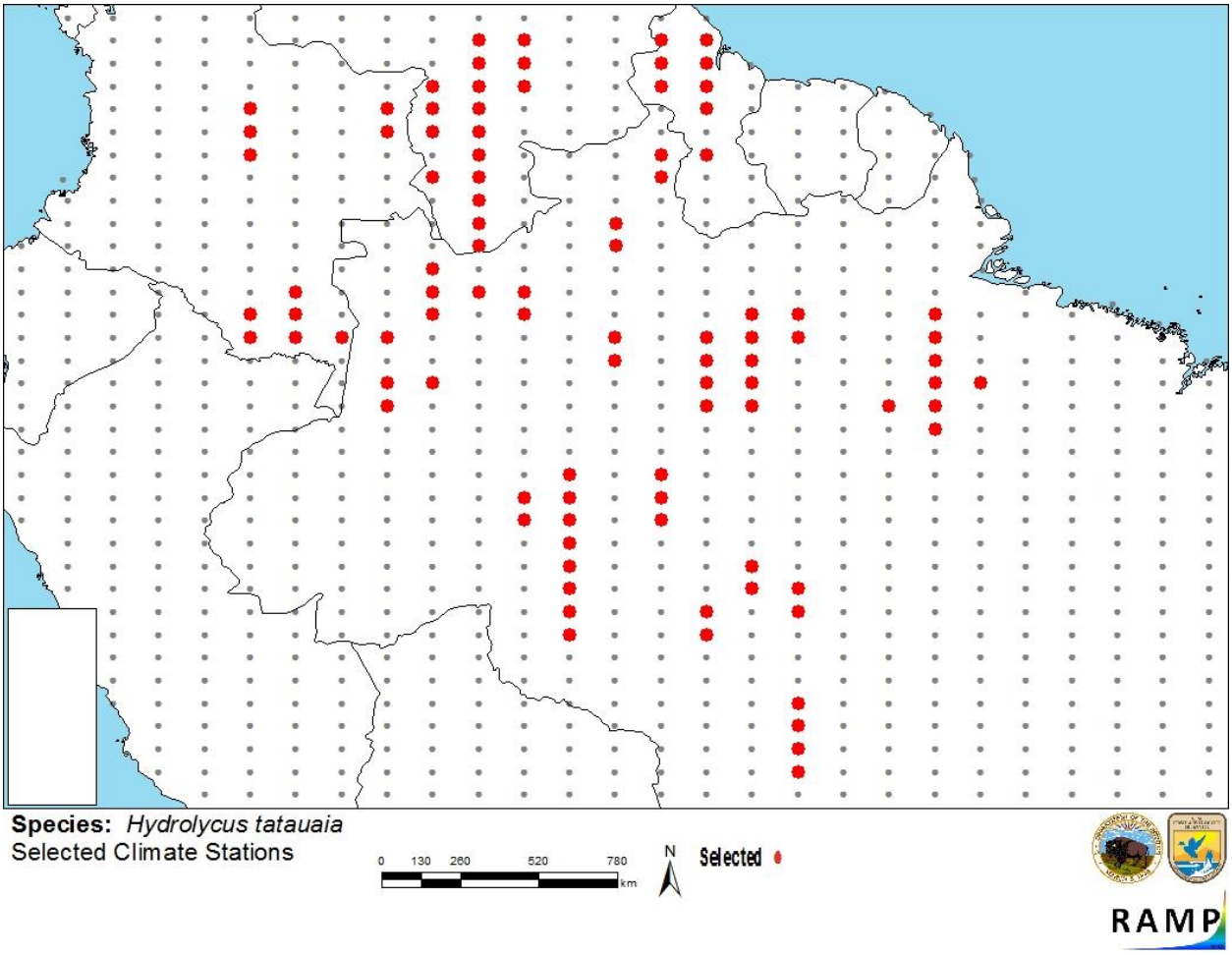

Figure 2. RAMP (Sanders et al. 2014) source map of northern South America showing weather stations selected as source locations (red; Brazil, Colombia, Guyana, and Venezuela) and non-source locations (gray) for *Hydrolycus tatauaia* climate matching. Source locations from GBIF Secretariat (2017).

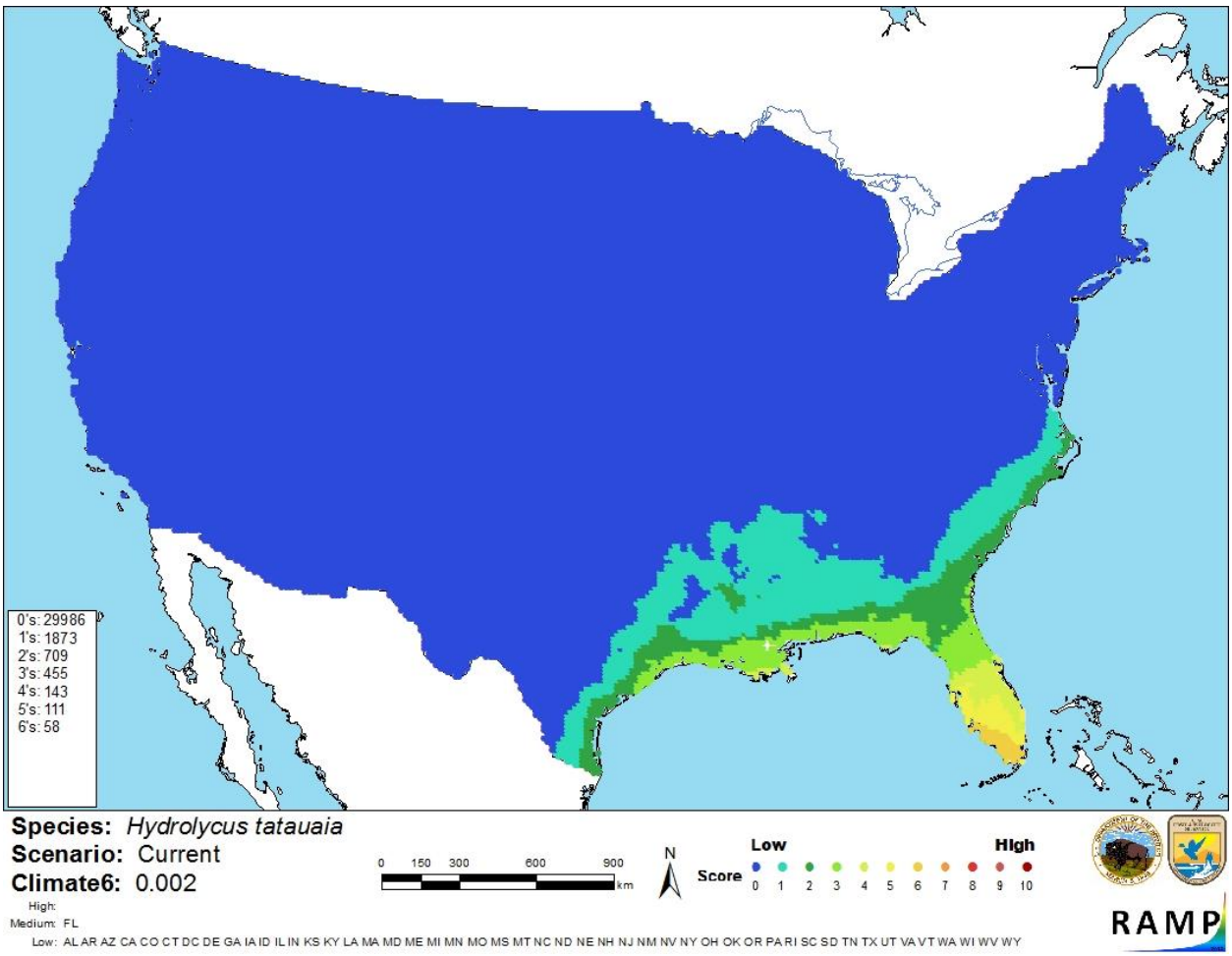

Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Hydrolycus tatauaia* in the contiguous United States based on source locations reported by GBIF Secretariat (2017). 0= Lowest match, 10=Highest match.

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

Information on the distribution of *Hydrolycus tatauaia* is available, but information on the biology is extremely limited. No introductions of this species have been reported, therefore scientific information on the impacts of introductions is lacking. Information is needed to understand the impacts the species could have if introduced; absence of this information makes the certainty of this assessment low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Payara (*Hydrolycus tatauaia*) is a freshwater fish species native to South America that is found in the Amazon and upper Orinoco River basins and rivers of Guyana. Information on the biology of *H. tatauaia* is not widely available. No introductions of the species have been reported, although it is present in the aquarium trade in the United States. More information is needed to understand the impacts from potential introductions; absence of this information makes the certainty of this assessment low. Climate match with the contiguous United States is low. Overall risk posed by 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.

Froese, R., and D. Pauly, editors. 2017. *Hydrolycus tatauaia* Toledo-Piza, Menezes & Santos, 1999. FishBase. Available: http://www.fishbase.us/summary/Hydrolycus-tatauaia.html. (February 2018).

GBIF Secretariat. 2017. GBIF backbone taxonomy: *Hydrolycus tatauaia* (Toledo-Piza, Menezes and dos Santos 1999). Global Biodiversity Information Facility, Copenhagen. Available: http://www.gbif.org/species/2352289. (February 2018).

ITIS (Integrated Taxonomic Information System). 2018. *Hydrolycus tatauaia* (Toledo-Piza, Menezes and dos Santos 1999). Integrated Taxonomic Information System, Reston, Virginia. Available: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=641105 (February 2018).

Melo, C. E. de, J. D. Lima, and E. F. da Silva. 2009. Relationships between water transparency and abundance of Cynodontidae species in the Bananal floodplain, Mato Grosso, Brazil. Neotropical Ichthyology 7(2):251-256.

Sanders, S., C. Castiglione, and M. H. Hoff. 2014. Risk Assessment Mapping Program: RAMP. U.S. Fish and Wildlife Service.

Seriously Fish. 2018. *Hydrolycus tatauaia*. Seriously Fish. Available: http://www.seriouslyfish.com/species/hydrolycus-tatauaia/. (July 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.

Toledo-Piza, M. 2003. Cynodontidae (Cynodotids). Pages 234-237 *in* R. E. Reis, S. O. Kullander, and C. J. Ferraris, Jr., editors. Checklist of the freshwater fishes of South and Central America. EDIPUCRS, Porto Alegre, Brazil.