

Payara (*Hydrolycus wallacei*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, April 2014

Revised, February 2018

Web Version, 7/31/2018



Photo: L. Flávio. Licensed under Creative Commons (CC-BY-NC). Available: http://eol.org/data_objects/26104102. (February 2018).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2017):

“South America: Negro and upper Orinoco River basins [Brazil and Venezuela].”

Status in the United States

This species has not been reported as introduced or established in the United States. A review of online aquarium retailers did not find evidence that this species is currently in trade in the United States.

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 “Payara” 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 wallacei* Toledo-Piza, Menezes and dos Santos,
1999”

“Taxonomic Status: valid”

Size, Weight, and Age Range

From Froese and Pauly (2017):

“[...] Max length : 33.5 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: Negro and upper Orinoco River basins [Brazil and Venezuela].”

Introduced

This species has not been reported as introduced.

Means of Introduction Outside the United States

This species has not been reported as introduced.

Short Description

No information available.

Biology

No information available.

Human Uses

No information available.

Diseases

No information available. There are no known OIE reportable diseases for this species.

Threat to Humans

From Froese and Pauly (2017):

“Harmless”

3 Impacts of Introductions

This species has not been reported as introduced outside of its native range. Data on impacts of introductions are lacking.

4 Global Distribution

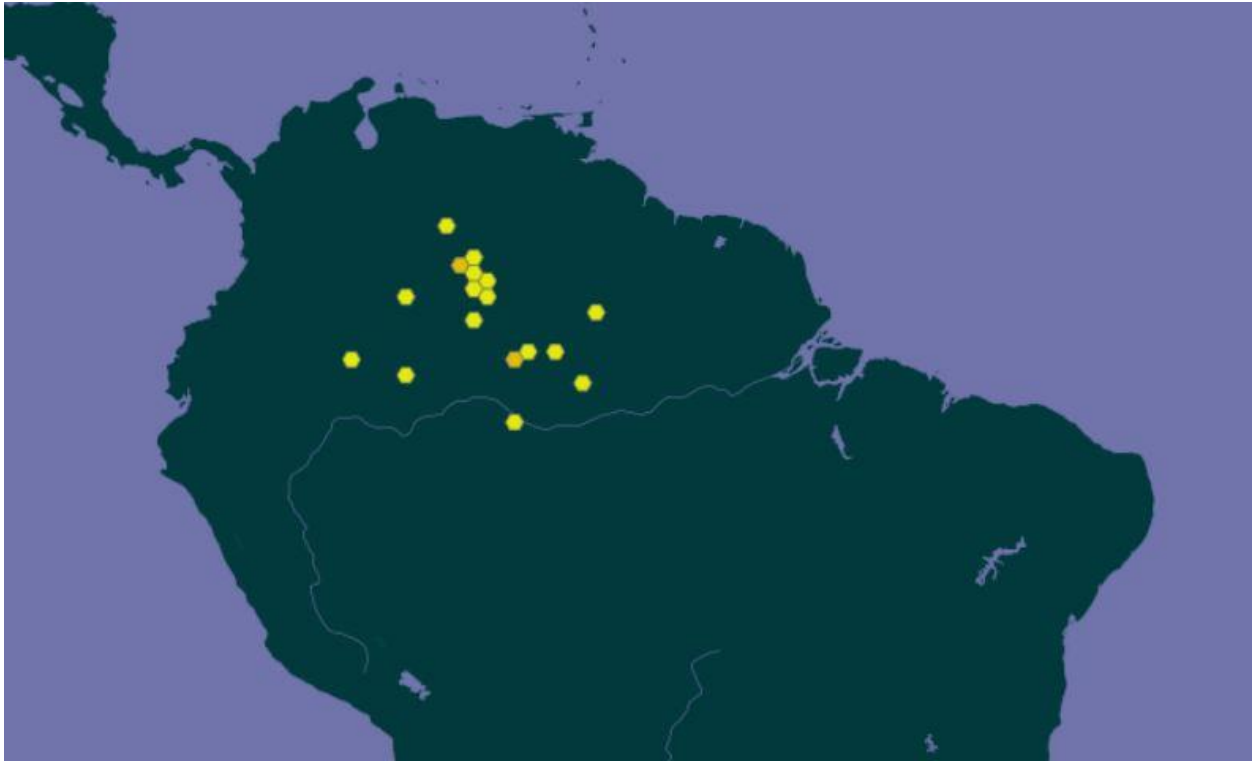


Figure 1. Map of known global distribution of *Hydrolycus wallacei*, reported from northern South America. Map from GBIF Secretariat (2017). Although Colombia was not listed by Froese and Pauly (2018) as a country where *Hydrolycus wallacei* is established, the species is established in the Negro River basin, which extends into southeastern Colombia.

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 on the southeastern coast of peninsular Florida and low throughout the remaining United States. Climate 6 match indicated that the contiguous United States has a low climate match. The range for a low climate match is from 0.0 to 0.005, inclusive; Climate 6 match of *Hydrolycus wallacei* is 0.000.

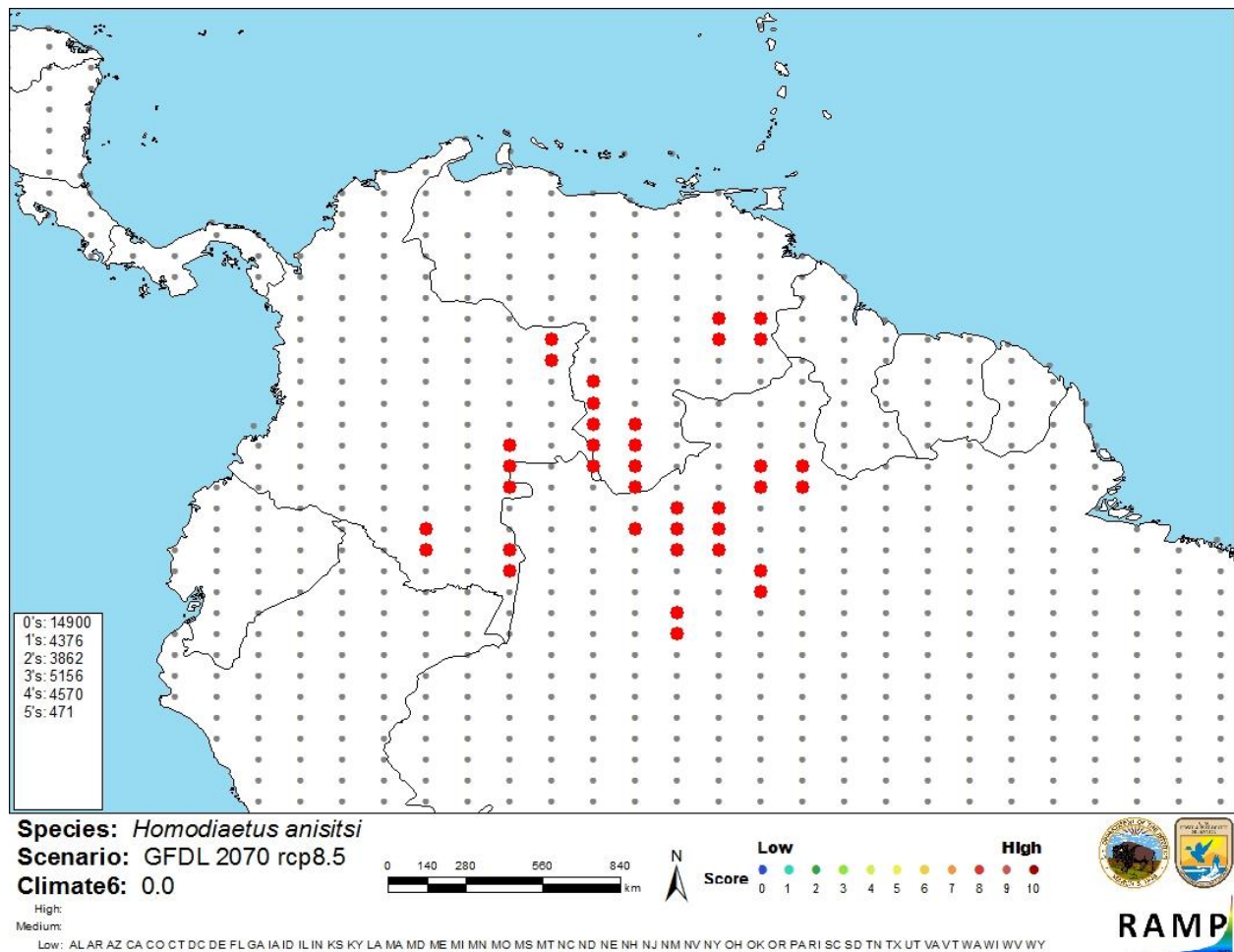


Figure 2. RAMP (Sanders et al. 2014) source map of northern South America showing weather stations selected as source locations (red; Brazil, Colombia, Venezuela) and non-source locations (gray) for *Hydrolycus wallacei* climate matching. Source locations from GBIF Secretariat (2017).

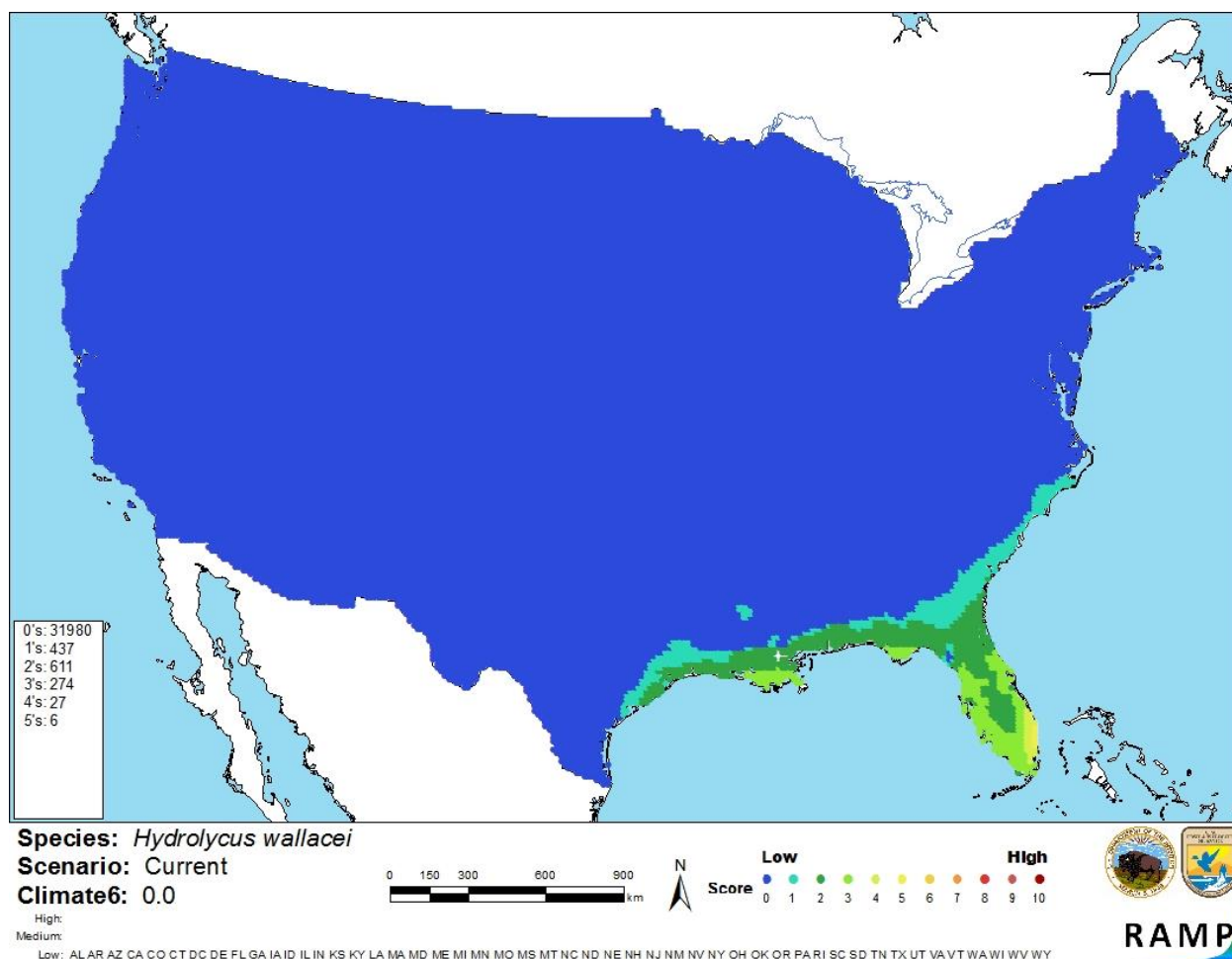


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Hydrolycus wallacei* in the continental United States based on source locations reported by GBIF Secretariat (2017). 0=Lowest match, 10=Highest match.

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
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

7 Certainty of Assessment

Information on the distribution and biology of *Hydrolycus wallacei* is not widely available. No introductions of this species have been reported, therefore scientific information on the impacts of introductions is lacking. Further information is needed to evaluate the impacts the species could have in introduced areas; absence of this information makes the certainty of this assessment low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Payara (*Hydrolycus wallacei*) is a freshwater fish species native to South America that is found in the Negro and upper Orinoco river basins. No introductions of this species have been reported. More information is needed to understand the potential impacts of introductions of this species; absence of this information makes the certainty of this assessment low. Climate match with the 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 wallacei* Toledo-Piza, Menezes & Santos, 1999. FishBase. Available: <http://www.fishbase.us/summary/Hydrolycus-wallacei.html> (February 2018).

GBIF Secretariat. 2017. GBIF backbone taxonomy: *Hydrolycus wallacei* (Toledo-Piza, Menezes and dos Santos 1999). Global Biodiversity Information Facility, Copenhagen. Available: <http://www.gbif.org/species/2352281>. (February 2018).

ITIS (Integrated Taxonomic Information System). 2017. *Hydrolycus wallacei* (Toledo-Piza, Menezes and dos Santos 1999). Available: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=641106 (February 2018).

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

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 (Cynodontids). 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.