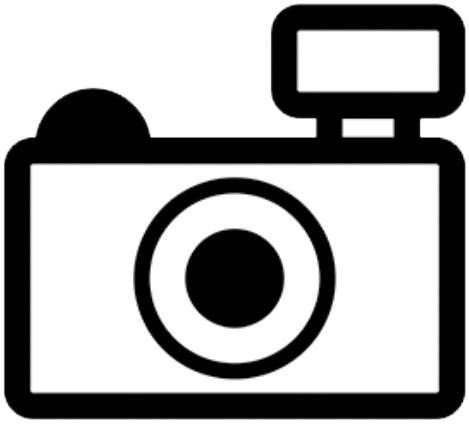
Astyanax leopoldi (a tetra, no common name)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, January 2016
Revised, March 2018
Web Version, 7/12/2018



No Photo Available

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2018):

"South America: Approuague and Oyapock River basins [French Guiana and Brazil]."

Status in the United States

This species has not been reported in the United States.

A. leopoldi was not found listed for sale within the United States upon review of several online ornamental fish sites. Seriously Fish (2018) mentions that most Astyanax species are not popular in the aquarium trade.

Means of Introductions in the United States

This species has not been reported in the United States.

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 Actinopterygii
Class Teleostei
Superorder Ostariophysi
Order Characiformes
Family Characidae
Genus *Astyanax*
Species *Astyanax leopoldi* Géry, Planquette and Le Bail, 1988"

"Taxonomic Status: valid"

Size, Weight, and Age Range

From Froese and Pauly (2016):

"Maturity: Lm ? range ? - ? cm […] Max length : 6.0 cm TL male/unsexed;; [Planquette et al. 1996]"

Environment

From Froese and Pauly (2018):

"Freshwater; benthopelagic."

Climate/Range

From Froese and Pauly (2018):

"Tropical"

Distribution Outside the United States

Native
From Froese and Pauly (2018):

"South America: Approuague and Oyapock River basins [French Guiana and Brazil]."

Introduced
This species has not been reported beyond its native range.

Means of Introduction Outside the United States
This species has not been reported beyond its native range.

Short Description
From Lima-Flavio and Toledo-Piza (2001):

"The presence of a caudal peduncle stripe and lack of longitudinal band along the midbody is also found in *Astyanax leopoldi* (Ge´ry et al. 1988; Planquette et al., 1996:251). Within *Moenkhausia, M. oligolepis, M. sanctaefilomenae,*and *M. pyrophthalma* share with the new species two distinctive pigmentation pattern features: the presence of dark pigmentation along the posterior margin of the body scales resulting in a characteristic reticulate pattern, and the occurrence of conspicuous red pigmentation on the dorsal portion of the eye.
These characters, however, are not restricted to these four species among Tetragonopterinae. Red pigmentation on the eye also occurs in, for example, *Astyanax leopoldi (*Ge´ry et al. (Planquette et al., 1996:251)"

Biology
From Froese and Pauly (2018):

"Frequently found in calm zones of the rapids. Often captured in great numbers, indicating a gregarious behavior [Planquette et al. 1996]."

Human Uses
From Froese and Pauly (2018):

"Aquaculture: likely future use"

Diseases
No diseases reported, including OIE-reportable diseases.

Threat to Humans
From Froese and Pauly (2018):

"Harmless"

3 Impacts of Introductions
This species has not been reported beyond its native range.

4 Global Distribution

Figure 1. Known global distribution in French Guiana and Brazil of *Astyanax leopoldi*. Map from GBIF (2018).

5 Distribution Within the United States

This species has not been reported in the United States.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) for *Astyanax leopoldi* within the contiguous United States is low overall. The Climate6 proportion for this species is 0.0. The range of proportions classified as a low match is from 0.000 to 0.005, inclusive. All states within the contiguous United States had a low match.

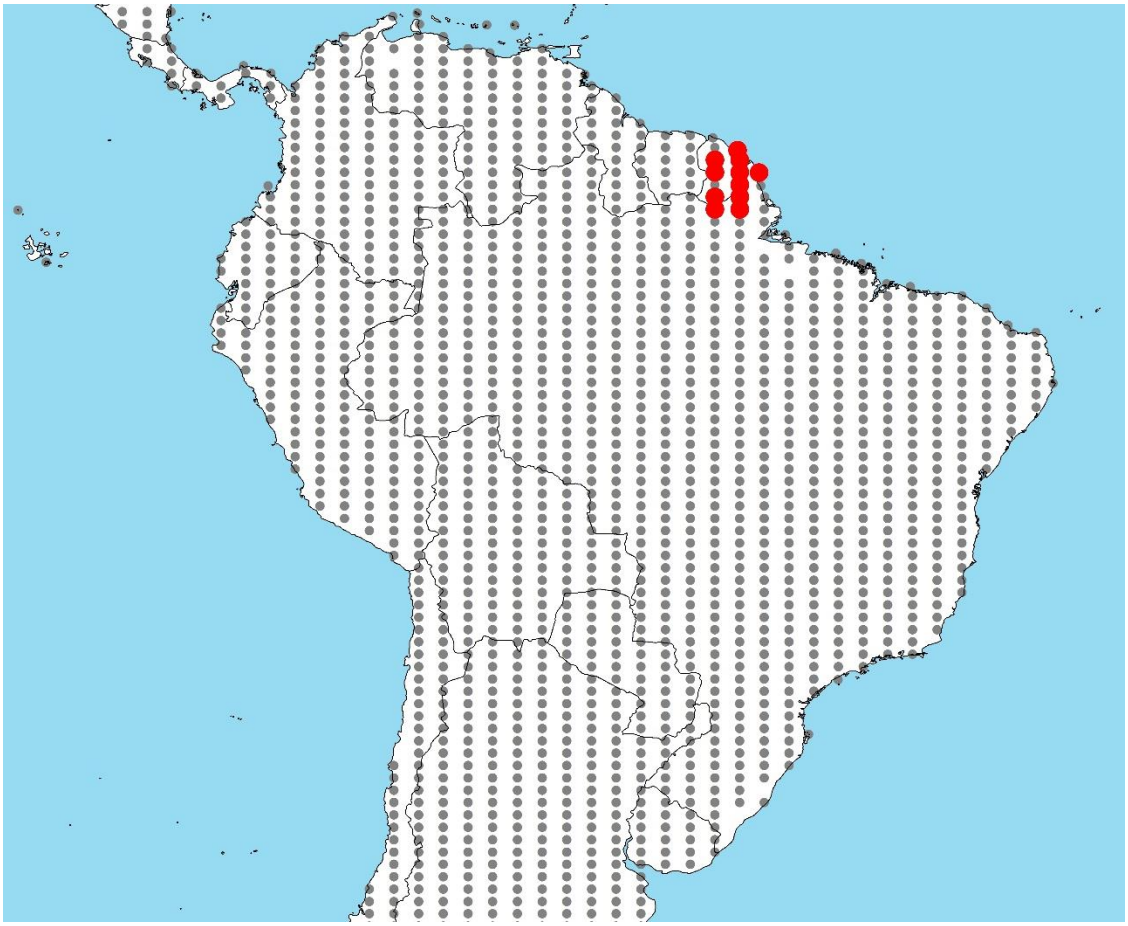


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations in South America selected as source locations (red; French Guiana, Brazil) and non-source locations (gray) for *Astyanax leopoldi* climate matching. Source locations from GBIF Secretariat (2018).

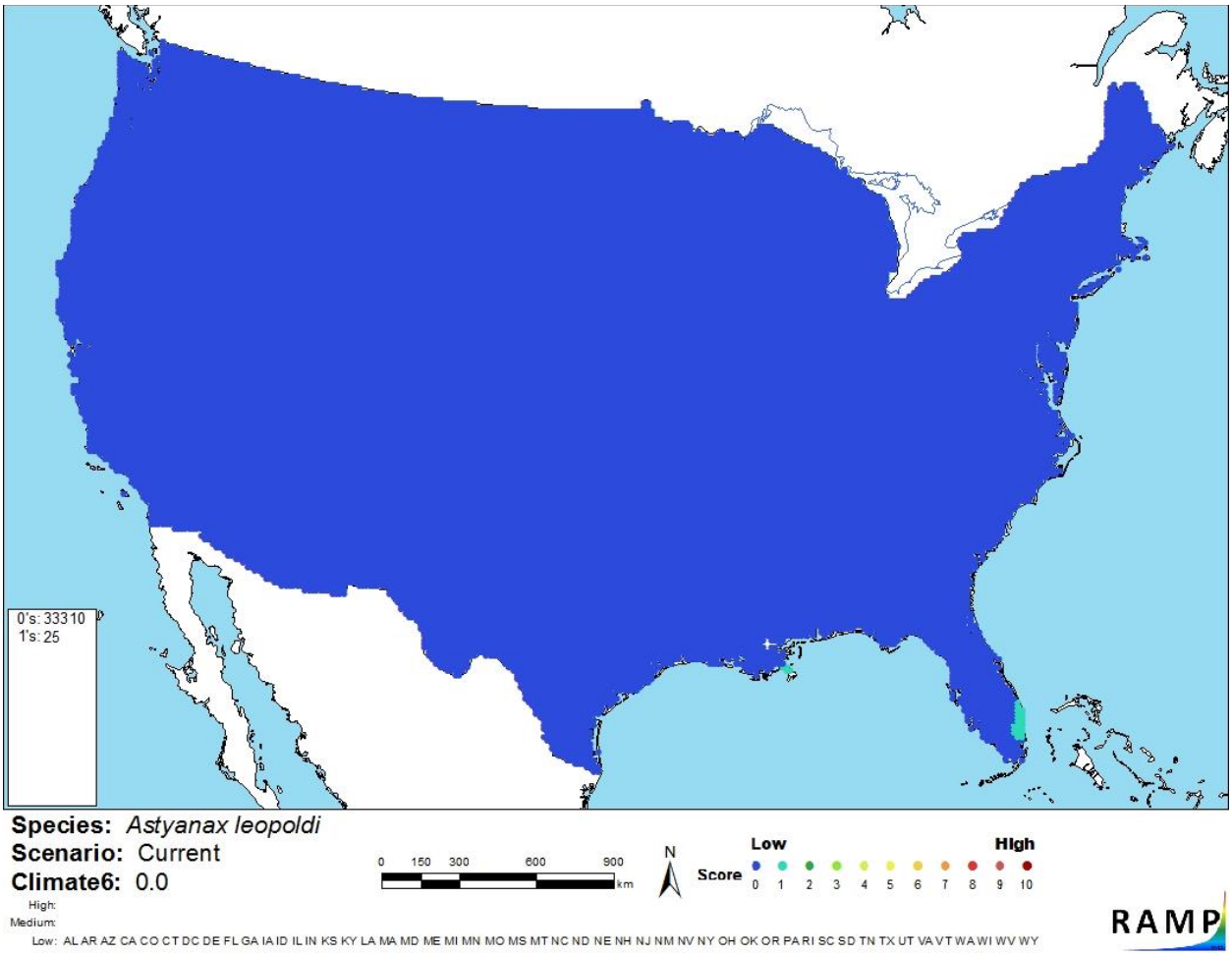


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Astyanax leopoldi* in the contiguous United States based on source locations reported by GBIF Secretariat (2018). 0=Lowest match, 10=Highest match.

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

Much of the existing information on *Astyanax leopoldi* is descriptive in nature. Limited information currently exists on the biology, ecology, and distribution of the species. *A. leopoldi* has not been reported beyond its native range, therefore the impacts of introductions are unknown. Given the limited information on *A. leopoldi*, the certainty of assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Astyanax leopoldi is a tetra fish native to the northern South American countries of French Guiana and Brazil in the Approuague and Oyapock River basins. Limited information exists on the biology, ecology, and distribution of this species. Much of what is reported relates to the species' descriptive attributes relative to other species. The species is abundant where it occurs, indicating a gregarious nature, but it has not been reported beyond its native range. Current trade status within the United States is unclear. Review of several online retail sites found no specimens currently available for purchase. The species is believed to have potential for future aquaculture. Overall climate match within the contiguous United States is low; with all states matching low. Overall risk of *Astyanax leopoldi* 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. 2018. *Astyanax leopoldi* Géry, Planquette & Le Bail, 1988. FishBase. Available: http://www.fishbase.org/summary/Astyanax-leopoldi.html. (March 2018).

GBIF Secretariat. 2018. GBIF backbone taxonomy: *Astyanax leopoldi* Géry, Planquette & Le Bail, 1988. Global Biodiversity Information Facility, Copenhagen. Available: https://www.gbif.org/species/5204254. (March 2018).

ITIS (Integrated Taxonomic Information System). 2018. *Astyanax leopoldi* Géry, Planquette & Le Bail, 1988. Integrated Taxonomic Information System, Reston, Virginia. Available: https://itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=640493#null. (March 2018).

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

Seriously Fish. 2018. *Astyanax leopoldi* (Leopold's Tetra). Seriously Fish. Available: http://www.seriouslyfish.com/species/astyanax-leopoldi/. (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.

Lima, F. C., and M. Toledo-Piza. 2001. New species of *Moenkhausia* (Characiformes: Characidae) from the rio Negro of Brazil. Copeia 2001(4):1058-1063.

Gery, J. 1977. Characoids of the world. TFH Publications, Neptune City, New Jersey.

Planquette, P., P. Keith, and P.-Y. Le Bail. 1996. Atlas des poissons d'eau douce de Guyane, volume 1. Collection du Patrimoine Naturel Volume 22, MNHN, Paris and INRA, Paris.