Black Neon Tetra (*Hyphessobrycon herbertaxelrodi*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, January 2014
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Photo: J. R. Lascorz. Licensed under Creative Commons Attribution-Share Alike 3.0 Unported. Available: https://commons.wikimedia.org/wiki/File:05.Hyphessobrycon_herbertaxelrodi.JPG. (March 2019).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2019):

"Known from the Paraguay River basin [Brazil] [Lima et al. 2003]. Recorded from Mato Grosso [Brazil] [Géry 1977]."

Status in the United States

According to Froese and Pauly (2019) *Hyphessobrycon herbertaxelrodi* has been introduced into the United States, but those introductions are actually sightings in pet shops around Lake Erie

and Ontario. According to GBIF secretariat (2019), *Hyphessobrycon herbertaxelrodi* has been recorded in Alabama, but that too was a sighting in a pet shop and not in the wild. According to BISON (2019), *Hyphessobrycon herbertaxelrodi* has been found in Florida but that was a sighting from a fish collection and not from a wild population. There are no wild populations of *Hyphessobrycon herbertaxelrodi* reported in the United States.

Hyphessobrycon herbertaxelrodi is in the aquarium and aquaculture trade in the United States (BISON 2019; GBIF Secretariat 2019).

Means of Introductions in the United States

There are no wild populations of *Hyphessobrycon herbertaxelrodi* reported in the United States.

Remarks

No additional remarks.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Fricke et al. (2019), *Hyphessobrycon herbertaxelrodi* (Géry 1961) is the current valid name, and the original name for this species.

From ITIS (2019):

"Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii
Class Teleostei
Superorder Ostariophysi
Order Characiformes
Family Characidae
Genus *Hyphessobrycon*
Species *Hyphessobrycon herbertaxelrodi* Géry, 1961"

Size, Weight, and Age Range

From Froese and Pauly (2019):

"Max length : 3.2 cm SL male/unsexed; [Lima et al. 2003]"

Environment
From Froese and Pauly (2019):

"Freshwater; benthopelagic; pH range: 5.5 - 7.5; dH range: ? - 15. […]; 23°C - 27°C [Riehl and Baensch 1991] [assumed to be the recommended aquarium temperature]"

Climate/Range
From Froese and Pauly (2019):

"Tropical;"

Distribution Outside the United States
Native
From Froese and Pauly (2019):

"Known from the Paraguay River basin [Brazil] [Lima et al. 2003]. Recorded from Mato Grosso [Brazil] [Géry 1977]."

Introduced
According to Froese and Pauly (2019), *Hyphessobrycon herbertaxelrodi* has been introduced into Canada, but those introductions are actually just sightings in pet shops around Lake Erie and Ontario. There are no wild populations of *Hyphessobrycon herbertaxelrodi* reported outside of its native range.

Means of Introduction Outside the United States
There are no wild populations of *Hyphessobrycon herbertaxelrodi* reported outside of its native range.

Short Description
From Ohara and Lima (2015):

"*Hyphessobrycon lucenorum* is notably similar to *H. herbertaxelrodi*, with which it shares a well-developed broad midlateral stripe and a well-developed humeral blotch."

Biology
From Froese and Pauly (2019):

"Feeds on worms, small crustaceans and plant matter. In captivity, it swims in the middle and upper water layers of the tank; spawns in the open water and its eggs hatch in 24 to 30 hours [Mills and Vevers 1989]. Aquarium keeping: in groups of 5 or more individuals; minimum aquarium size 60 cm [BMELF 1999]."

Human Uses

From Froese and Pauly (2019):

"Aquarium: highly commercial"

Diseases

There are no records of diseases reported for *Hyphessobrycon herbertaxelrodi*. **There are no records of OIE reportable diseases (OIE 2019) for *Hyphessobrycon herbertaxelrodi*.**

Threat to Humans

From Froese and Pauly (2019):

"Harmless"

3 Impacts of Introductions

There are no wild populations of *Hyphessobrycon herbertaxelrodi* reported outside of its native range. Therefore, there is no information on impacts of introduction.

4 Global Distribution

Figure 1. Known global distribution of *Hyphessobrycon herbertaxelrodi*. Locations are in Brazil and the United States. Map from GBIF Secretariat (2019). The point located in the United States was not used in the climate match because the fish was located in a pet store and does not represent a wild population.

5 Distribution Within the United States

Figure 2. Known distribution of *Hyphessobrycon herbertaxelrodi* in the United States. Map from BISON (2019). Neither of the points located in the United States were used to selected source points in the climate match. The locations are not representative of wild populations.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Hyphessobrycon herbertaxelrodi* was low for the vast majority of the contiguous United States. There were some patches of medium match along the Gulf Coast from Texas to Florida, with a small area of high match in the very southern portion of Florida. The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous United States was 0.005, low (scores between 0.000 and 0.005, inclusive, are classified as low). All States had low individual Climate 6 scores except for Florida, which had a high climate score.

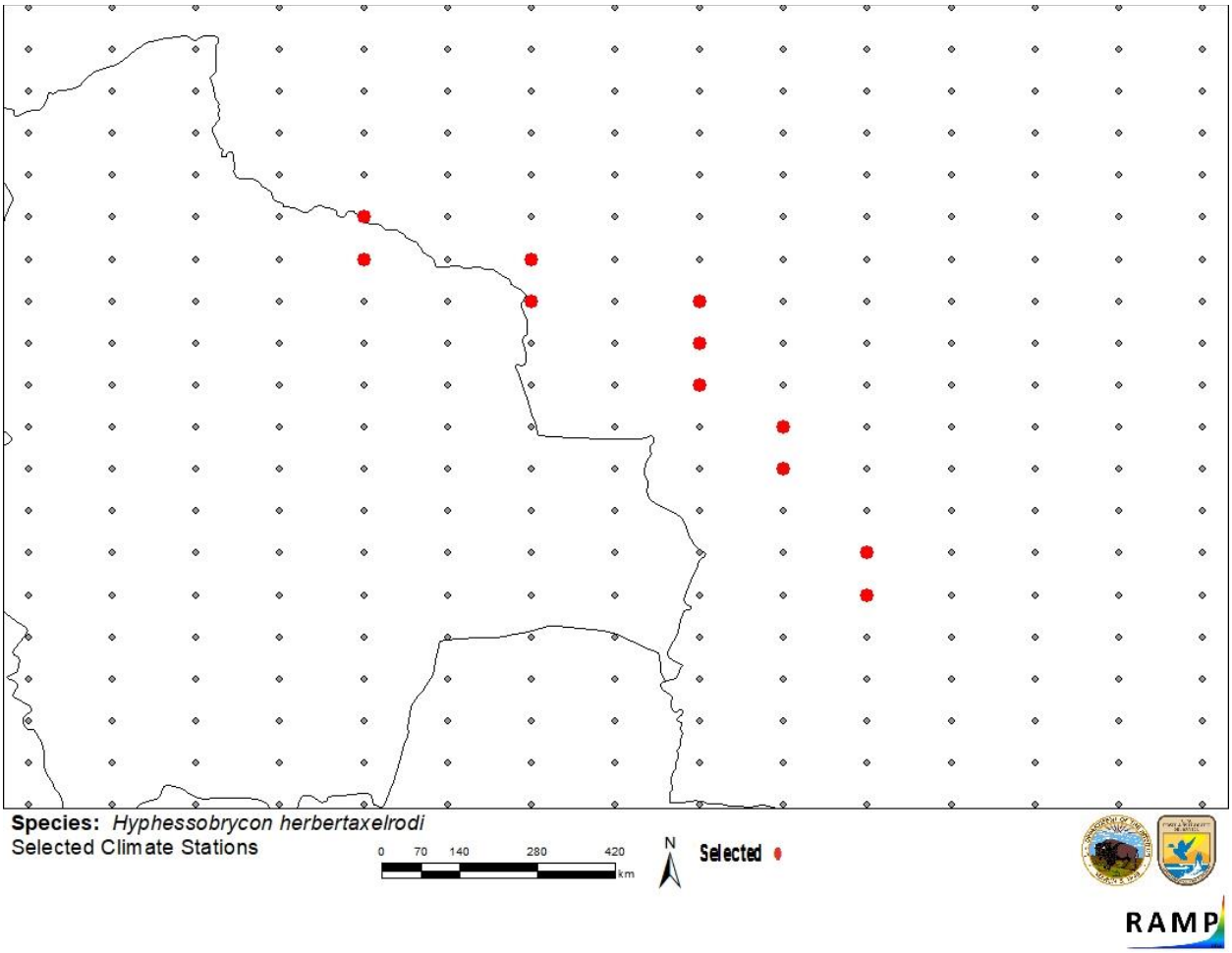

Figure 3. RAMP (Sanders et al. 2018) source map showing weather stations in central South America selected as source locations (red; Brazil, Bolivia) and non-source locations (gray) for *Hyphessobrycon herbertaxelrodi* climate matching. Source locations from GBIF Secretariat (2019). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

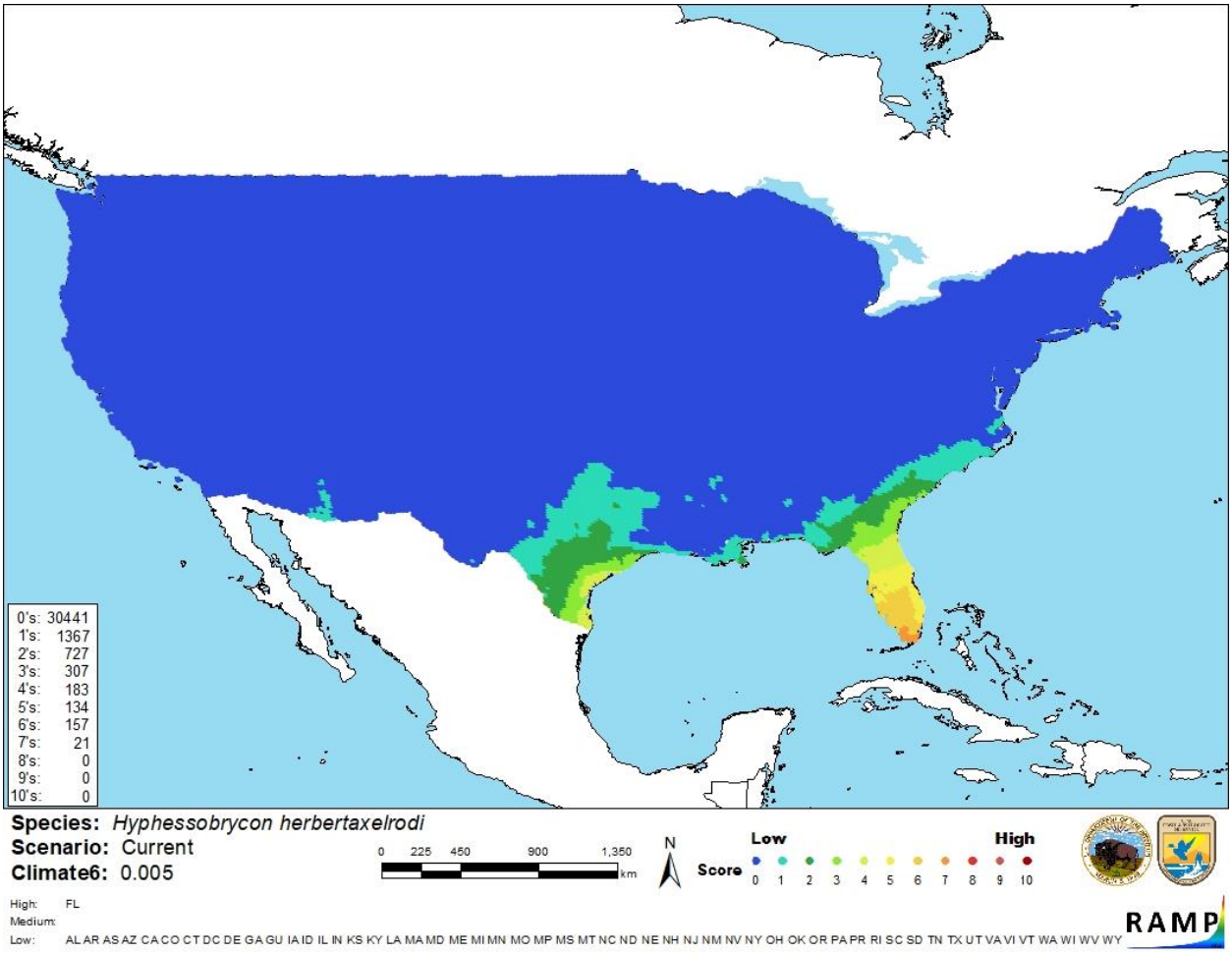

Figure 4. Map of RAMP (Sanders et al. 2018) climate matches for *Hyphessobrycon herbertaxelrodi* in the contiguous United States based on source locations reported by GBIF Secretariat (2019). 0 = Lowest match, 10 = Highest match.

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

The certainty of assessment for *Hyphessobrycon herbertaxelrodi* is low. There is minimal information available for this species. *H. herbertaxelrodi* was found in the United States, but all sightings were in pet stores or in a fish collection. *H. herbertaxelrodi* was not found outside of its native range in the wild.

8 Risk Assessment

Summary of Risk to the Contiguous United States

The Black Neon Tetra (*Hyphessobrycon herbertaxelrodi)* is a South American fish that is native to the Paraguay River basin in Brazil. The history of invasiveness is uncertain. It has not been reported as introduced or established in the wild anywhere in the world. It has been recorded in the United States, but all those records were from pet stores or fish collections. This species is found readily in the aquarium trade. The overall climate match for the contiguous United States was low. Most of the contiguous United States had a low match but southern Florida had a medium to high match and southern Texas had a medium match. 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:** *Hyphessobrycon herbertaxelrodi* is in the aquarium trade in the United States.
- **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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Fricke, R., W. N. Eschmeyer, and R. van der Laan, editors. 2019. Eschmeyer's catalog of fishes: genera, species, references. Available: http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp. (March 2019).

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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.

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Mills, D., and G. Vevers. 1989. The Tetra encyclopedia of freshwater tropical aquarium fishes. Tetra Press, New Jersey.

Riehl, R., and H. A. Baensch. 1991. Aquarien atlas. Band. 1. Melle: Mergus, Verlag für Natur- und Heimtierkunde, Germany.