Bleeding-heart Tetra (*Hyphessobrycon erythrostigma*)
Ecological Risk Screening Summary

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1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2014):

"South America: Upper Amazon River basin."

Froese and Pauly (2014) list *Hyphessobrycon erythrostigma* as native to Brazil, Colombia, and Peru.

From Eng (2006):

"Bleeding heart tetras are native to the neotropical region. The distribution is described as the Upper Amazon River basin. Bleeding heart tetras are found in the Rio Negro of Brazil as well as other regional rivers."

Status in the United States

From FAO (2014):

"*Hyphessobrycon erythrostigma* introduced to USA from unknown."

Means of Introductions in the United States

From FAO (2014):

"ornamental"

Remarks

Although there was a report of introduction into the United States (FAO 2014), no details were available.

From Eng (2006):

"Aquarists have known about this species since 1943 and they have since become a popular aquarium fish. (Fowler, 1943; Weitzman, 1977)"

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2014):

"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 Characidae
Genus *Hyphessobrycon* Durbin in Eigenmann, 1908

Species *Hyphessobrycon erythrostigma* (Fowler, 1943)"

"Taxonomic Status:
Current Standing: valid"

From Eschmeyer et al. (2017):

"***erythrostigma, Hemigrammus*** Fowler [H. W.] 1943:33, Fig. [The Fish Culturist v. 22 (no. 5)[…]] Probably border area between Peru and Brazil. Holotype (unique): ANSP 70208. Type catalog: Böhlke 1984:45 […]. •Valid as *Hyphessobrycon erythrostigma* (Fowler 1943) -- (Ortega & Vari 1986:8 […], Weitzman & Palmer 1997[a]:234 […] with comment on type locality, Zarske & Géry 1997:310 […], Weitzman & Palmer 1997[b]:167 […], Lima & Malabarba in Reis et al. 2003:136 […], Bertaco & Malabarba 2005:87 […], Miquelarena & López 2006:824 […], Bertaco et al. 2007:248 […], Hein 2009:3 […], García-Alzate et al. 2010:55 […], García-Alzate et al. 2011:709 […], García-Alzate et al. 2015:223 […]). **Current status:** Valid as *Hyphessobrycon erythrostigma* (Fowler 1943). Characidae: Pristellinae."

Size, Weight, and Age Range

From Froese and Pauly (2014):

"Max length : 6.1 cm SL male/unsexed; [Mills and Vevers 1989]"

From Eng (2006):

"Male body length ranges from 29.1 to 60.6 mm (n=6), female body length ranges from 29.0 to 53.3 mm (n=7)."

Environment

From Froese and Pauly (2014):

"Freshwater; benthopelagic; pH range: 5.6 - 7.2; dH range: ? - 12. […]; 23°C - 28°C [assumed to be recommended aquarium temperature range] [Riehl and Baensch 1991]"

From Eng (2006):

"The native habitat of *Hyphessobrycon erythrostigma* is inland, tropical freshwater rivers and streams, including the Amazon, Rio Negro, and other rivers. These fish are commonly found in small creeks and river bends where vegetation is dense. (Butler, 2006; Evans, 2006; Fowler, 1943; Sharpe, 2006; Butler, 2006; Evans, 2006; Fowler, 1943; Sharpe, 2006)"

Climate/Range

From Froese and Pauly (2014):

"Tropical; […]"

Distribution Outside the United States

Native

From Froese and Pauly (2014):

"South America: Upper Amazon River basin."

Froese and Pauly (2014) list *Hyphessobrycon erythrostigma* as native to Brazil, Colombia, and Peru.

From Eng (2006):

"Bleeding heart tetras are native to the neotropical region. The distribution is described as the Upper Amazon River basin. Bleeding heart tetras are found in the Rio Negro of Brazil as well as other regional rivers."

Introduced

Introduced to the Philippines in 1989; establishment unknown (Froese and Pauly 2014).

From FAO (2014):

"From unknown to Philippines;
From unknown to Canada"

Means of Introduction Outside the United States

From Froese and Pauly (2014):

"ornamental"

Short Description

From Eng (2006):

"The disc-shaped body of bleeding heart tetras is strongly compressed and relatively deep in males and females […] Males and females also differ somewhat in color and fin characteristics. (Butler, 2006; Sterba, 1963; Weitzman, 1977)"

"Dorsally, bleeding heart tetras are a delicate shade of grey-green to brown but with a light red bloom. A reddish silver color shades the bottom half of the body while the throat and belly region are orange. They bear a vivid red mark resembling a heart behind their gill cover, giving them their common name. Males are known for having more color and elaborate fins. Dorsal fins of males are sickle-shaped, longer, and more pointed whereas dorsal fins of females are shorter with a rounded tip. Dorsal fins in both males and females are black, pink, purple, and white. Males have a longer anal fin that is white in color. The anal fins of females are shorter and not as white. Other fins are pink to grey in color. As bleeding heart tetras age they develop a more pronounced arch to their spine. (Butler, 2006; Sterba, 1963; Weitzman, 1977)"

Biology

From Froese and Pauly (2014):

"Feeds on worms, crustaceans and plants [Mills and Vevers 1989]."

From Eng (2006):

"Development
After the eggs are laid they hatch after 30 hours. Once they have hatched, it is five to six days until the fry are able to swim freely. (Evans, 2006; Evans, 2006)"

"Reproduction
Information describing the reproduction of bleeding heart tetras comes mostly from studies in aquaria. Reproduction is through external fertilization. Females often reject or do not respond to mating attempts of males in captivity. Spawning begins with vigorous swimming among dense vegetation and is followed by mates pressing their sides together. Eggs are released after brief quivering. Eggs then attach to vegetation or fall to the bottom. (Butler, 2006; Fowler, 1943; Sterba, 1963)
Little is known about reproduction in bleeding heart tetras in wild habitats. (Sterba, 1963) There does not seem to be parental involvement with the young after the eggs are laid. (Butler, 2006; Sterba, 1963)"

Human Uses

From Froese and Pauly (2014):

"Aquarium: highly commercial"

From Eng (2006):

"Since 1943 bleeding heart tetras have been a part of the pet industry as an aquarium fish. Most people find bleeding heart tetras desirable because of their peaceful nature and striking colors. (Butler, 2006; Weitzman, 1977)"

Diseases

No records of OIE reportable diseases were found.

From Froese and Pauly (2014):

"Fin-rot Disease (late stage), Bacterial diseases
White spot Disease, Parasitic infestations (protozoa, worms, etc.)
Fin Rot (early stage), Bacterial diseases
Livoneca Infestation, Parasitic infestations (protozoa, worms, etc.)
Bacterial Infections (general), Bacterial diseases
Nematode Infection (general), Parasitic infestations (protozoa, worms, etc.)

Columnaris Disease (l.), Bacterial diseases
Nematode Infestation, Parasitic infestations (protozoa, worms, etc.)
Turbidity of the Skin (Freshwater fish), Parasitic infestations (protozoa, worms, etc.)"

Threat to Humans

From Froese and Pauly (2014):

"Harmless"

3 Impacts of Introductions

Although reports of *Hyphessobrycon erythrostigma* introductions were listed in FAO, there were no details available for those reports. Other records of introductions or possible impacts could not be found.

4 Global Distribution

Figure 1. Known global distribution of *Hyphessobrycon erythrostigma*. Map from GBIF Secretariat (2014).

Figure 2. Known distribution of *Hyphessobrycon erythrostigma*. Map from VertNet (2017).

5 Distribution Within the United States

A report of an introduction into the United States was found (FAO 2014), but no further details were available.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Hyphessobrycon erythrostigma* was low across the United States. The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous U.S. was 0.000 (low), and no states had an individually high climate match.

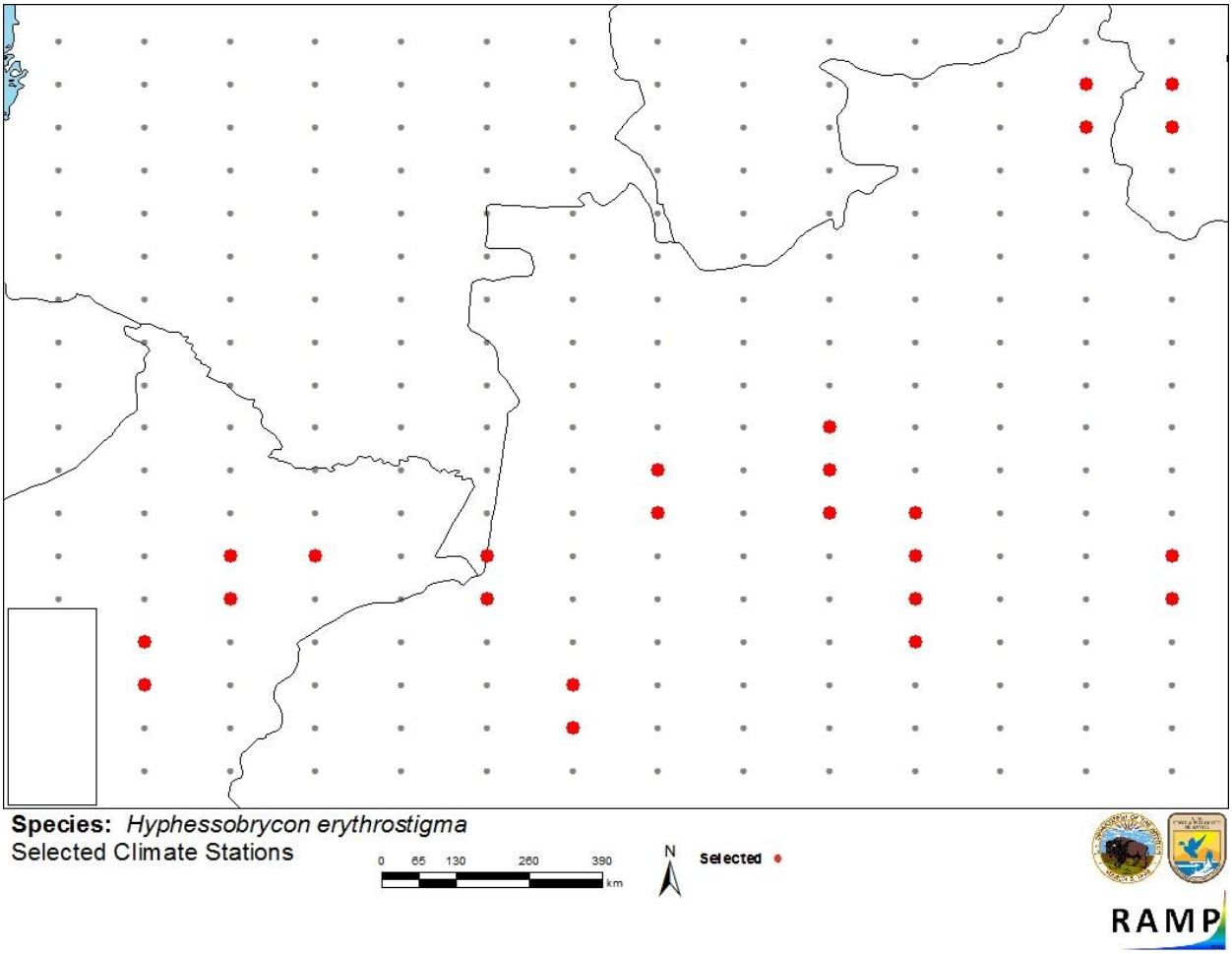

Figure 3. RAMP (Sanders et al. 2014) source map showing weather stations in Brazil, Peru, and Guyana selected as source locations (red) and non-source locations (grey) for *Hyphessobrycon erythrostigma* climate matching. Source locations from GBIF Secretariat (2014) and VertNet (2017).

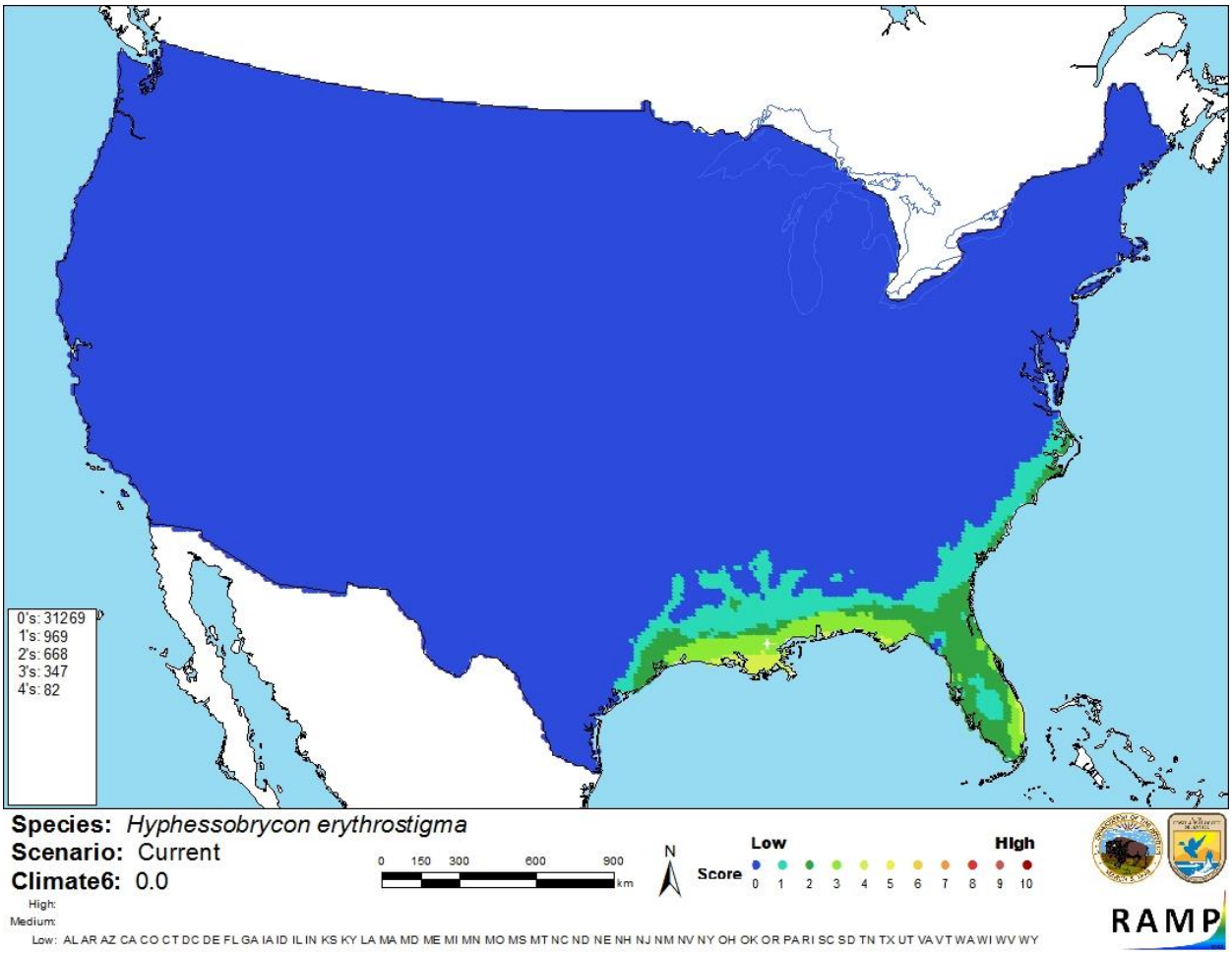

Figure 4. Map of RAMP (Sanders et al. 2014) climate matches for *Hyphessobrycon erythrostigma* in the contiguous United States based on source locations reported by GBIF Secretariat (2014) and VertNet (2017). 0 = Lowest match, 10 = Highest match.

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

There was a moderate amount of biological and ecological information available for *Hyphessobrycon erythrostigma*. Some reports of introductions were found but no details were available. The certainty of this assessment is medium.

8 Risk Assessment

Summary of Risk to the Contiguous United States

The history of invasiveness is not documented. There were few records of *Hyphessobrycon erythrostigma* introductions found but none contained details beyond the country of introduction. No records of any impacts from introductions were found. The climate match was low at 0.000; indicating that the contiguous United States does not have a climate that would support this species. The certainty of assessment is medium. The overall risk assessment category is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Not Documented**
- **Climate Match (Sec. 6): Low**
- **Certainty of Assessment (Sec. 7): Medium**
- **Remarks/Important additional information** No additional remarks.
- **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.

Eng, S. 2006. *Hyphessobrycon erythrostigma*, Animal Diversity Web. Available: http://animaldiversity.ummz.umich.edu/accounts/Hyphessobrycon_erythrostigma/. (August 2014).

Eschmeyer, W. N., R. Fricke, and R. van der Laan, editors. 2017. Catalog of fishes: genera, species, references. Available: http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp. (February 2017).

FAO (Fisheries and Agriculture Organization of the United Nations). 2014. Database on introductions of aquatic species. FAO, Rome. Available: http://www.fao.org/fishery/introsp/search/en. (August 2014).

Froese, R., and D. Pauly, editors. 2014. *Hyphessobrycon erythrostigma* (Fowler, 1943). FishBase. Available: http://www.fishbase.org/summary/Hyphessobrycon-erythrostigma.html. (August 2014).

GBIF Secretariat. 2014. GBIF backbone taxonomy: *Hyphessobrycon erythrostigma* (Fowler, 1943). Global Biodiversity Information Facility, Copenhagen. Available: http://www.gbif.org/species/2354681. (August 2014).

ITIS (Integrated Taxonomic Information System). 2014. *Hyphessobrycon erythrostigma* (Fowler, 1943). Integrated Taxonomic Information System, Reston, Virginia. Available: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=162874. (August 2014).

Sanders, S., C. Castiglione, and M. Hoff. 2014. Risk assessment mapping program: RAMP. U.S. Fish and Wildlife Service.

VertNet. 2017. VertNet. Available: http://www.vertnet.org/index.html. (February 2017).

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.

Bertaco, V. A., and L. R. Malabarba. 2005. A new species of *Hyphessobrycon* (Teleostei: Characidae) from the upper rio Tocantins drainage, with bony hooks on fins. Neotropical Ichthyology 3(1):83–88.

Bertaco, V. A., L. R. Malabarba, and J. A. Dergam. 2007. New *Hyphessobrycon* from the upper rio Pardo drainage in eastern Brazil (Teleostei: Characiformes: Characidae). Neotropical Ichthyology 5(3):245–249.

Böhlke, E. B. 1984. Catalog of type specimens in the ichthyological collection of the Academy of Natural Sciences of Philadelphia. Academy of Natural Sciences of Philadelphia, Special Publication 14.

Butler, R. 2006. Tropical fish. Mongabay.com. Available: http://fish.mongabay.com/species/Hyphessobrycon_erythrostigma.html. (March 2006).

Evans, S. 2006. The tropical tank. Bleeding heart tetra. Available: http://www.thetropicaltank.co.uk/Fishindx/tet-blht.htm. (March 2006).

Fowler, H. W. 1943. Description of a new South American characin referred to *Hemigrammus*. The Fish Culturist 22(5):33–34.

Fowler, H. 1943. *Hyphessobrycon erythrostigma* Bleeding-heart Tetra. Catalog of fishes. Available: http://filaman.ifm-geomar.de/Summary/SpeciesSummary.php?id=10651. (March 2006).

García-Alzate, C. A., C. Román-Valencia, and D. C. Taphorn. 2010. A new species of *Hyphessobrycon* (Teleostei: Characiformes: Characidae) from the San Juan River drainage, Pacific versant of Colombia. Zootaxa 2349:55–64.

García-Alzate, C. A., R. I. Ruiz-C., C. Román-Valencia, M. I. González, and D. X. Lopera. 2011. Morfología de las especies de Hyphessobrycon (Characiformes: Characidae), grupo heterorhabdus, en Colombia. Revista de Biología Tropical 59(2):709–725.

García-Alzate, C. A., D. C. Taphorn, C. Roman-Valencia, and F. A. Villa-Navarro. 2015. *Hyphessobrycon natagaima* (Characiformes: Characidae) a new species from Colombia, with a key to the Magdalena Basin *Hyphessobrycon* species. Caldasia 37(1):221–232.

Hein, G. 2009. *Hyphessobrycon pando* sp. n., a new rosy tetra from northern Bolivia (Teleostei, Characiformes, Characidae). Bulletin of Fish Biology 10(1/2):1–10.

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

Miquelarena, A. M., and H. L. López. 2006. *Hyphessobrycon togoi*, a new species from the La Plata basin (Teleostei: Characidae) and comments about the distribution of the genus in Argentina. Revue Suisse de Zoologie 113(4):817–828.

Ortega, H., and R. P. Vari. 1986. Annotated checklist of the freshwater fishes of Peru. Smithsonian Contributions to Zoology 437.

Reis, R. E., S. O. Kullander, and C. J. Ferraris, Jr., editors. 2003. Check list of the freshwater fishes of South and Central America. CLOFFSCA. EDIPUCRS, Porto Alegre, Brazil.

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

Sharpe, S. 2006. The New York Times Company. Available: http://freshaquarium.about.com/cs/characins2/a/bleedingheart.htm. (March 2006).

Sterba, G. 1963. Freshwater fishes of the world. The Viking Press, New York.

Weitzman, S. 1977. *Hyphessobrycon socolofi*, a new species of Characoid fish from the Rio Negro of Brazil. Biological Society of Washington Proceedings 1977:326–347.

Weitzman, S. H., and L. Palmer. 1997[a]. A new species of *Hyphessobrycon* (Teleostei: Characidae) from the Neblina region of Venezuela and Brazil, with comments on the putative `rosy tetra clade'. Ichthyological Exploration of Freshwaters 7(3):209–242.

Weitzman, S. H., and L. Palmer. 1997[b]. The bleeding-heart rosy tetras. Tropical Fish Hobbyist 46(1):166–171.

Zarske, A., and J. Géry. 1997. *Hyphessobrycon frankei* sp. n. Beschreibung eines neuen Salmlers aus dem Einzugsgebiet des Río Ucayali in Peru (Teleostei: Characidae: Tetragonopterinae). Die Aquarien- und Terrarienzeitschrift (DATZ) 50(5):308–312. (In German.)