

Cochu's Blue Tetra (*Boehlkea fredcochui*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, March 2014
Revised, December 2015, February 2017, May 2017
Web Version, 6/13/2018



Photo: Sword/Flickr. Licensed under Creative Commons BY-NC-SA 2.0. Available: <https://www.flickr.com/photos/swordw/1668914988/in/photolist-3xtChm-dMmNAA-dMmNv7-m2Kd8-dMgejg-8retFb-6gUCiH-6ugoan-6ugmbH-6ukwWC-4i9N2k>.

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2014):

“South America: Amazon River basin.”

“Brazil: native; Colombia: native”

Status in the United States

No records of *Boehlkea fredcochui* in the United States were found.

Means of Introductions in the United States

No records of *Boehlkea fredcochui* in the United States were found.

Remarks

Anecdotal evidence for popularity in the aquarium trade.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Eschmeyer et al. (2017), *Boehlkea fredcochui* Géry 1966 is the valid name for the species and is also the original name.

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 *Boehlkea* Géry, 1966
Species *Boehlkea fredcochui* Géry, 1966”

Size, Weight, and Age Range

From Froese and Pauly (2017):

“Max length: 5.4 cm TL male/unsexed; [Gaspar et al. 2012]”

Environment

From Froese and Pauly (2014):

“Freshwater; benthopelagic; pH range: 6.0 - 8.0; dH range: 5 - 12.”

Climate/Range

From Froese and Pauly (2014):

“Tropical; 22°C - 26°C [Riehl and Baensch 1991]”

Distribution Outside the United States

Native

From Froese and Pauly (2014):

“South America: Amazon River basin.”

“Brazil: native; Colombia: native”

Introduced

No records of *Boehlkea fredcochui* introductions were found.

Means of Introduction Outside the United States

No records of *Boehlkea fredcochui* introductions were found.

Short Description

From Butler (2013):

“An elongated, laterally compressed species with a forked caudal fin. The back is dark green to olive while the flanks are blue-green. The flanks are marked with A broad blue stripe that runs from the gill cover through the caudal fin. The belly is lighter blue. The upper part of the iris is bright orange. The fins are colorless.”

Biology

From Butler (2013):

“Females are said to deposit their eggs on the underside of broad leafed plants.”

Human Uses

From Froese and Pauly (2014):

“Aquarium: commercial”

Diseases

No information on diseases of *Boehlkea fredcochui* was found.

Threat to Humans

From Froese and Pauly (2014):

“Harmless”

3 Impacts of Introductions

No records of *Boehlkea fredcochui* introductions were found.

4 Global Distribution



Figure 1. Known global distribution of *Boehlkea fredcochui*. Locations are in Peru, Brazil, and Colombia. Map adapted from GBIF Secretariat (2015).

5 Distribution Within the United States

No records of *Boehlkea fredcochui* in the United States were found.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Boehlkea fredcochui* was low for the whole contiguous United States, with very small pockets of medium match in the west and along the Pacific Coast. The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous United States was 0.000, low, and no states had an individually high climate score.

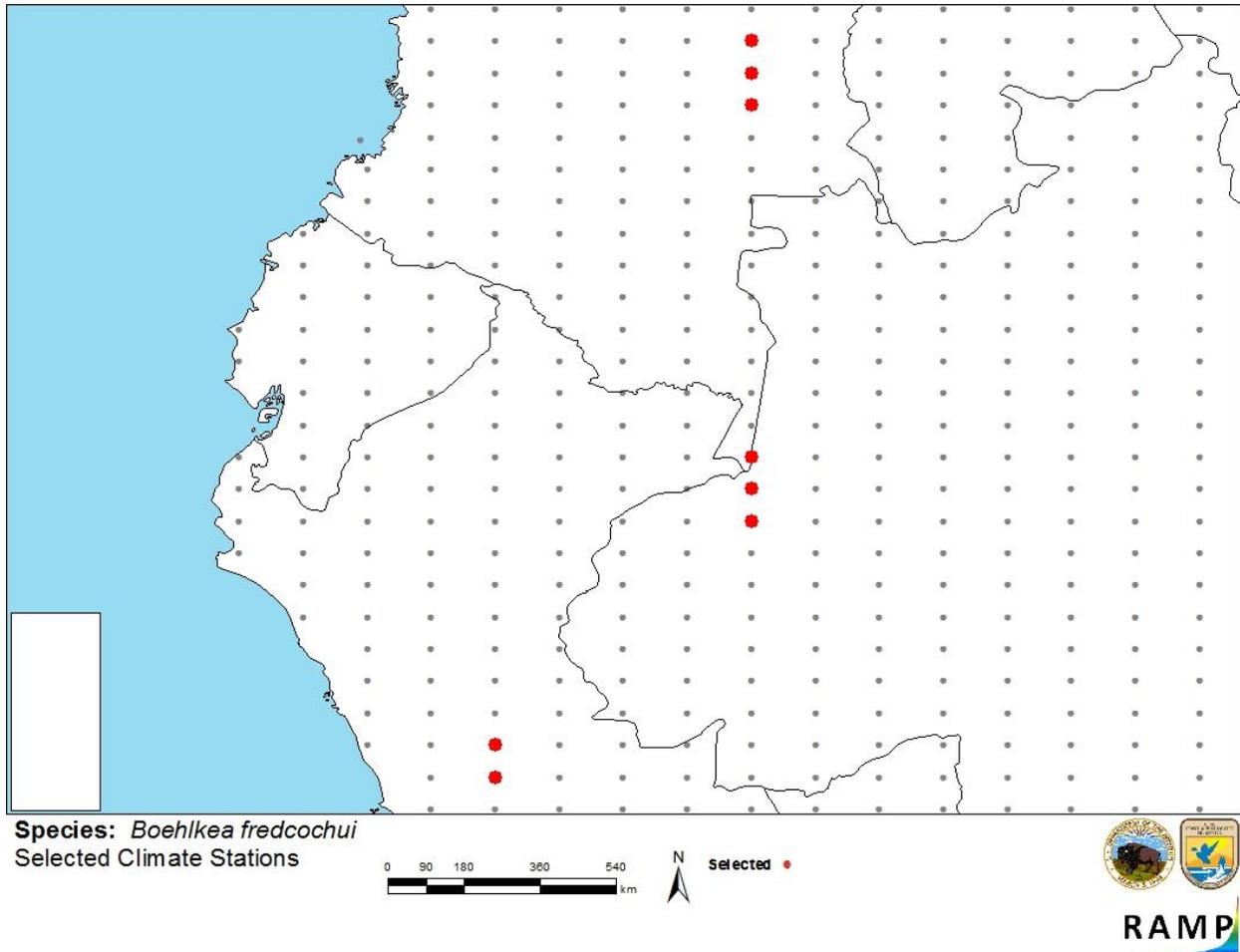


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red; Peru, Brazil, Colombia) and non-source locations (grey) for *Boehlkea fredcochui* climate matching. Source locations from GBIF Secretariat (2015).

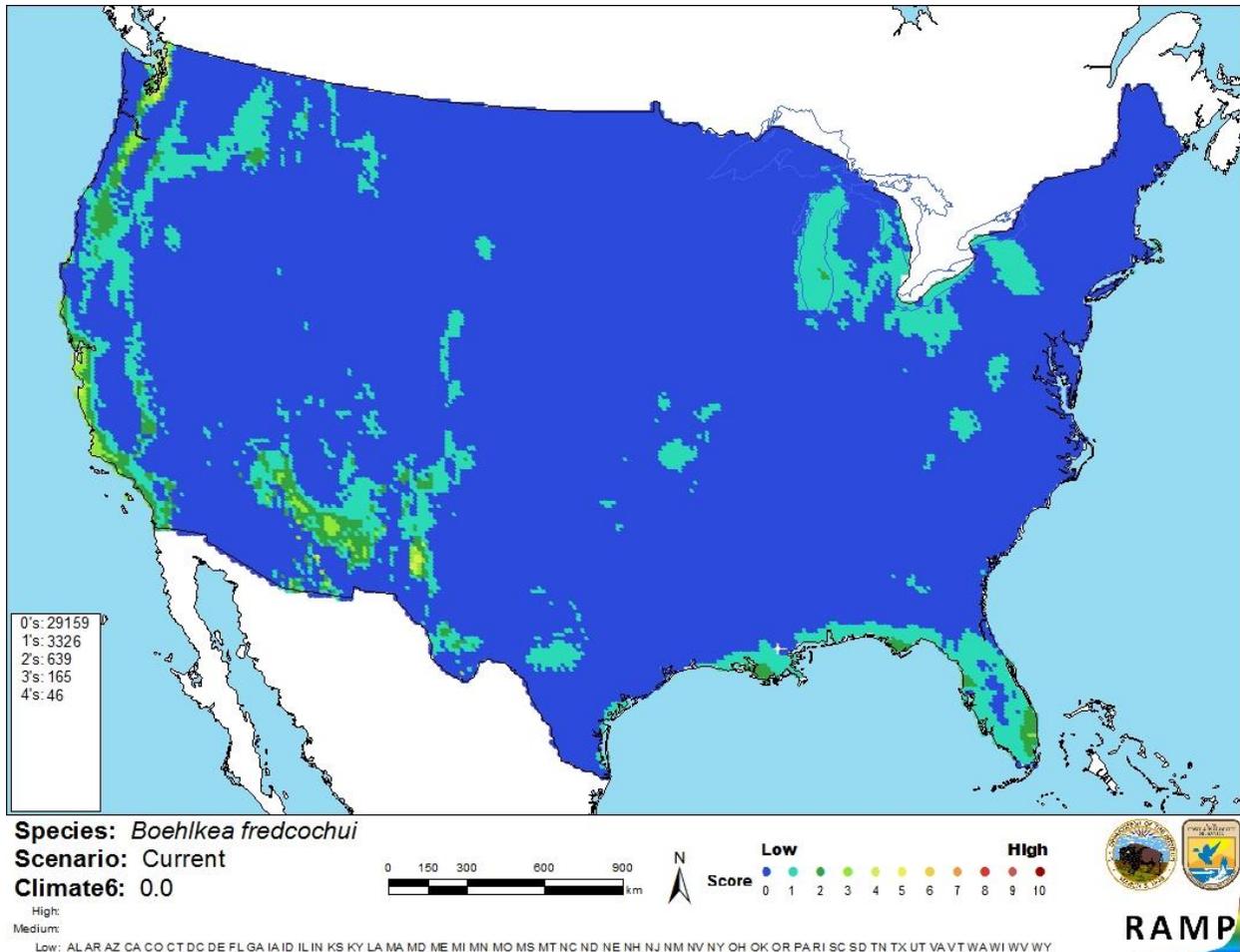


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Boehlkea fredcochui* in the contiguous United States based on source locations from GBIF Secretariat (2015). 0 = Lowest match, 10 = Highest match. Counts of climate match scores are tabulated on the left side of the map.

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

The certainty of this assessment is low. There was minimal information available for *Boehlkea fredcochui*. Based on anecdotal evidence, this species may have been present in the aquarium trade for as long as 40 years. There is some discussion by experts that the species in trade was misidentified and is not *B. fredcochui*.

8 Risk Assessment

Summary of Risk to the Contiguous United States

The history of invasiveness for *Boehlkea fredcochui* is uncertain. There was minimal information available, especially pertaining to any history of introductions. There is not enough confidence in the identification of the species in the aquarium trade to factor presence in trade into the history of invasiveness. The climate match is low. 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** 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.

- Butler, R. A. 2013. Blue tetra *Boehlkea fredcochui*. Mongabay.com. Available: http://fish.mongabay.com/species/Boehlkea_fredcochui.html. (December 2015).
- 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).
- Froese, R., and D. Pauly, editors. 2014. *Boehlkea fredcochui* Géry, 1966. FishBase. Available: <http://www.fishbase.org/summary/Boehlkea-fredcochui.html>. (March 2014).
- Froese, R., and D. Pauly, editors. 2017. *Boehlkea fredcochui* Géry, 1966. FishBase. Available: <http://www.fishbase.org/summary/Boehlkea-fredcochui.html>. (February 2017).
- GBIF Secretariat. 2015. GBIF backbone taxonomy: *Boehlkea fredcochui* Géry, 1966. Global Biodiversity Information Facility, Copenhagen. Available: <http://www.gbif.org/species/2353608>. (December 2015).
- ITIS (Integrated Taxonomic Information System). 2014. *Boehlkea fredcochui* Géry, 1966. Integrated Taxonomic Information System, Reston, Virginia. Available: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=163032. (March 2014).

Sanders, S., C. Castiglione, and M. 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.

Gaspar, S., I. Tobes, R. Miranda, P. M. Leunda, and M. Peláez. 2012. Length-weight relationships of sixteen freshwater fishes from the Hacha River and its tributaries (Amazon Basin, Caquetá, Colombia). *Journal of Applied Ichthyology* 28(4):667–670.

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