

Guayas Cichlid (*Mesoheros festae*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, February 2011

Revised, July 2019

Web Version, 5/1/2020

Organism Type: Fish

Overall Risk Assessment Category: Uncertain



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1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2019):

“South America: Pacific drainages from the Esmeraldas River in Ecuador to Tumbes River in Peru.”

Status in the United States

Mesoheros festae has not been found in the wild in the United States.

M. festae is in trade within the United States.
From Angry Fish Sales (2019):

“Wild Caught Red Terror (*Cichlasoma festae*) 4-6 inch”

“\$59.99”

Means of Introductions in the United States

Mesoheros festae has not been found in the wild in the United States.

Remarks

Information searches were conducted using both the valid name, *Mesoheros festae*, and its synonym, *Cichlasoma festae*.

From Nico et al. (2007):

“In the ornamental fish trade, “*C.*” *festae* is often marketed as the “Red Terror” and “*C.*” *urophthalmus* as the “False Red Terror,” but many of the so-called “Red Terrors” offered by pet shops are true “*C.*” *urophthalmus* and the name is even sometimes misapplied in aquarium fish publications (see Axelrod et al. 2005).”

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From Fricke et al. (2019):

“**Current status:** Valid as *Mesoheros festae* (Boulenger 1899).”

From ITIS (2019):

Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii
Class Teleostei
Superorder Acanthopterygii
Order Perciformes
Suborder Labroidei
Family Cichlidae
Genus *Cichlasoma*
Species *Cichlasoma festae* (Boulenger, 1899)

A hierarchy using the valid name was not available. *Cichlasoma festae* is a recently used synonym of *Mesoheros festae* (Fricke et al. 2019) and the hierarchy is the same for both names until the genus level.

Size, Weight, and Age Range

From Froese and Pauly (2019):

“Max length : 25.0 cm TL male/unsexed; [Kullander 2003]”

From Nico et al. (2007):

“Aquarists also note that “*C.*” *festae* tends to be a larger fish [compared to *Cichlasoma urophthalmus*], attaining 30 cm TL or more, [...]”

Environment

From Froese and Pauly (2019):

“Freshwater; benthopelagic; pH range: 7.0 - ? ; dH range: ? - 15. [...]; 26°C - 28°C [Baensch and Riehl 1985; assumed to be recommended aquarium temperature]”

Climate

From Froese and Pauly (2019):

“Tropical; [...] ”

Distribution Outside the United States

Native

From Froese and Pauly (2019):

“South America: Pacific drainages from the Esmeraldas River in Ecuador to Tumbes River in Peru.”

Introduced

From Nico et al. (2007):

““*Cichlasoma*” *festae* is reportedly established in Singapore (Tan and Tan 2003) [...]”

According to FAO (2019), *Mesoheros festae* is introduced and established in Singapore, and introduced with the population status unknown in the Philippines.

Means of Introduction Outside the United States

According to FAO (2019), *Mesoheros festae* was introduced in the Philippines and Singapore for ornamental reasons.

Short Description

From McMahan et al. (2015):

“The genus *Mesoheros* is diagnosed by an elongate body with a moderately small mouth that does not reach the anterior margin of the orbit. Seven (rarely six) dark spots (including bars in *M. festae*) are present along the lateral sides of body. All other genera of herichthyin cichlids with a small mouth possess a deeper body with angular heads, and lack this number of spots and bar-type markings along the body. The caudal fin is relatively truncate to rounded, and a well-defined, round, black spot is present on the dorsal portion of the caudal peduncle sitting directly above (often resting upon) the lower lateral line. Scale rows continue onto the base of the dorsal and anal fins. Spots are present on the dorsal, caudal, and anal fins.”

Biology

From Froese and Pauly (2019):

“In various biotopes, from small to medium-sized rivers. Occasionally found in fish markets. Feeds on benthic organisms such as small shrimps [Stawikowski and Werner 1998].”

“Max. 3000 eggs.”

Human Uses

From Froese and Pauly (2019):

“Fisheries: of no interest; aquarium: commercial”

From Nico et al. (2007):

“In the ornamental fish trade, “*C.*” *festae* is often marketed as the “Red Terror” and “*C.*” *urophthalmus* as the “False Red Terror,” but many of the so-called “Red Terrors” offered by pet shops are true “*C.*” *urophthalmus* and the name is even sometimes misapplied in aquarium fish publications (see Axelrod et al. 2005).”

“The history of these ornamental fish is short, but interesting. Flowerhorns, also referred to as Luohan and Kirin cichlids, were first developed by the ornamental fish industry in Malaysia during the mid-1990s (Lutz 2004). The parental taxa used by breeders to create these hybrids are all New World cichlids, but the species have supposedly never been divulged. Nevertheless, it is widely believed that a range of species have been crossed consequently, Flowerhorns is a group of many varieties, essentially a hybrid complex. Some aquarists have suggested that these hybrids have been back crossed to create some of the Flowerhorn hybrid varieties that now exist. “*Cichlasoma*” *urophthalmus* supposedly is not involved, but some suspect “*C.*” *festae* has been used in some crosses, along with “*C.*” *trimaculatum*, *Amphilophus citrinellus* (Günther 1864) (=

“*C. citrinellum*), *Vieja synspila*, and others (Miller and Midgley 2002, Lutz 2004, Axelrod et al. 2005). The different Flowerhorn varieties are often marketed under a variety of names (e.g., Red Dragon, Super Red Dragon, Rainbow Dragon, Blue Dragon, and Kamfa or Kampa) and fish breeders reportedly continue to experiment, so the situation is dynamic.”

From González et al. (2016):

“According to MAGAP [Ministerio de Agricultura, Ganadería, Acuacultura y Pesca], the cultivation of *Cichlasoma festae* is becoming more and more popular due to its good growth rate, fecundity, ease of manipulation, ability to grow under suboptimal environmental conditions, disease resistance and good consumer acceptance.”

Diseases

No OIE-reportable diseases (OIE 2019) were found to be associated with *Mesoheros festae*. No information on diseases related to *M. festae* was found.

Threat to Humans

From Froese and Pauly (2019):

“Harmless”

3 Impacts of Introductions

No impacts of introduction have been reported for *Mesoheros festae*.

4 History of Invasiveness

The history of invasiveness for *Mesoheros festae* is Data Deficient. Although *M. festae* is established outside its native range in Singapore, there is no information on impacts of its introduction there.

5 Global Distribution



Figure 1. Known global distribution of *Mesoheros festae*. Observations are reported from Ecuador and Peru. Map from GBIF Secretariat (2019). The location in eastern Colombia does not represent an established population because it is a preserved specimen at a museum, and therefore will not be used as a source location in the climate match.

6 Distribution Within the United States

Mesoheros festae has not been reported in the wild in the United States.

7 Climate Matching

Summary of Climate Matching Analysis

The climate match for the contiguous United States is generally very low. Small areas of medium match are found along the Pacific Coast and in peninsular Florida. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.000, low (scores between 0.000 and 0.005, inclusive, are classified as low). All individual States had low individual Climate 6 scores except Florida, which had a medium score.

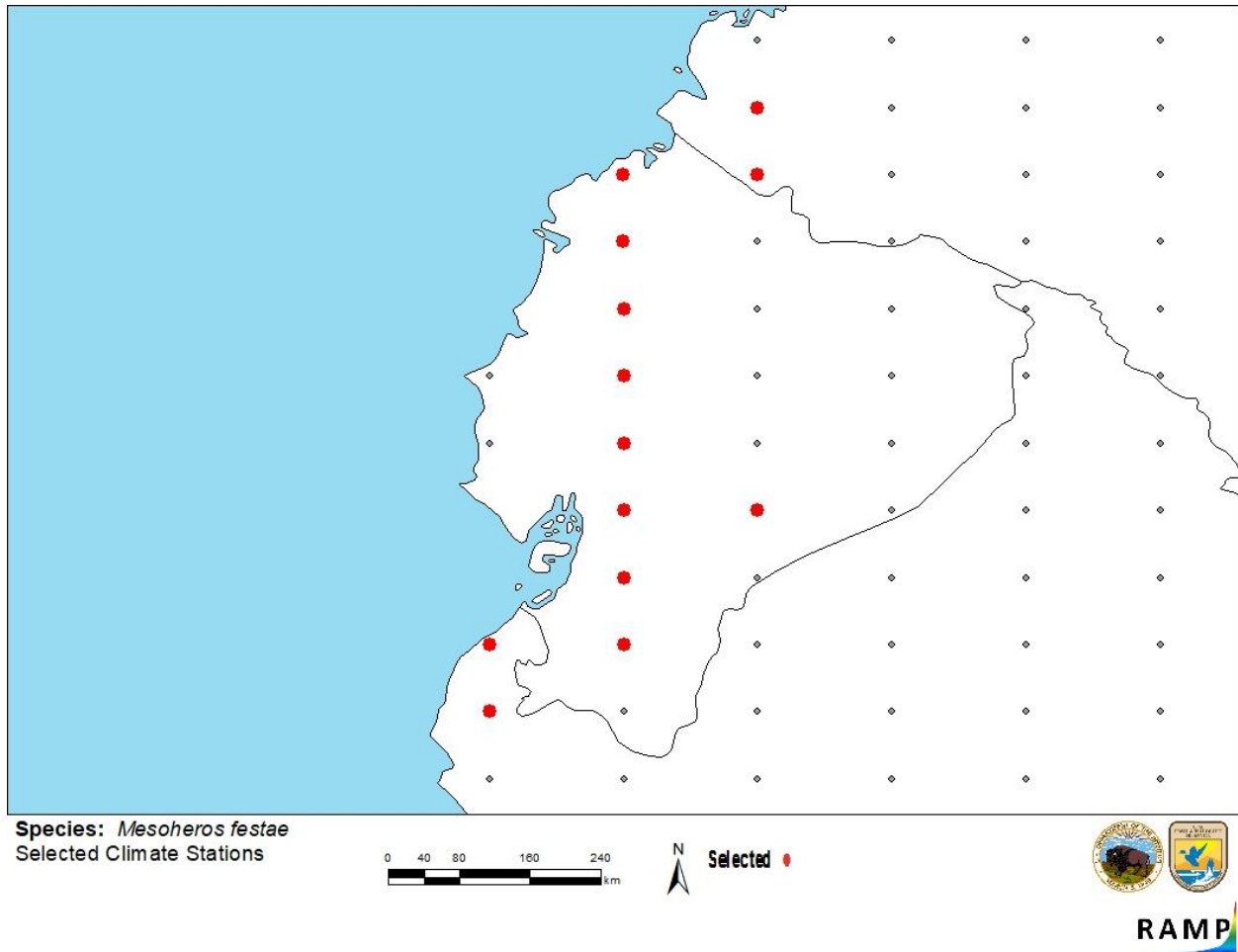


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in northwestern South America selected as source locations (red; Colombia, Ecuador, Peru) and non-source locations (gray) for *Mesoheros festae* climate matching. Source locations from GBIF Secretariat (2019). Selected source locations are within 100 km of one or more species occurrences and do not necessarily represent the locations of occurrences themselves.

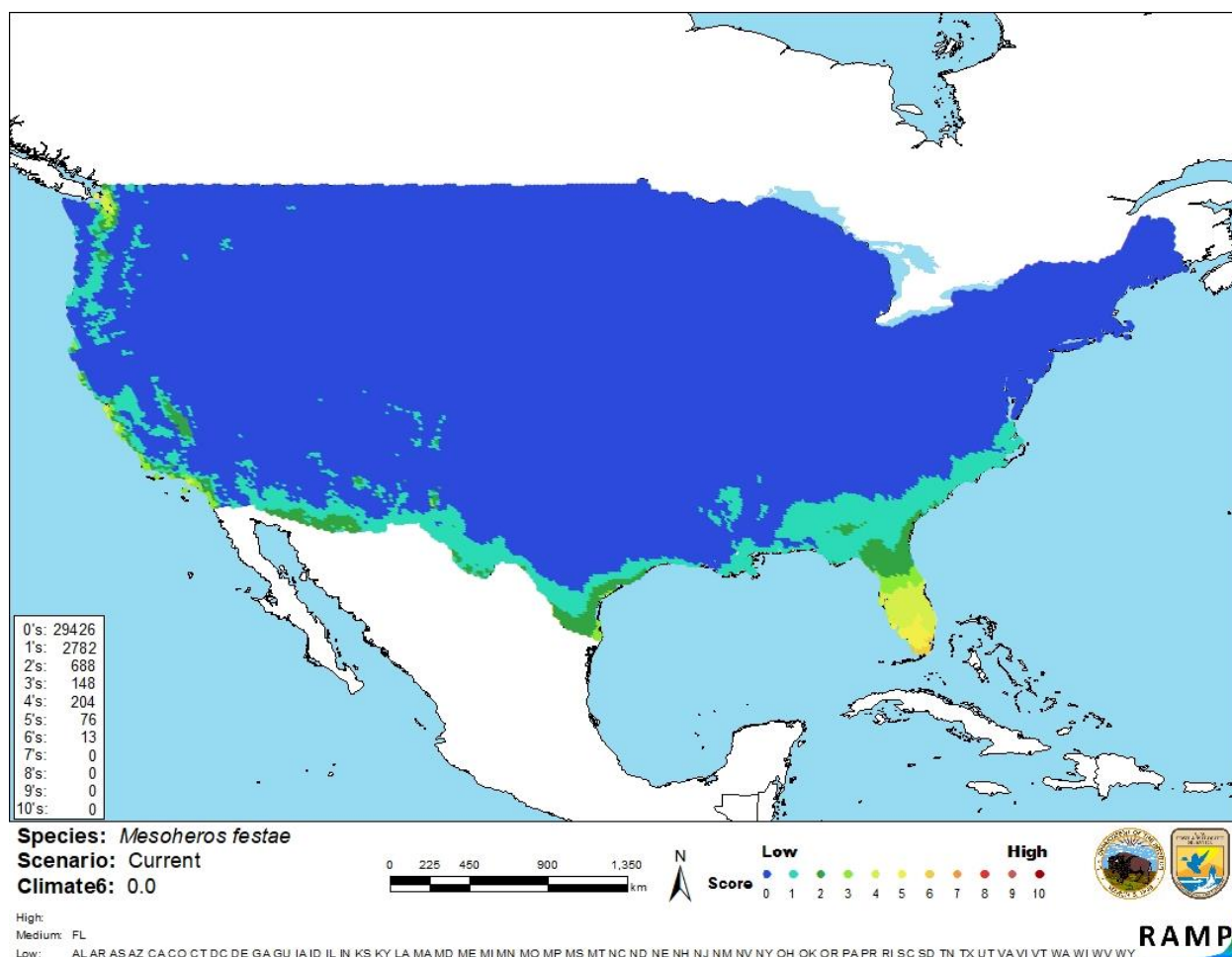


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Mesoheros festae* in the contiguous United States based on source locations reported by GBIF Secretariat (2019). Counts of climate match scores are tabulated on the left. 0/Blue = Lowest match, 10/Red = Highest match.

The High, Medium, and Low Climate match Categories are based on the following table:

Climate 6: (Count of target points with climate scores 6-10)/ (Count of all target points)	Overall Climate Match Category
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

8 Certainty of Assessment

The certainty of assessment for *Mesoheros festae* is low. Limited biological information or trade is available on *Mesoheros festae*. This species has been introduced outside of its native range but no information has been found for impacts of introductions.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Guayas Cichlid, *Mesoheros festae*, is a freshwater, tropical fish found in the Pacific drainages of Ecuador and Peru. The history of invasiveness is Data Deficient. *Mesoheros festae* has been introduced to Singapore where it has become established. No impacts of introduction have been reported. This species is found in the aquarium trade in the United States but has not been found in the wild. The climate match for the contiguous United States is low. All States received individually low climate scores with the exception of Florida, which received an individually medium score. The certainty of assessment is low. The overall risk assessment category for *Mesoheros festae* is Uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 4): Data Deficient**
- **Overall Climate Match Category (Sec. 7): Low**
- **Certainty of Assessment (Sec. 8): Low**
- **Overall Risk Assessment Category: Uncertain**

10 Literature Cited

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 11.

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- Sanders S, Castiglione C, Hoff M. 2018. Risk Assessment Mapping Program: RAMP. Version 3.1. U.S. Fish and Wildlife Service.

11 Literature Cited in Quoted Material

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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