

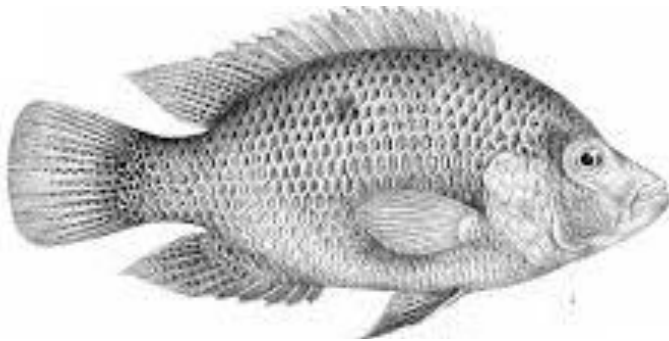
Green Guapote (*Mayaheros beani*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, March 2011

Revised, July 2019

Web Version, 3/12/2020



Drawing: F. C. Godman and C. T. Regan in *Biologia Centrali-Americana*. Public Domain – author’s life +70 years. Available: [https://commons.wikimedia.org/wiki/File:Biologia_centrali-americana._Pisces_\(1906\)_\(20727625706\).jpg](https://commons.wikimedia.org/wiki/File:Biologia_centrali-americana._Pisces_(1906)_(20727625706).jpg). (July 2019).

1 Native Range and Status in the United States

Native Range

Froese and Pauly (2019) list *Mayaheros beani* as endemic to Mexico.

From Nico (2019):

“Tropical and subtropical America. Pacific Slope drainages of Mexico from the Río Presidio to Río Grande de Santiago (Conkel 1993).”

Status in the United States

From Froese and Pauly (2019):

“Formerly established in California, USA but now has been extirpated.”

From Nico (2019):

“The California population disappeared by 1979 because some of pond habitat had dried up (Shapovalov et al. 1981), or for some other unknown reasons (Courtenay and Stauffer 1990).”

Mayaheros beani is found in trade in the United States. CichlidsOfAmerica.com (2019) offers “Ex *Cichlasoma Beani*” for \$35.00.

Means of Introductions in the United States

From Nico (2019):

“Probable aquarium release.”

Remarks

Mayaheros beani was previously referred to as *Cichlasoma beani* and *Herichthys beani*. We conducted information searches using the names *Mayaheros beani*, *Cichlasoma beani*, and *Herichthys beani*.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From Fricke et al (2019):

“**Current status:** Valid as *Mayaheros beani* (Jordan 1889).”

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 beani* (Jordan, 1889)

Size, Weight, and Age Range

From Froese and Pauly (2019):

“Max length : 30.0 cm TL male/unsexed; [Kullander 2003]”

Environment

From Froese and Pauly (2019):

“Freshwater; brackish; benthopelagic; pH range: 7.5 - ? ; dH range: 10 - 23. [...] ; 23°C - 25°C [Baensch and Riehl 1991; assumed to be recommended aquarium temperature]”

Climate/Range

From Froese and Pauly (2019):

“Tropical; [...]”

Distribution Outside the United States

Native

Froese and Pauly (2019) list *Mayaheros beani* as endemic to Mexico.

From Nico (2019):

“Tropical and subtropical America. Pacific Slope drainages of Mexico from the Río Presidio to Río Grande de Santiago (Conkel 1993).”

Introduced

No introductions outside of the United States were found.

Means of Introduction Outside the United States

No introductions outside of the United States were found.

Short Description

No description of *Mayaheros beani* could be found.

Biology

Froese and Pauly (2019):

“Inhabits the lower river valley sections.”

“Both parents defend eggs and larvae [Stawikowski and Werner 1998].”

Human Uses

From Froese and Pauly (2019):

“Fisheries: commercial; aquarium: commercial”

Mayaheros beani is found in trade in the United States. CichlidsofAmerica.com (2019) offers “Ex *Cichlasoma Beani*” for \$35.00.

From Aragon-Flores et al. (2014):

“*C. beani* is currently exploited regionally as food [...].”

“The low mortality rates and good condition of the fish cultured at high stocking densities could be considered an attribute for commercial aquaculture, as it seeks to optimize the use of infrastructure by culturing fish at high stocking densities.”

Diseases

No OIE-reportable diseases (OIE 2019) were found to be associated with *Mayaheros beani*.

Pérez-Ponce de León et al. (2008) list *Cichlasoma beani* as a host for the parasite *Crassicutis choudhuryi*.

From Caspeta-Mandujano et al. (1999):

“*Dichelyne mexicanus* has been recorded from three fish host species belonging to different families and two different orders. At present it is difficult to determine its true definitive host, [...] *C. beani* may serve as pardefinitive or postcyclic hosts (Moravec 1994).”

Caspeta-Mandujano et al. (2001) list *Mayheros beani* as a host for the parasite *Beaninema nayaritense*.

According to Poelen et al. (2014), *Mayaheros beani* has the parasites *Neoechinorhynchus golvani*, and *Valipora mutabilis*.

Threat to Humans

From Froese and Pauly (2019):

“Harmless”

3 Impacts of Introductions

From Nico (2019):

“The impacts of this species are currently unknown, as no studies have been done to determine how it has affected ecosystems in the invaded range. The absence of data does not equate to lack of effects. It does, however, mean that research is required to evaluate effects before conclusions can be made.”

4 Global Distribution



Figure 1. Known global distribution of *Mayaheros beani*. Map from GBIF Secretariat (2019). Location in California does not represent an established population. The three points located outside of the Pacific drainage, in central north Mexico, could not be verified and were therefore not used in the climate match.

5 Distribution Within the United States



Figure 2. Previously known United States distribution of *Mayaheros beani*. Map from Nico (2019). There are no current populations of *M. beani* within the United States. The population represented by the large dot north of San Francisco, California, died out in the 1970s and was not used in the climate match.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for the contiguous United States was generally very low. Areas of medium and high match are found along the southern border of the United States and in Florida. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.025, medium (scores greater than 0.005, but less than 0.103 are classified as medium). All States had low individual Climate 6 scores except for Arizona and Texas, which had high individual Climate 6 scores and New Mexico, which had a medium score.

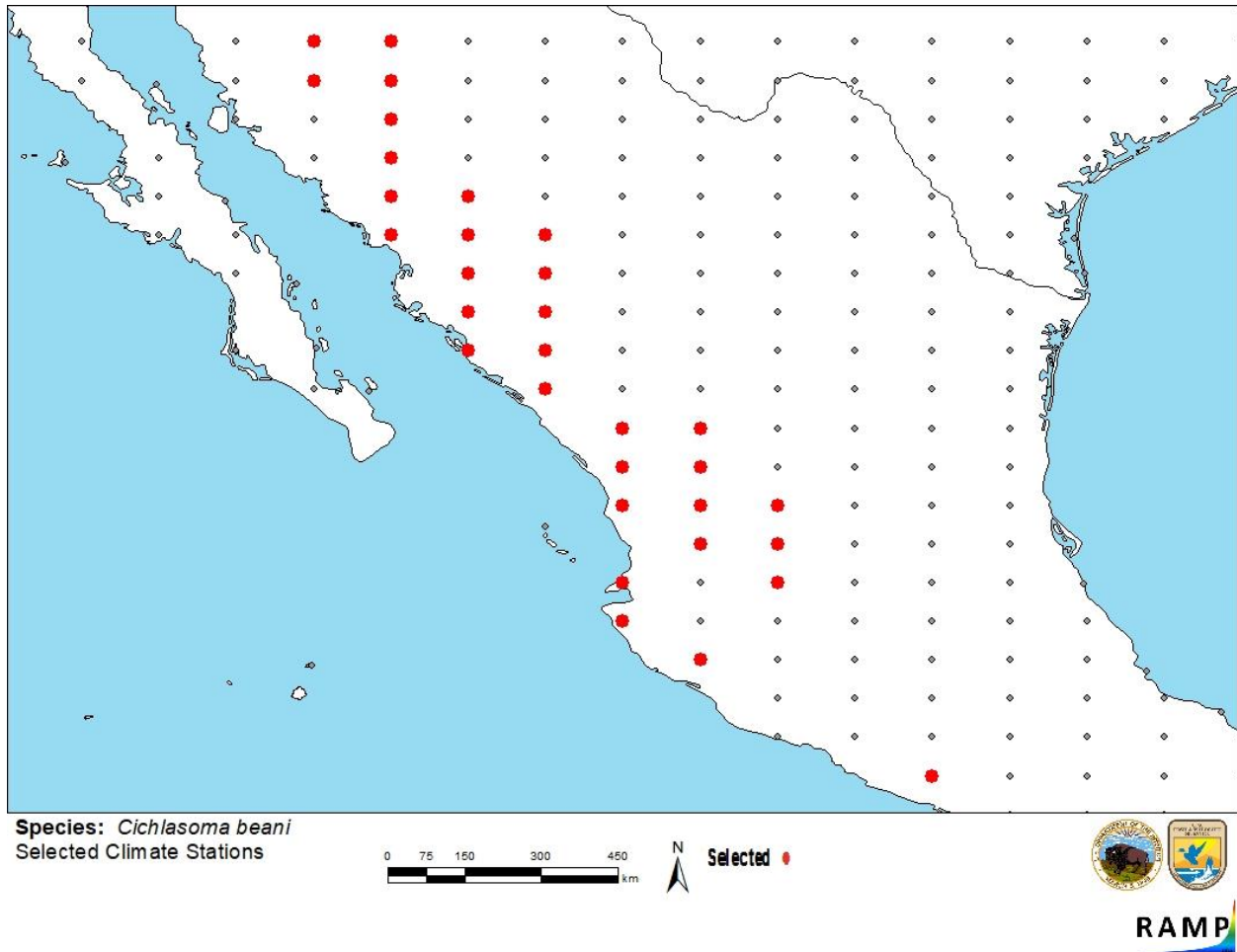


Figure 3. RAMP (Sanders et al. 2018) source map showing weather stations selected as source locations in Mexico (red) and non-source locations (gray) for *Mayaheros beani* climate matching. Source locations from GBIF Secretariat (2019). Selected source locations are within 100 km of one or more species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

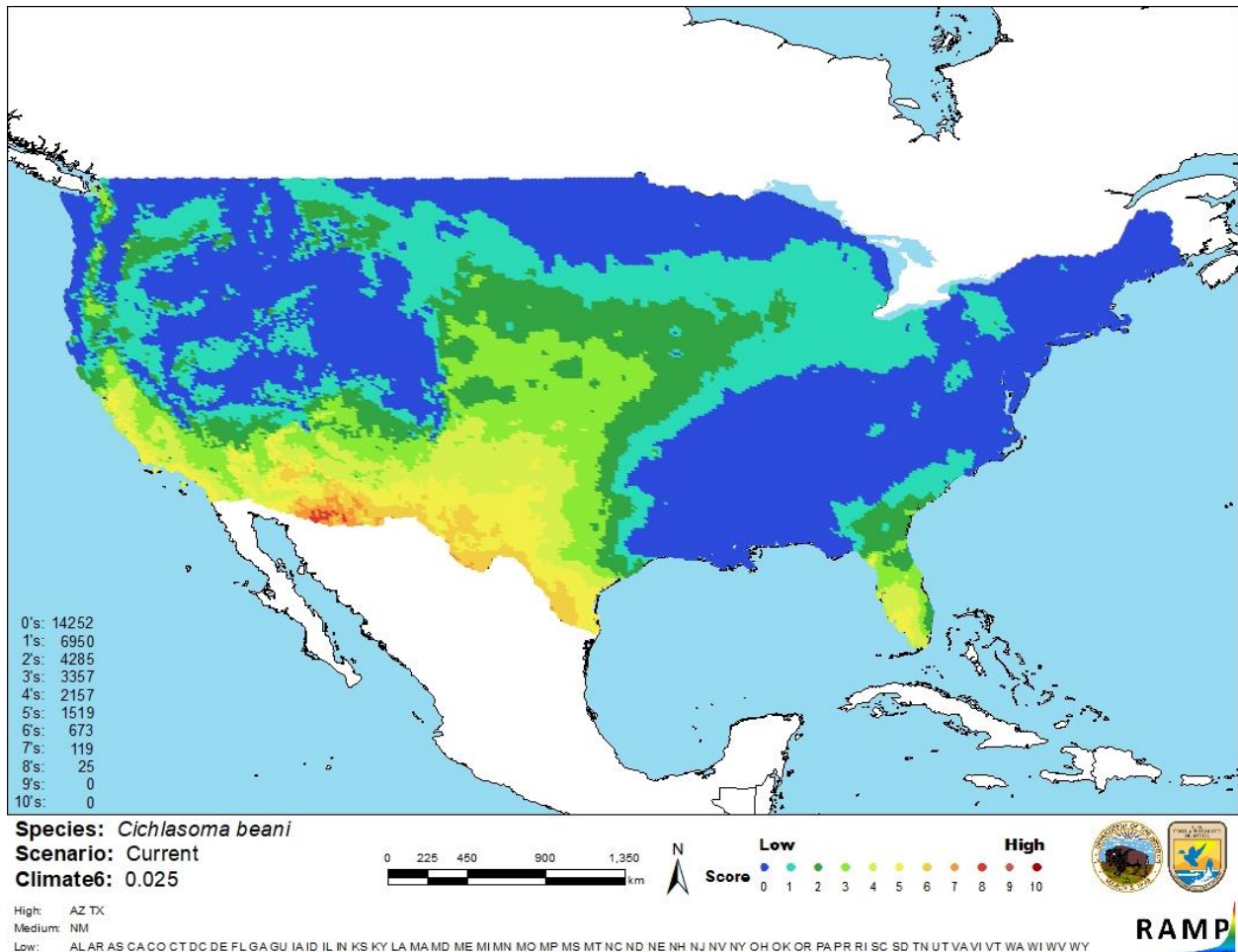


Figure 4. RAMP (Sanders et al. 2018) climate matches for *Mayaheros beani* in the contiguous United States based on source locations reported by GBIF Secretariat (2019). Counts of climate match scores are tabulated on the left. 0 = Lowest match, 10 = Highest match.

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

The certainty of assessment is low. The distribution of *M. beani* is well documented but there is only a single record of introduction and no information on impacts of introduction.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Green Guapote, *Mayaheros beani*, is a cichlid species (a fish) endemic to the Pacific slope drainages of Mexico. The history of invasiveness is uncertain. *Mayaheros beani* has been introduced to California where the population has become extirpated. This species is also found in the aquarium trade in the United States. The climate match for the contiguous United States is medium. Texas and Arizona both received individually high climate matches, while New Mexico received a medium individual climate score. The certainty of assessment is low because of the lack of relevant information. The overall risk assessment category for *Mayaheros beani* is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Low**
- **Climate Match (Sec. 6): Medium**
- **Certainty of Assessment (Sec. 7): Low**
- **Remarks/Important additional information:** No additional information.
- **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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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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