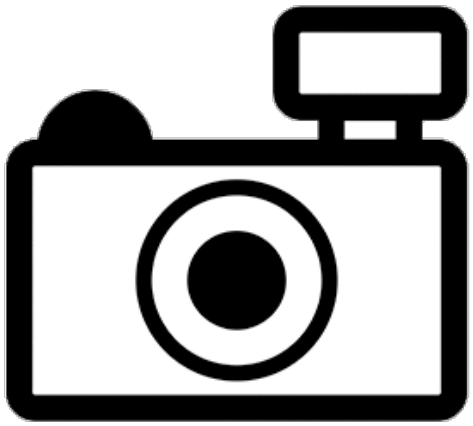
Cauca Molly (*Poecilia caucana*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, December 2021
Revised, January 2022
Web Version, 4/13/2023

Organism Type: Fish
Overall Risk Assessment Category: Uncertain



1 Native Range and Status in the United States

Native Range

From Lyons and González (2020):

"*Poecilia caucana* is widely distributed from the Pacific slope of Panama southward to the Cauca River drainage on the Pacific slope of Colombia, and eastward along the Atlantic slope of Venezuela to Lake Maracaibo."

Status in the United States

Poecilia caucana has not been reported as introduced or established in the United States.

This species has been found in the aquarium trade in the United States:

From The Wet Spot Tropical Fish (2021):

"*Poecilia caucana*
"Cauca Molly"
$3.00"

From Hawaii Department of Agriculture (2019):

"RESTRICTED ANIMAL LIST (Part B) [in Hawaii] […] Poecilia (all species in genus) […] Molly"

Means of Introductions in the United States

Poecilia caucana has not been reported as introduced or established in the United States.

Remarks

Fricke et al. (2021) recognizes *Girardinus caucanus* as a synonym for this species. Literature searches were conducted for this synonym and the valid scientific name *Poecilia caucana.*

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Fricke et al. (2021), *Poecilia caucana* (Steindachner, 1880) is the current valid name for this species.

From ITIS (2021):

Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii
Class Teleostei
Superorder Acanthopterygii
Order Cyprinodontiformes
Suborder Cyprinodontoidei
Family Poeciliidae
Subfamily Poecilinae
Genus *Poecilia*
Species *Poecilia caucana* (Steindachner, 1880)

Size, Weight, and Age Range

From Froese and Pauly (2021):

"Max length : 3.0 cm TL [total length] male/unsexed; [Galvis et al. 1997]; 6.0 cm NG [length type not given] (female)"

Environment

From Froese and Pauly (2021):

"Freshwater; benthopelagic; pH range: 7.0 - 7.5; dH range: 10 - 20; […]. […]; 26°C - 30°C [Baensch and Riehl 1991; assumed to be recommended aquarium temperature]"

"Tolerates extreme temperature, salinity and anoxia conditions [Galvis et al. 1997]."

From Lyons and González (2020):

"This small-bodied, live-bearing freshwater fish is broadly distributed in small tributary streams, pools, rivers, lakes, and manmade reservoirs throughout its range (Jiménez-Segura et al. 2016, Sanchez et al. 2019). Habitat is typically characterized by low salinity, low water velocity, and well protected backwater areas […] (Maldonado-Ocampo et al. 2012, Sanchez et al. 2019)."

Climate

From Froese and Pauly (2021):

"Tropical […]"

Distribution Outside the United States

Native

From Lyons and González (2020):

"*Poecilia caucana* is widely distributed from the Pacific slope of Panama southward to the Cauca River drainage on the Pacific slope of Colombia, and eastward along the Atlantic slope of Venezuela to Lake Maracaibo."

Introduced

This species has not been reported as introduced or established outside of its native range.

Means of Introduction Outside the United States

This species has not been reported as introduced or established outside of its native range.

Short Description

From Froese and Pauly (2021):

"Identified by the black spot found on the base of the dorsal fin; some specimens with thin transverse bands along the body but this may be attributed to the coloration before or after the reproductive period [Galvis et al. 1997]."

Biology

From Froese and Pauly (2021):

"Feeds on algae and insects end up in the water [Galvis et al. 1997]. […] There was a proposal to use this species as biological control against mosquito larvae [Galvis et al. 1997]."

"Produces 10 to 25 young after a gestation period of about 28 days. Young cared for by the male [Galvis et al. 1997]."

From Lyons and González (2020):

"Habitat is typically characterized by low salinity, low water velocity, and well protected backwater areas with abundant aquatic vegetation (Maldonado-Ocampo et al. 2012, Sanchez et al. 2019). Diet is comprised primarily of diatoms and aquatic invertebrates (Sanchez et al. 2019). Reproduction occurs throughout the year (Jiménez-Segura et al. 2016) […]."

Human Uses

From Lyons and González (2020):

"This species is frequently found in the ornamental aquarium trade (Garcés and García 2007, Maldonado-Ocampo et al. 2012), though the total volume of wild harvest is unknown."

Diseases

No OIE-reportable diseases (OIE 2021) were found to be associated with *Poecilia caucana*.
No information on diseases was found.

Threat to Humans

From Froese and Pauly (2021):

"Harmless"

3 Impacts of Introductions

This species has not been reported as introduced or established outside of its native range.

The importation, possession, or trade of *Poecilia caucana* is restricted in Hawaii.

4 History of Invasiveness

The history of invasiveness is classified as No Known Nonnative Population. *Poecilia caucana* has not been reported as introduced in the wild outside of its native range. Therefore, no information regarding impacts of introduction was available. This species is found in the aquarium trade in the United States, but the volume and duration of trade are unknown.

5 Global Distribution

Figure 1: Known global distribution of *Poecilia caucana*. Observations are reported from Colombia, Panama, Mexico, and Venezuela. Map from GBIF Secretariat (2021). The observation in Mexico does not represent an established population and was not used to select source points in the climate match.

6 Distribution Within the United States

This species has not been reported as introduced or established in the United States.

7 Climate Matching

Summary of Climate Matching Analysis

Most of the contiguous United States had a low climate match for *Poecilia caucana*. The southern tip of Texas and southern peninsular Florida had a high match. Areas of medium match were scattered from southern California, along the United States-Mexico border, along the Gulf Coast, and the southern Atlantic Coast to South Carolina. Small areas of medium match were found along the northern Pacific Coast and Puget Sound as well as along the New England Coast. Everywhere else had a generally low match. The overall Climate 6 score (Sanders et al. 2021; 16 climate variables; Euclidean distance) for the contiguous United States was 0.011, Medium (scores between 0.005 and 0.103, exclusive, are categorized as Medium). All States had Low individual Climate 6 scores except for Florida which had a High individual score and Texas which had a Medium individual score.

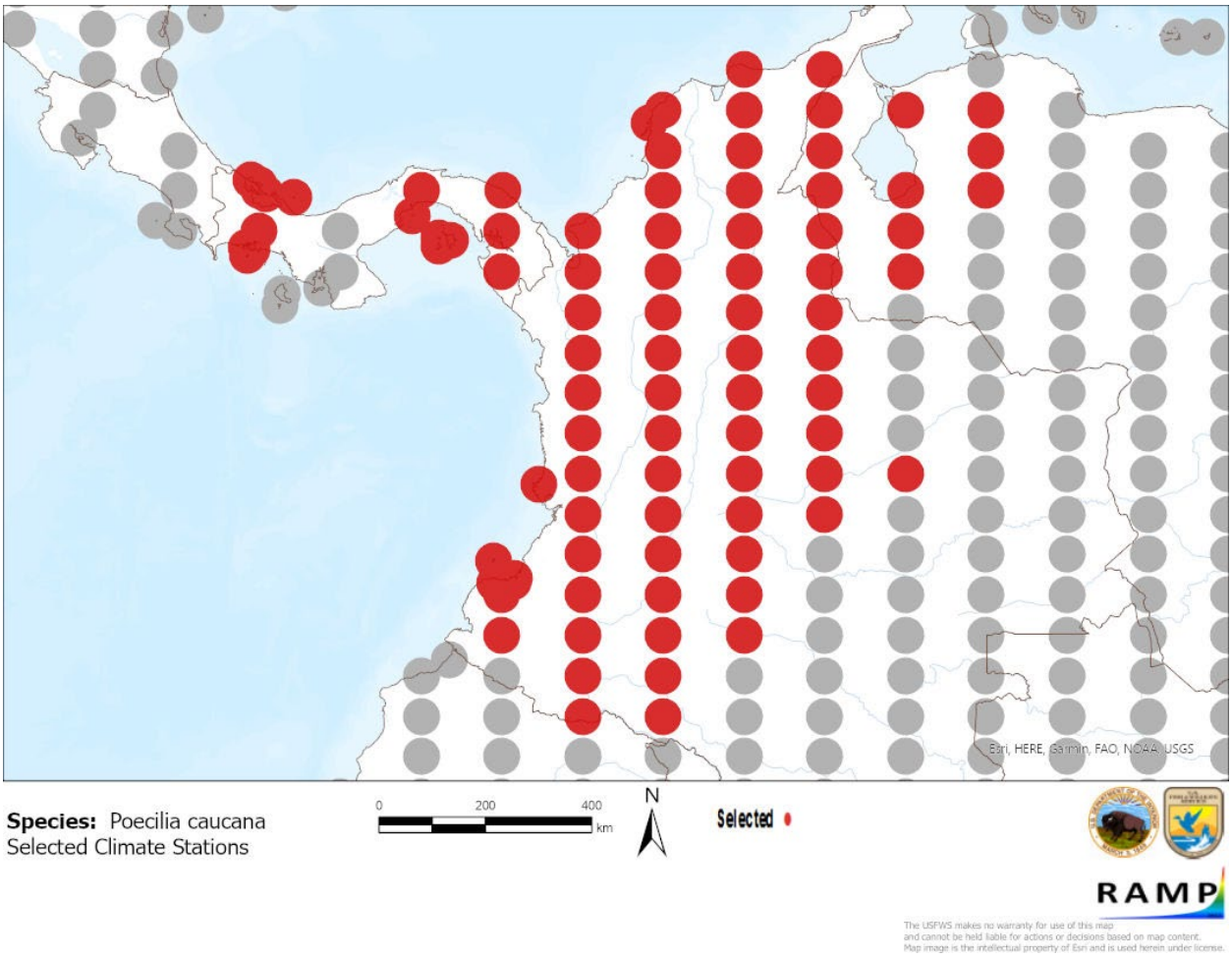


Figure 2. RAMP (Sanders et al. 2021) source map showing weather stations in Central and South America selected as source locations (red; Panama, Colombia, and Venezuela) and non-source locations (gray) for *Poecilia caucana* climate matching. Source locations from GBIF Secretariat (2021). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

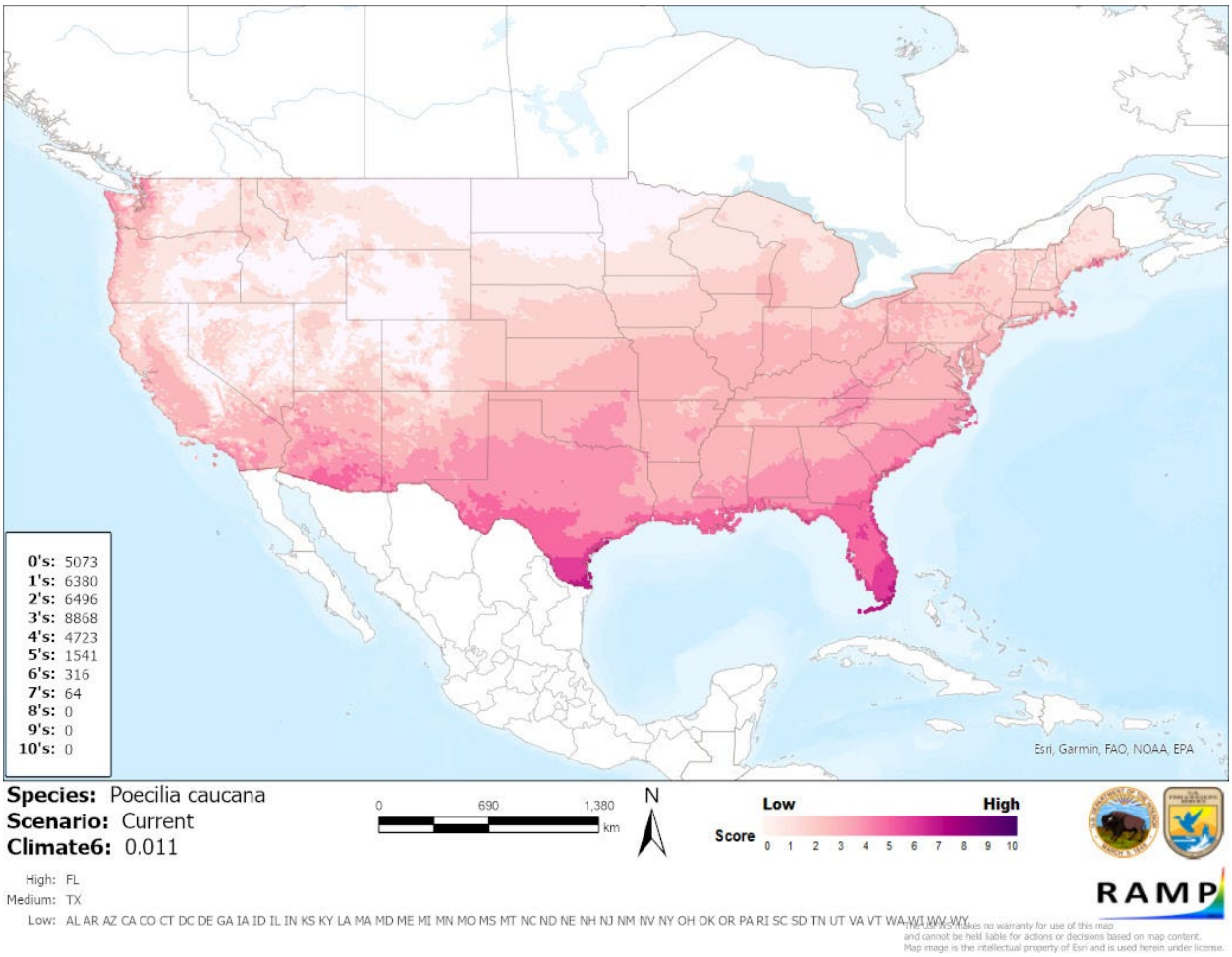


Figure 3. Map of RAMP (Sanders et al. 2021) climate matches for *Poecilia caucana* in the contiguous United States based on source locations reported by GBIF Secretariat (2021). Counts of climate match scores are tabulated on the left. 0/Pale Pink = Lowest match, 10/Dark Purple = Highest match.

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≤X≤0.005	Low
0.005<X<0.103	Medium
≥0.103	High

8 Certainty of Assessment

There is adequate information on the biology and life history of this species. *Poecilia caucana* has not been recorded as introduced outside of its native range. Information to quantify trade history was not found. With no information to evaluate history of invasiveness, the certainty of assessment is Low.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Poecilia caucana is a freshwater fish known to be native to Central and South America (Panama, Colombia, and Venezuela). This species can be found for sale in the aquarium trade in the United States. *P. caucana* is listed as a restricted species in Hawaii. There was no evidence found of this species being introduced outside of its native range resulting in a history of invasiveness of No Known Nonnative Population. The overall climate match for the contiguous United States is Medium. The majority of the contiguous United States had a low match with small areas of high match found in southern Texas and Florida. The certainty of this assessment is Low due to a lack of information pertaining to the history of invasiveness. The overall risk assessment category for *Poecilia caucana* is Uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 4): No Known Nonnative Population**
- **Overall Climate Match Category (Sec. 7): Medium**
- **Certainty of Assessment (Sec. 8): Low**
- **Remarks, Important additional information: No additional information.**
- **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.

Fricke R, Eschmeyer WN, van der Laan R, editors. 2021. Catalog of fishes: genera, species, references. California Academy of Science. Available: http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp (December 2021).

Froese R, Pauly D, editors. 2021. *Poecilia caucana* (Steindachner, 1880). FishBase. Available: https://www.fishbase.se/summary/Poecilia-caucana.html (December 2021).

GBIF Secretariat. 2021. GBIF backbone taxonomy: *Poecilia caucana* (Steindachner, 1880). Copenhagen: Global Biodiversity Information Facility. Available: https://www.gbif.org/species/5203742 (December 2021).

Hawaii Department of Agriculture. 2019. Amendment and compilation of chapter 4-71, Hawaii Administrative Rules. Honolulu: Hawaii Department of Agriculture, Plant Industry Division. Available: http://hdoa.hawaii.gov/pi/pq/import-program/pq-non-domestic-animal-and-microorganism-lists/ (December 2021).

[ITIS] Integrated Taxonomic Information System. 2021. *Poecilia caucana* (Steindachner, 1880). Reston, Virginia: Integrated Taxonomic Information System. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=165908#null (December 2021).

Lyons TJ, González R. 2020. *Poecilia caucana*. The IUCN Red List of Threatened Species. Available: https://www.iucnredlist.org/species/49830694/164691481#bibliography (December 2021).

[OIE] World Organisation for Animal Health. 2021. OIE-listed diseases, infections and infestations in force in 2021. Available: http://www.oie.int/animal-health-in-the-world/oie-listed-diseases-2019/ (December 2021).

Sanders S, Castiglione C, Hoff M. 2021. Risk Assessment Mapping Program: RAMP. Version 4.0. U.S. Fish and Wildlife Service.

The Wet Spot Tropical Fish. 2021. *Poecilia caucana.* Available: https://www.wetspottropicalfish.com/product/poecilia-caucana/ (December 2021).

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.

Baensch HA, Riehl R. 1991. Aquarien atlas. Volume 2. Melle, Germany: Mergus, Verlag für Natur-und Heimtierkunde GmbH.

Galvis G, Mojica JI, Camargo M. 1997. Peces del Catatumbo. Santafé de Bogotá, DC: Asociación Cravo Norte.

Garcés HA, García JR. 2007. Inventario ictiologico en la cuenca del rio Balsis, Parque Nacional Darien, Panama. Technociencia 9:45–57.

Jiménez-Segura LF, Galvis G, Cala P, García CA, López S, Ríos MI, Arango GA, Mancera NJ, Gutiérrez F, Álvarez-León R. 2016. Freshwater fish faunas, habitats and conservation challenges in the Caribbean river basins of north-western South America. Journal of Fish Biology 89:65–101.

Maldonado-Ocampo JA, Usma, JS, Villa- Navarro FA, Ortega-Lara A, Prada-Pedreros S, Jimenez LF, Jaramillo-Villa U, Arango A, Rivas T, Sánchéz GC. 2012. Peces Dulceacuícolas del Chocó Biogeográfico de Colombia. Bogotá D.C., Colombia: Universidad del Tolima, Autoridad Nacional de Acuicultura y Pesca (AUNAP).

Sanchez JL, Bracken-Grissom HD, Trexler JC. 2019. Freshwater-to-marine transitions may explain the evolution of herbivory in the subgenus Mollienesia (genus *Poecilia*, mollies and guppies). Biological Journal of the Linnean Society 127(4):742–761.