

Splash Tetra (*Copella arnoldi*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, April 2011

Revised, January 2019

Web Version, 4/30/2019



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1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2019a):

“South America: lower Amazon [Brazil], coastal Guianas to mouth of the Orinoco River [French Guiana, Guyana, Suriname, Venezuela].”

Status in the United States

No records of *Copella arnoldi* in the wild or in trade in the United States were found.

Means of Introductions in the United States

No records of *Copella arnoldi* in the wild or in trade in the United States were found.

Remarks

No additional remarks.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From Fricke et al. (2019):

“**Current status:** Valid as *Copella arnoldi* (Regan 1912).”

From Froese and Pauly (2019b):

“Biota > Animalia (Kingdom) > Chordata (Phylum) > Vertebrata (Subphylum) > Gnathostomata (Superclass) > [...] Actinopterygii (Class) > Characiformes (Order) > Lebiasinidae (Family) > Pyrrhulinae (Subfamily) > *Copella* (Genus) > *Copella arnoldi* (Species)”

Size, Weight, and Age Range

From Marinho and Menezes (2017):

“Largest examined male 42.3 mm SL, female 32.5 mm SL.”

Environment

From Froese and Pauly (2019a):

“Freshwater; benthopelagic; pH range: 6.0 - 8.0; dH range: 5 - 12. [...] 25°C - 29°C [Riehl and Baensch 1991; assumed to be recommended aquarium temperature]”

Climate/Range

From Froese and Pauly (2019a):

“Tropical; [...]”

Distribution Outside the United States

Native

From Froese and Pauly (2019a):

“South America: lower Amazon [Brazil], coastal Guianas to mouth of the Orinoco River [French Guiana, Guyana, Suriname].”

Introduced

From Froese and Pauly (2019a):

“Introduced in the late 1970s. Introduced by a local aquarist and became well established in the Arena drainage, in parts of the Nariva Swamp and Aripo Savannahs. [Trinidad and Tobago].”

Means of Introduction Outside the United States

From Froese and Pauly (2019a):

“Introduced by a local aquarist [...]”

“Reason: ornamental”

Short Description

From Marinho and Menezes (2017):

“Greatest body depth slightly anterior to vertical through pelvic-fin origin. Body cylindrical, slightly compressed laterally. Dorsal profile of body straight or slightly convex from tip of snout to end of supraoccipital, straight or slightly convex from that point to dorsal-fin origin, posteroventrally inclined along dorsal-fin base and straight along caudal peduncle. Ventral profile of body convex from anterior tip of dentary to vertical through anterior margin of orbit, straight from that point to vertical through pectoral-fin origin, slightly convex from that point to pelvic-fin origin, straight from pelvic-fin origin to anal-fin origin, posterodorsally inclined along anal-fin base and straight along caudal peduncle.

Mouth upturned. Premaxillary teeth in one row, with 15 (2), 18 (2), or 19 (1) teeth, decreasing in size laterally. Number of maxillary teeth sexually dimorphic, 9 (1), 10 (1), or 12 (1) in males, 3 (1) or 5 (1) in females, decreasing in size posteriorly, especially in males. Dentary teeth in two rows, outer with 8 (2), 10 (1), 11(1), or 12 (1) teeth, increasing in size laterally, inner with 24 (2), 25 (1), 28 (1), or 30 (1) teeth, decreasing in size laterally.

Dorsal fin with ii, 8* (109) rays, second and third branched rays longer. Pectoral fin with i (101), 8* (10), 9 (65), 10 (24), or 11 (2) rays, first three branched rays longer. Pelvic fin with i (102), 6 (1), 7* (99), or 8 (2) rays, third branched ray longest. Anal fin with iii (6), 7,i (2) or 8,i* (99), rays, fourth and fifth branched rays longer. Adipose fin absent. Caudal fin with i (94), 7 (4), 8* (88), or 9 (2) rays in upper lobe, first and second branched rays longer, and 5 (1), 6 (3), or 7* (58), i (62) rays in lower lobe, first and second branched rays longer. Upper caudal-fin lobe longer than lower. Relative fin lengths variable among males, specimens of same size with distinct fin lengths [...], but among males from same lot, longer males tend to have longer fins and be more intensively colored than other males. [...]

Predorsal scales 13* (23), 14* (54), or 15 (20), in one series. First longitudinal scale row with 12 (8), 13* (30), 14* (52), or 15 (7) scales. Fourth longitudinal scale row with 23* (42), 24 (38), 25 (14), or 26 (2) scales. Lateral line not pored, first lateral line scale with small canal medially on its anterior portion, without lateral opening. Longitudinal scale rows between dorsal-fin origin and pelvic-fin origin 5* (21) or 6 (75). Longitudinal scale row between dorsal-fin origin and anal-fin origin 5* (106). Circumpeduncular scale rows 10* (106). Total number of vertebrae 34 (1), 35 (19), 36 (17), or 37* (5).”

“Dark stripe extending from anterior tip of dentary to posterior tip of opercle. Upper and lower jaws yellow to pale red. Overall body coloration light brown or beige, ventral portion clear. Fins yellow to orange. Dorsal fin with black spot dorsal to small, white round spot. Some males with

brilliant white spots on scales of third, fourth, fifth, and sixth longitudinal scale rows, mainly restricted to median portion of body. Some males with dark stripe extending from opercle to, at most, vertical through end of anal-fin base, of variable intensity. Males with base of dorsalmost rays of upper caudal-fin lobe, and tip of basalmost rays of lower caudal-fin intense red [...].”

Biology

From Froese and Pauly (2019a):

“Feeds on worms, insects and crustaceans [Mills and Vevers 1989]”

“Deposits eggs on underside of objects above the water surface. Male in water splashes the clutch periodically [Balon 1990]. In the aquarium, male and female swim vertically to the surface, flick their tails and leap up to a leaf. Female lays from 5 to 8 eggs on the leaf and male fertilizes them immediately. This procedure is repeated several times until some hundreds of eggs have been laid. Male then keeps the eggs damp by flicking his tail to spray them with water. As eggs hatch, fry fall into the water [Mills and Vevers 1989].”

Human Uses

From Froese and Pauly (2019a):

“Aquarium: commercial”

Diseases

No records of OIE-reportable diseases were found for *Copella arnoldi*. No records of disease reported for *Copella arnoldi*.

Threat to Humans

From Froese and Pauly (2019a):

“Harmless”

3 Impacts of Introductions

A record of introduction and establishment is available; however, no information on impacts of introduction were found for *Copella arnoldi*.

4 Global Distribution



Figure 1. Known global distribution of *Copella arnoldi*. Locations in Brazil, Colombia, French Guiana, Guyana, Suriname, Venezuela, and Trinidad. Map from GBIF Secretariat (2019).

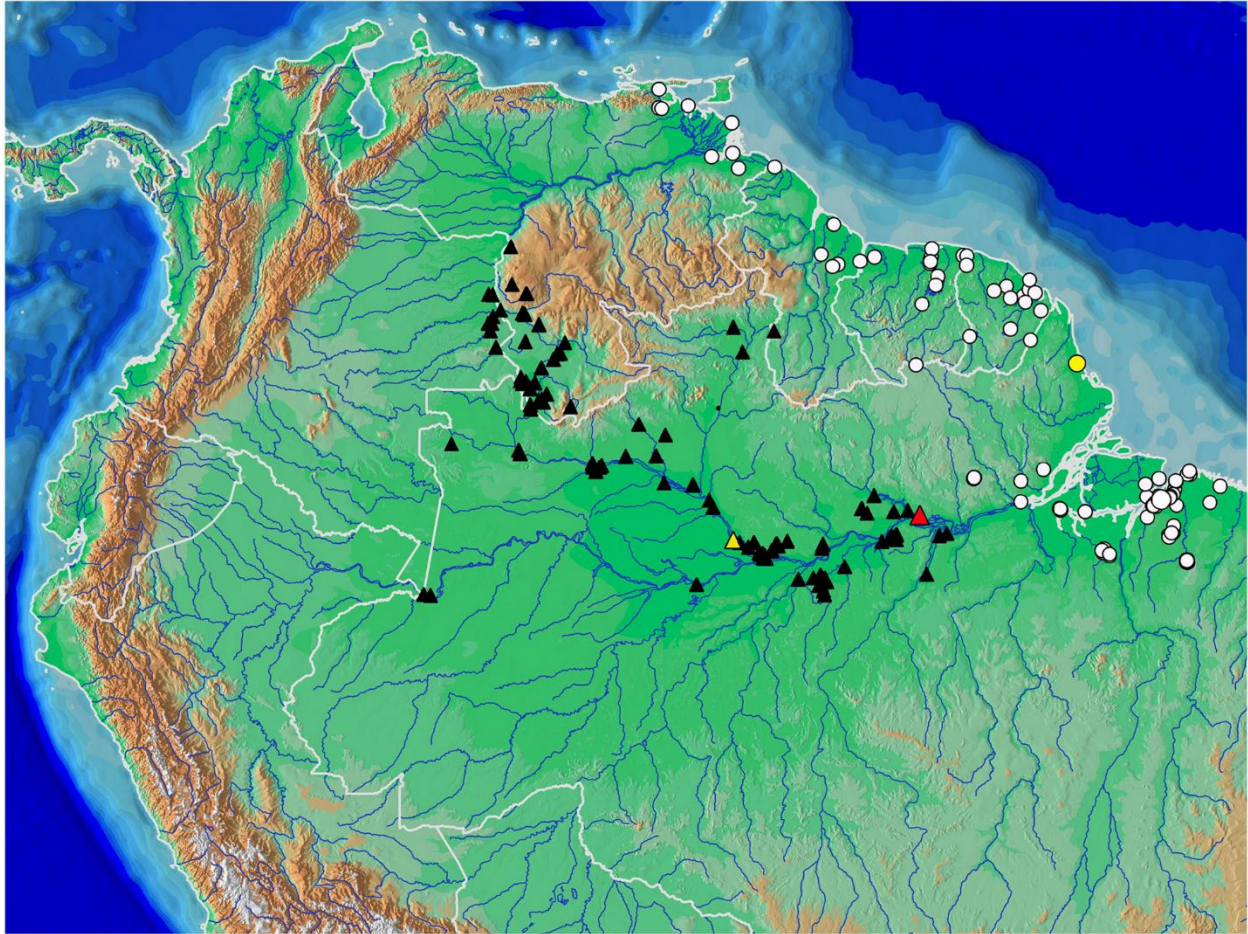


Figure 2. Additional known global distribution of *Copella arnoldi*. White circles represent known observations of *Copella arnoldi*. Map from Marinho and Menezes (2017), licensed under Creative Commons BY.

5 Distribution Within the United States

No records of *Copella arnoldi* in the wild or in trade in the United States were found.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Copella arnoldi* was low for most of the contiguous United States. There were some areas of medium match in southern Florida and southern Texas. There were no areas of high match. The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous United States was 0.001, low. The range for a low climate score is from 0.000 to 0.005, inclusive. All States had an individually low climate score except for Florida which had a medium individual score.

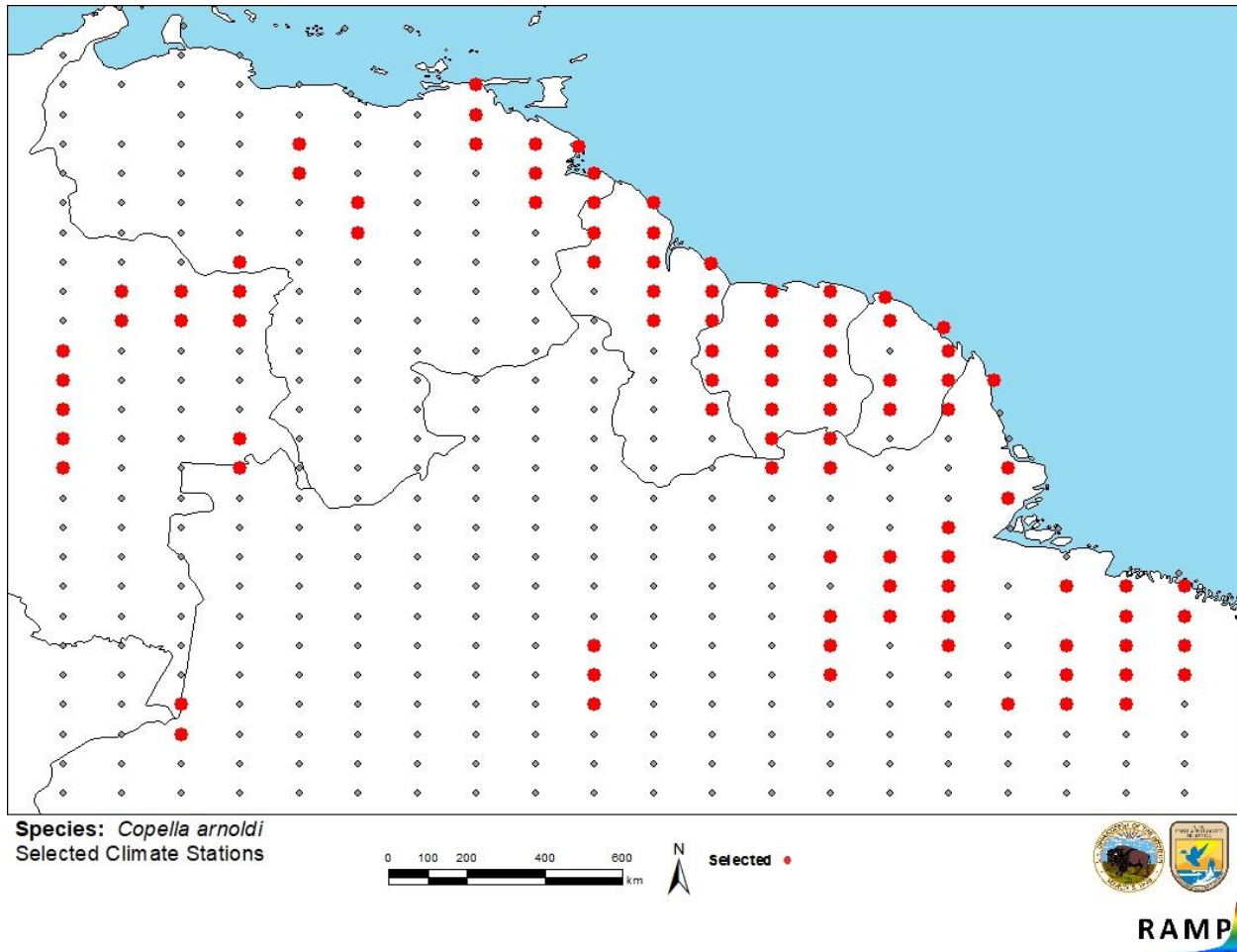


Figure 3. RAMP (Sanders et al. 2018) source map showing weather stations in South America selected as source locations (red; Brazil, Colombia, French Guiana, Guyana, Suriname and Venezuela) and non-source locations (gray) for *Copella arnoldi* climate matching. Source locations from Marinho and Menezes (2017) and GBIF Secretariat (2019). There is no source location available on Trinidad.

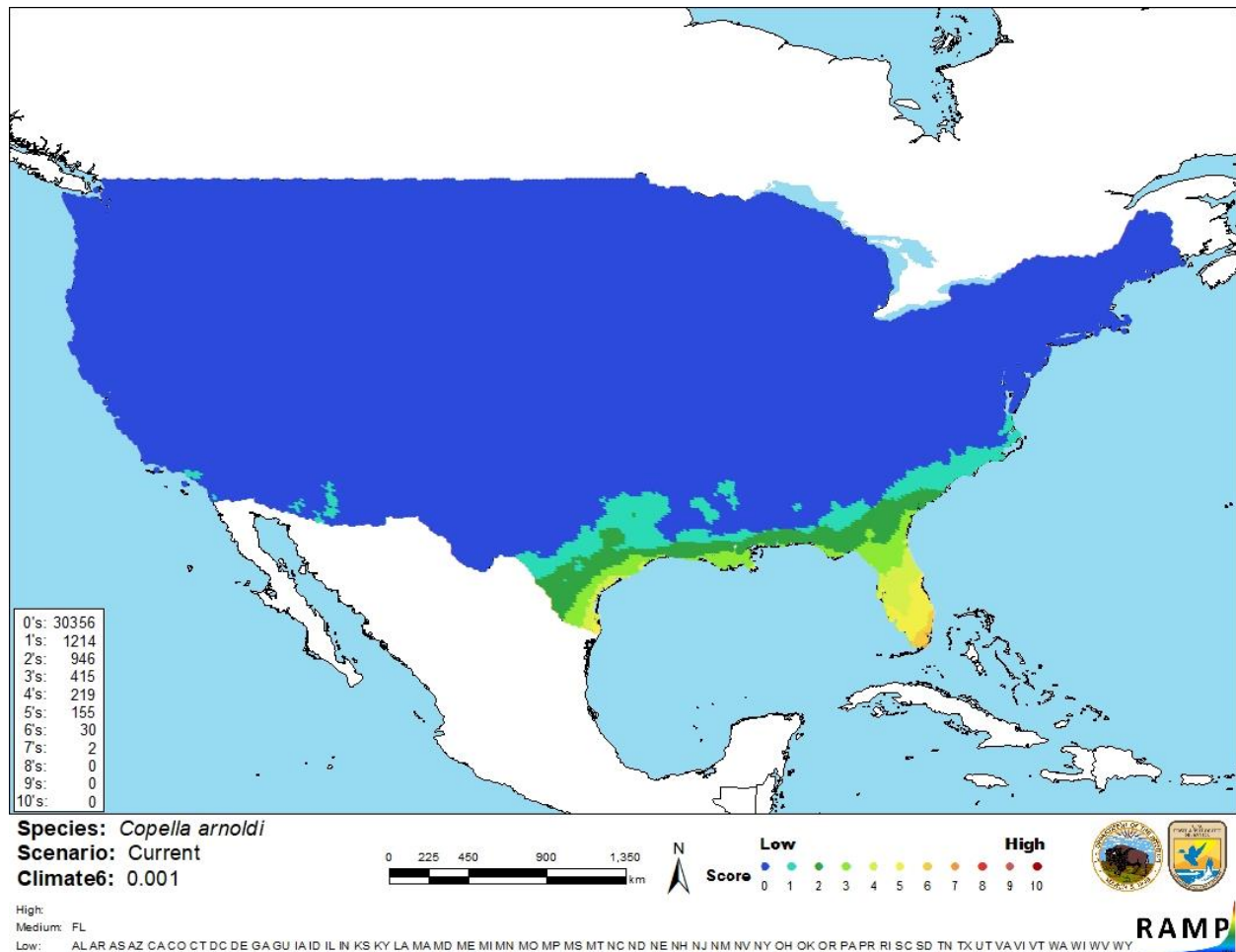


Figure 4. Map of RAMP (Sanders et al. 2018) climate matches for *Copella arnoldi* in the contiguous United States based on source locations reported by Marinho and Menezes (2017) and GBIF Secretariat (2019). 0 = Lowest match, 10 = Highest match.

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 for *Copella arnoldi* is low. There is minimal information available for this species. No information on impacts of introductions of *Copella arnoldi* were found.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Copella arnoldi, the Splash Tetra, is a South American freshwater fish that is native to Brazil, Colombia, French Guiana, Guyana, Suriname, Venezuela, and introduced in Trinidad. It is used in the aquarium trade outside of the United States. The history of invasiveness is not documented. It has been introduced in Trinidad and Tobago and established a population. No information on any impacts from that introduction was found. The climate match for the contiguous United States was low with all states having an individually low climate score except Florida, which had a medium individual score. The certainty of assessment is low because of a lack of information. The overall risk assessment category is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): None Documented**
- **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.

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- Froese, R., and D. Pauly, editors. 2019a. *Copella arnoldi* (Regan, 1912). FishBase. Available: <http://www.fishbase.org/summary/Copella-arnoldi.html>. (January 2019).
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- GBIF Secretariat. 2019. GBIF backbone taxonomy: *Copella arnoldi* (Regan, 1912). Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/2355707>. (January 2019).
- Marinho, M. M. F., and N. A. Menezes. 2017. Taxonomic review of *Copella* (Characiformes: Lebiasinidae) with an identification key for the species. PLOS One 12(8):e0183069.
- Sanders, S., C. Castiglione, and M. Hoff. 2018. Risk assessment mapping program: RAMP, version 3.1. 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.

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

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Weitzman, M. and S. H. Weitzman. 2003. Lebiasinidae (Pencil fishes). Pages 241–251 *in* R. E. Reis, S. O. Kullander, and C. J. Ferraris, Jr., editors. *Checklist of the freshwater fishes of South and Central America.* Porto Alegre, Brasil.