

***Dawkinsia singhala* (a barb, no common name)**

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, February 2013

Revised, March 2019

Web Version, 10/10/2019



Photo: Hiranya Sudasinghe. Licensed under Creative Commons Attribution 4.0 International. Available: https://commons.wikimedia.org/wiki/File:D_singhala_-_Hiranya_Sudasinghe.jpg. (March 2019).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2019):

“Asia: Sri Lanka. This species was previously identified as *Puntius filamentosus* in Sri Lanka.”

Status in the United States

No records of *Dawkinsia singhala* in the wild or in trade in the United States were found.

Means of Introductions in the United States

No records of *Dawkinsia singhala* in the wild in the United States were found.

Remarks

The literature review was conducted using both *Dawkinsia singhala* and the synonym *Puntius singhala* (Fricke et al. 2019).

D. singhala is sometimes referred to as “Blackspot Barb” in the aquarium trade but this common name is also applied to the congener *D. filamentosa*.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From Fricke et al. (2019):

“**Current status:** Valid as *Dawkinsia singhala* (Duncker 1912).”

From Bailly (2017):

“Biota > Animalia (Kingdom) > Chordata (Phylum) > Vertebrata (Subphylum) > Gnathostomata (Superclass) > [...] Actinopterygii (Class) > Cypriniformes (Order) > Cyprinidae (Family) > Barbinae (Subfamily) > *Dawkinsia* (Genus) > *Dawkinsia singhala* (Species)”

Size, Weight, and Age Range

From Froese and Pauly (2019):

“Max length : 9.1 cm SL male/unsexed; [Pethiyagoda and Kottelat 2005]”

Environment

From Froese and Pauly (2019):

“Freshwater; benthopelagic.”

Climate/Range

From Froese and Pauly (2019):

“Tropical”

Distribution Outside the United States

Native

From Froese and Pauly (2019):

“Asia: Sri Lanka. This species was previously identified as *Puntius filamentosus* in Sri Lanka.”

Introduced

Dawkinsia singhala has not been reported as introduced anywhere outside of its native range.

Means of Introduction Outside the United States

Dawkinsia singhala has not been reported as introduced anywhere outside of its native range.

Short Description

From Froese and Pauly (2019):

“Adults (>6 cm SL) differ from all other species of the *Puntius filamentosus* group by a combination of the following characters: absence of distinct marks on caudal fin lobes or on body in advance of anal fin origin; length of maxillary barbels less than 1/4 eye diameter; mouth subterminal [Pethiyagoda and Kottelat 2005].”

Biology

From Amarasinghe et al. (2014):

“*Dawkinsia singhala* was the most important, and *Amblypharyngodon melettinus* the second most important consumer species in all three reservoirs [...].”

Human Uses

From Weerasingha et al. (2017):

“Minor cyprinids like *D. singhala* and *P. chola* may comprise essential amino acids, essential fatty acids and minerals which are required for growth of koi carp.”

From Fernando et al. (2013):

“When considering the total quantities of exported freshwater fish during the one year period [September 2012-August 2013] the most common species exported was the endemic fish *Garra ceylonensis* (28551 individuals), followed by Indigenous salt water dispersants *Monodactylus argenteus* (15617 individuals) and the endemic fish *Dawkinsia singhala* (6322 individuals).”

“Though the quantity has reduced in 2013, *G. ceylonensis* and *D. singhala* [down to 6322 individuals in 2013 from about 10,000 in 2005 and 8,000 in 2006; Figure 1 in source] had been regularly exported in considerable quantities.”

Diseases

No information on diseases of *Dawkinsia singhala* was found. **No records of OIE-reportable diseases (OIE 2019) were found for *D. singhala*.**

Threat to Humans

From Froese and Pauly (2019):

“Harmless”

3 Impacts of Introductions

Dawkinsia singhala has not been reported as introduced anywhere outside of their native range.

4 Global Distribution

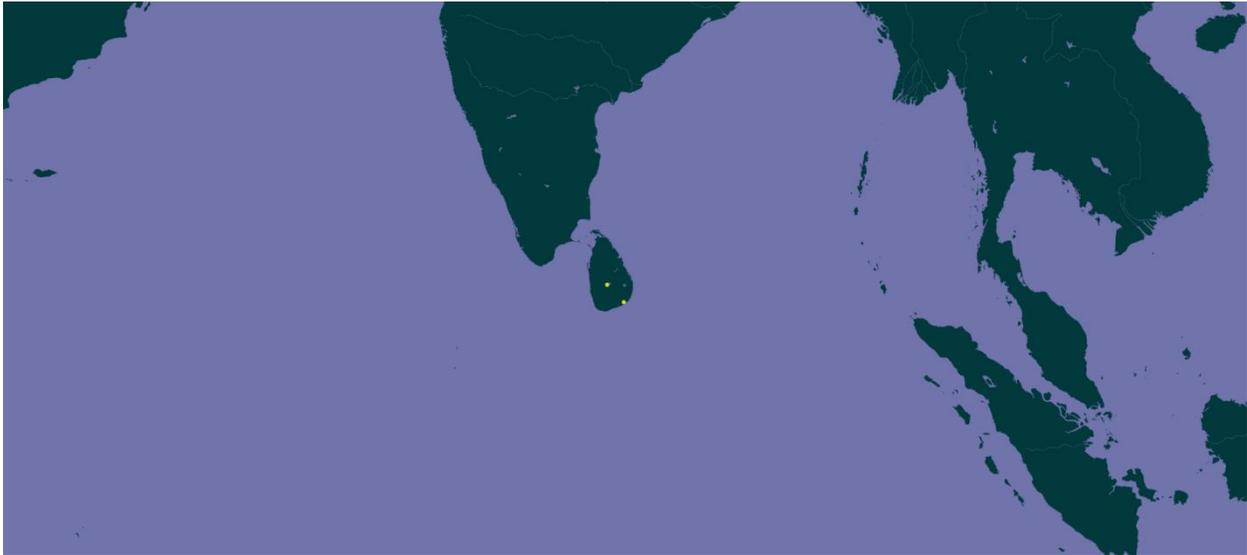


Figure 1. Map of southern India and Sri Lanka showing locations where *Dawkinsia singhala* has been reported. Map from GBIF Secretariat (2019).

5 Distribution Within the United States

No records of *Dawkinsia singhala* in the wild in the United States were found.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Dawkinsia singhala* was low for the majority of the contiguous United States, with an area of medium match in southern 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 States had a low individual climate scores except for Florida, which had a medium climate score.

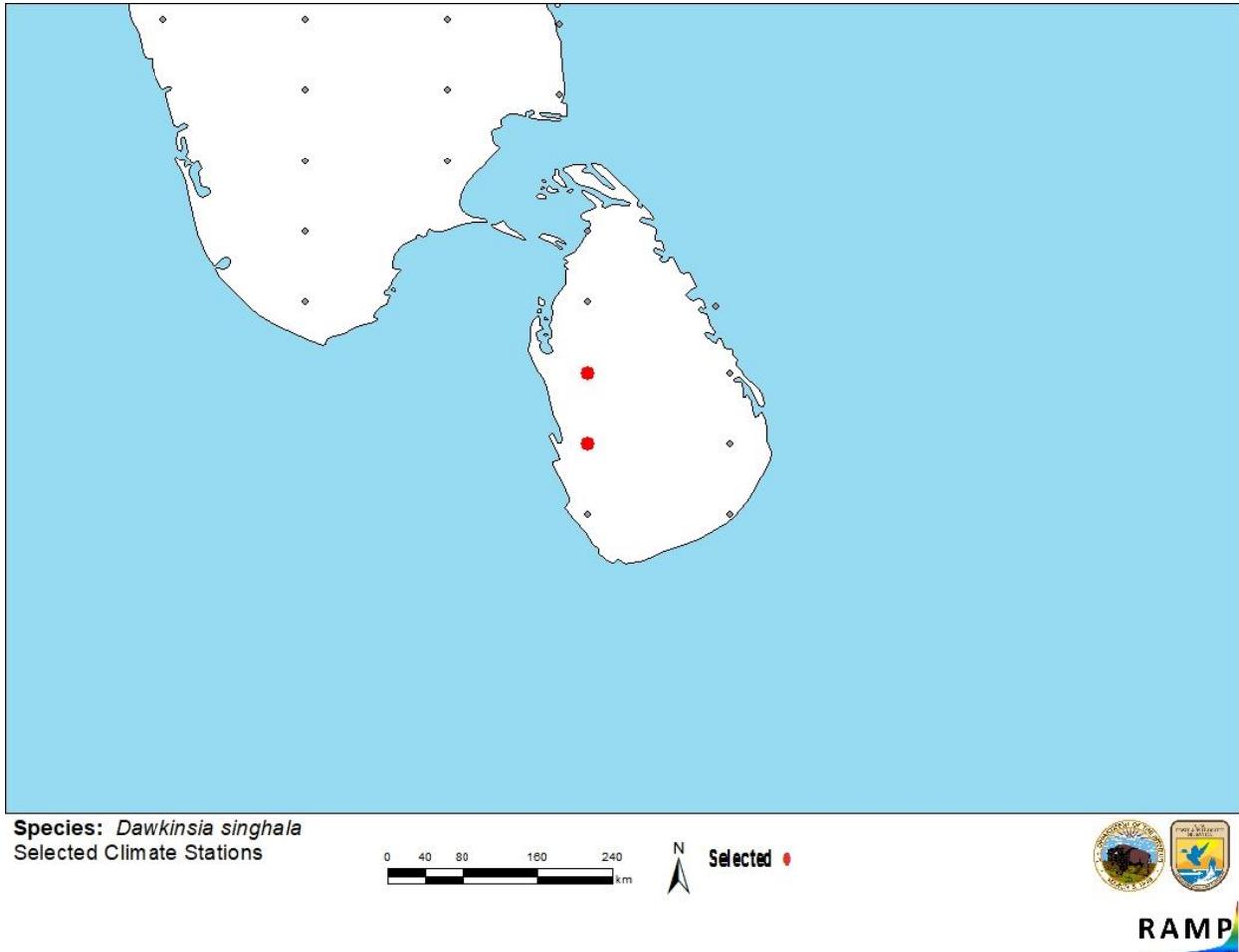


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in Sri Lanka selected as source locations (red) and non-source locations (gray) for *Dawkinsia singhala* climate matching. Source locations from GBIF Secretariat (2019). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

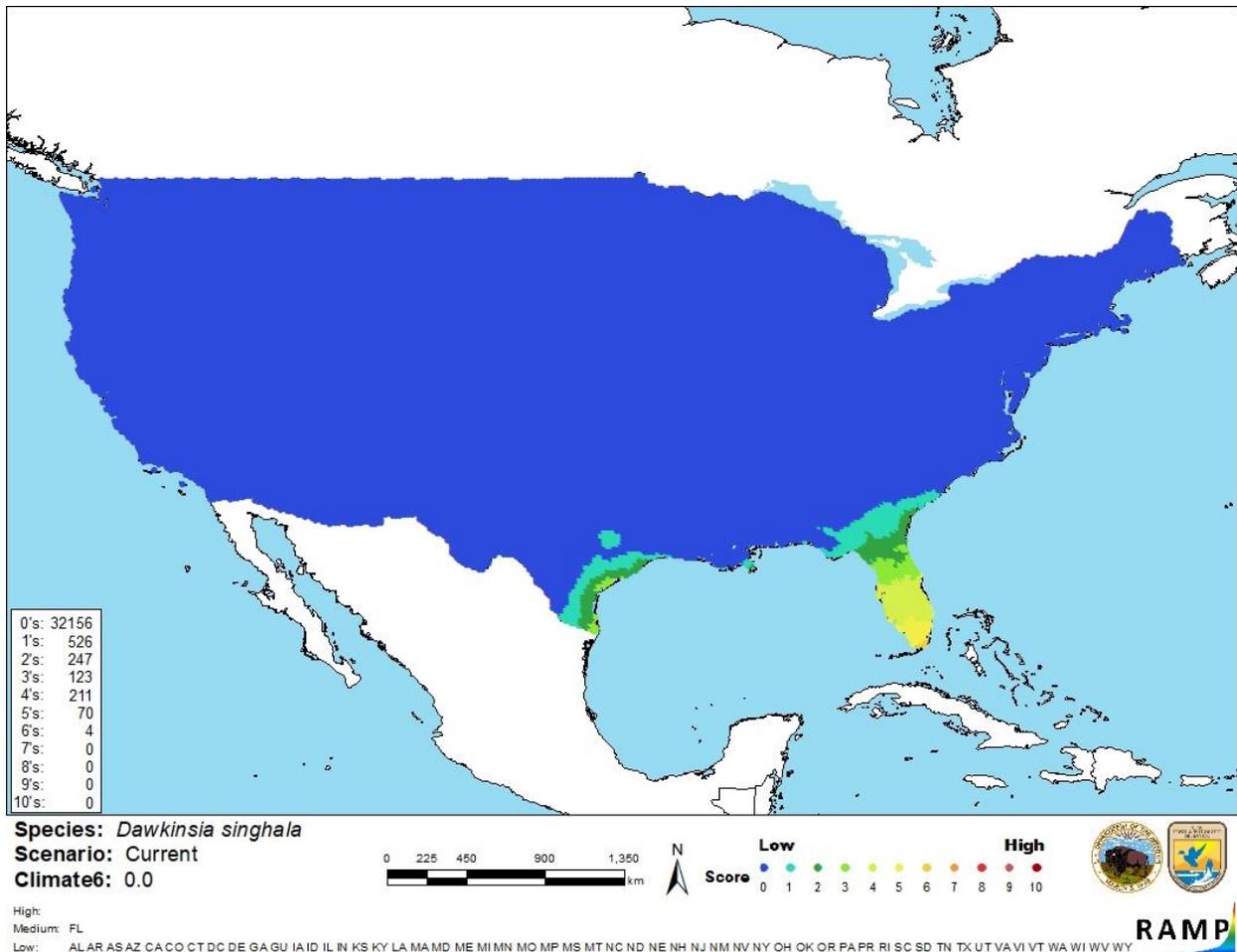


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Dawkinsia singhala* in the contiguous United States based on source locations reported by GBIF Secretariat (2019). 0 = Lowest match, 10 = Highest match.

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
$0.000 \leq X < 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

7 Certainty of Assessment

The certainty of assessment for *Dawkinsia singhala* is low. There is information available about the species biology, distribution, and trade. *D. singhala* has not been introduced anywhere outside of its native range, so impacts of introduction are unknown.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Dawkinsia singhala is a barb endemic to Sri Lanka. *D. singhala* has not been introduced anywhere outside of its native range. The history of invasiveness is uncertain. This fish is found in the aquarium trade but the information available on volume and duration of trade do not meet the criteria set for “substantial trade history.” The overall climate match for the contiguous United States is low. The only area of medium match was in southern Florida. The certainty of assessment is low. The overall risk assessment category for *Dawkinsia singhala* 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.

Amarasinghe, U. S., J. Vijverberg, W. S. Weliange, and M. Vos. 2014. Food-web patterns and diversity in tropical fish communities. *Lakes and Reservoirs: Research and Management* 19:56–69.

Bailly, N. 2017. *Dawkinsia singhala*. In *World Register of Marine Species*. Available: <http://www.marinespecies.org/aphia.php?p=taxdetails&id=1017562>. (March 2019).

Fernando, M. S. R., N. P. P. Liyanage, S. C. Jayamanne, and R. S. Gunasekara. 2013. A review of export trade of indigenous freshwater fish species in Sri Lanka and their conservation issues. *Proceedings of the Research Symposium of Uva Wellassa University* 12–13.

Fricke, R., W. N. Eschmeyer, and R. van der Laan, editors. 2019. Eschmeyer’s catalog of fishes: genera, species, references. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (March 2019).

Froese, R., and D. Pauly, editors. 2019. *Dawkinsia singhala* Duncker, 1912. *FishBase*. Available: <https://www.fishbase.se/summary/Dawkinsia-singhala.html>. (March 2019).

GBIF Secretariat. 2019. GBIF backbone taxonomy: *Dawkinsia singhala* (Duncker, 1912). *Global Biodiversity Information Facility*, Copenhagen. Available: <https://www.gbif.org/species/8196344>. (March 2019).

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

Sanders, S., C. Castiglione, and M. Hoff. 2018. Risk assessment mapping program: RAMP, version 3.1. U.S. Fish and Wildlife Service.

Weerasingha, R., W. G. C. Umesha Soorasena, and D. Ananda Athukorala. 2017. Utilization of minor cyprinids (*Dawkinsia singhala* and *Puntius chola*) from reservoirs as protein sources for feeds of juveniles koi carp (*Cyprinus carpio*). Sri Lanka Journal of Aquatic Science 22(1):39–44.

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.

Duncker, G. 1912. Die Süßwasserfische Ceylons. Mitteilungen aus dem Naturhistorischen (Zoologischen) Museum in Hamburg 29:241–272.

Gunasekera, R. S. 2011. Export trade of indigenous freshwater fish of Sri Lanka. Biodiversity Protection Unit, Sri Lanka Customs.

Pethiyagoda, R., and M. Kottelat. 2005. A review of the barb of the *Puntius filamentosus* group (Teleostei: Cyprinidae) of southern India and Sri Lanka. Raffles Bulletin of Zoology 12:127–144.