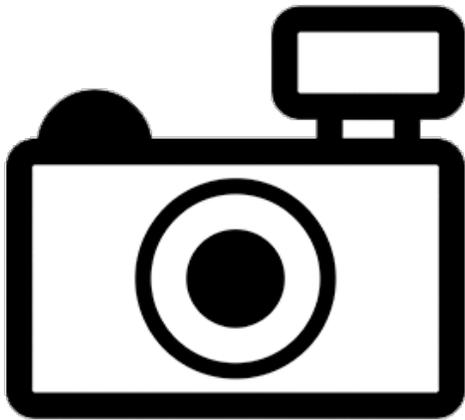


***Pethia melanomaculata* (a fish, no common name)**

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, August 2013
Revised, November 2018
Web Version, 6/30/2020

Organism Type: Fish
Overall Risk Assessment Category: Uncertain



No Photo Available

1 Native Range and Status in the United States

Native Range

From Batuwita et al. (2015):

“*Pethia melanomaculata* is restricted to the northern and eastern dry zone (annual rainfall < 1,500 mm) of Sri Lanka where it is widely distributed in tanks and small rivers, primarily within the Mahaweli River basin [...]”

Status in the United States

No records of *Pethia melanomaculata* in the wild or in trade in the United States were found.

Means of Introductions in the United States

No records of *Pethia melanomaculata* in the wild in the United States were found.

Remarks

Pethia melanomaculata is the current valid name for this species but it was known as *Puntius melanomaculatus* as recently as 2008 (Fricke et al. 2018). Information searches were conducted using both names to ensure the most complete assessment possible.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Fricke et al. (2018), *Pethia melanomaculata* (Deraniyagala 1956) is the current valid name for this species. It was previously known as *Puntius melanomaculatus* Deraniyagala 1956.

From Froese and Pauly (2018b):

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

Size, Weight, and Age Range

From Froese and Pauly (2018a):

“Max length : 3.9 cm SL male/unsexed; [Meegaskumbura et al. 2008]”

Environment

From Froese and Pauly (2018a):

“Freshwater; benthopelagic.”

Climate

From Froese and Pauly (2018a):

“Tropical”

Distribution Outside the United States

Native

From Batuwita et al. (2015):

“*Pethia melanomaculata* is restricted to the northern and eastern dry zone (annual rainfall < 1,500 mm) of Sri Lanka where it is widely distributed in tanks and small rivers, primarily within the Mahaweli River basin [...]”

Introduced

No records of introduction of *Pethia melanomaculata* were found.

Means of Introduction Outside the United States

No records of introduction of *Pethia melanomaculata* were found.

Short Description

From Batuwita et al. (2015):

“*Pethia melanomaculata* is distinguished from all the other congeners in Sri Lanka and the peninsula of India by the combination of the following characters: barbels absent; lateral line incomplete, with 7–10 perforated scales; 20–23 scales in lateral series; 3 unbranched dorsal-fin rays, the last one with 8–11 strong serrae; $\frac{1}{2}4/1/3\frac{1}{2}$ scales in transverse line on body; $\frac{1}{2}2/1/2\frac{1}{2}$ scales in transverse line on caudal peduncle; predorsal scales 8–9; body depth 32.4–41.5% SL; head length 26.1–29.2% SL; snout length 25.3–35.6% HL; eye diameter 24.4–31.9% HL; a small black humeral spot on the 3rd or 4th lateral-line scales; a black spot on caudal peduncle, on scales 16–18 of the lateral-line series; no prominent projection at postero-lateral border of premaxilla; superior angle of palatine process of maxilla blunt; dorsal border of anguloarticular curved, with a deep concavity; lateral border of 5th ceratobranchial with a deep notch.”

“Body laterally compressed. Dorsal profile of head gently notched above posterior orbital margin. Predorsal profile convex, rising gradually to dorsal-fin origin. Postdorsal profile sloping down to hypural notch. Ventral profile convex up to pelvic-fin base, then almost flat to anal-fin origin, rising markedly between anal-fin origin and insertion, then approximately level to hypural notch. Caudal peduncle short, its depth 1.0–1.4 times its length.

Head small, laterally compressed. Snout blunt, rounded, subequal to eye diameter. Mouth small, subterminal, angle of gape not reaching vertical from anterior margin of eye. Barbels absent. Eyes large, dorsolaterally oriented, closer to tip of snout than to margin of operculum.

Dorsal-fin with its origin posterior to pelvic-fin origin, approximately equidistant from tip of snout and caudal-fin base; its distal margin concave; 3 unbranched and 8 branched rays (18), last one strong with 8 (8), 9 (4), 10 (4) or 11 (1) serrae posteriorly. Pectoral fin with 1 unbranched and 11 (2) or 12 (15) branched rays, its tip reaching pelvic-fin base when adpressed. Pelvic fin with 1 unbranched and 8 (16) branched rays, its distal margin rounded, not reaching anal-fin origin when adpressed. Anal fin with 3 unbranched and 5 (17) branched rays, its distal margin concave. Caudal fin forked, with i,8,8,i (1), i,8,9,i (5), i,9,8,i (4), i,9,9,i (7) principal rays.

Lateral line incomplete, with 7–10 pored scales; 20 (4), 21 (9), 22 (3) or 23 (2) scales in lateral series. Scales in transverse line on body $\frac{1}{2}4/1/3\frac{1}{2}$ (18), predorsal scales 8 (16) or 9 (1), prepelvic scales 9 (3) or 10 (2), scales in transverse line on caudal peduncle $\frac{1}{2}2/1/2\frac{1}{2}$ (18).”

“In life, dorsally light golden brown. Sides of body iridescent silver with scattered melanophores on distal margin of anterior mid-body scales. [...] Ventrally white. Prominent markings on dorsal fin absent. Fins hyaline to light yellow. Breeding males with a reddish body coloration.”

“A small black humeral spot above pectoral fin, level with mid eye, confined to 3rd or 4th lateral-line scale. Black spot on caudal peduncle larger than humeral spot, somewhat smaller than eye diameter, originating posterior to anal-fin insertion, on scales 16–18 of lateral series.”

Biology

No information on the biology of *Pethia melanomaculata* was found.

Human Uses

According to Miththapala (2015), *Pethia melanomaculata* is traded as an ornamental species.

Diseases

No information on diseases of *Pethia melanomaculata* was found. **No records of OIE-reportable diseases (OIE 2020) were found for *P. melanomaculata*.**

Threat to Humans

From Froese and Pauly (2018a):

“Harmless”

3 Impacts of Introductions

No records of introduction of *Pethia melanomaculata* were found; therefore, there is no information on impacts of introduction.

4 History of Invasiveness

No records of introduction of *Pethia melanomaculata* were found; therefore, the history of invasiveness is classified as No Known Nonnative Population.

5 Global Distribution

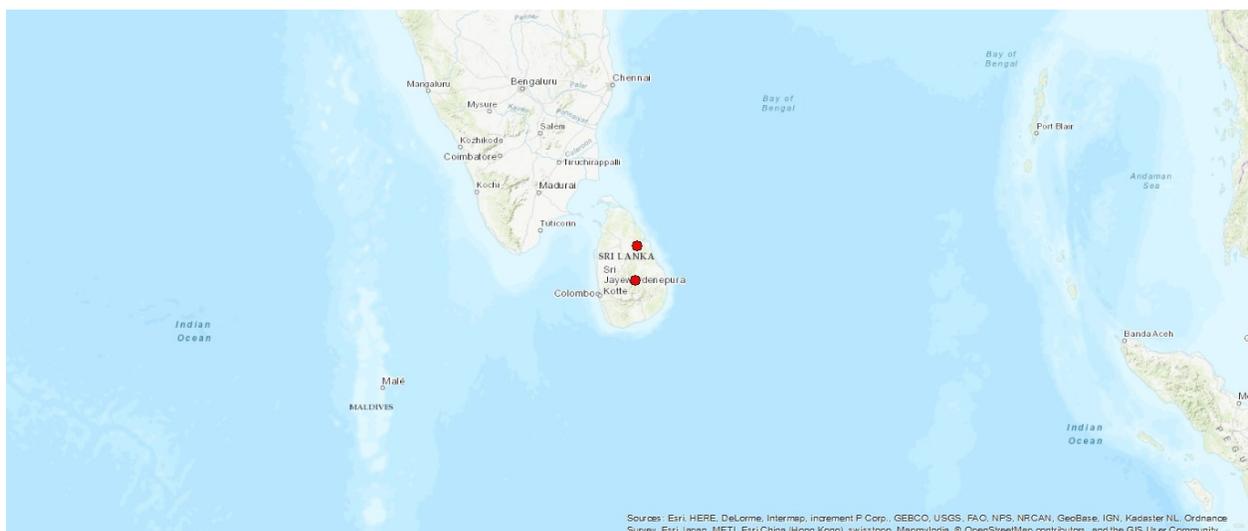


Figure 1. Known global distribution of *Pethia melanomaculata*. Locations of collections given in Batuwita et al. (2015). Map was created using ArcGIS[®] software (ESRI 2020).

6 Distribution Within the United States

No records of *Pethia melanomaculata* in the wild in the United States were found.

7 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Pethia melanomaculata* was low for the entire contiguous United States. There were no areas of medium or high match. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for contiguous United States was 0.000, low (scores between 0.000 and 0.005, inclusive are classified as low). All States had low individual climate 6 scores.

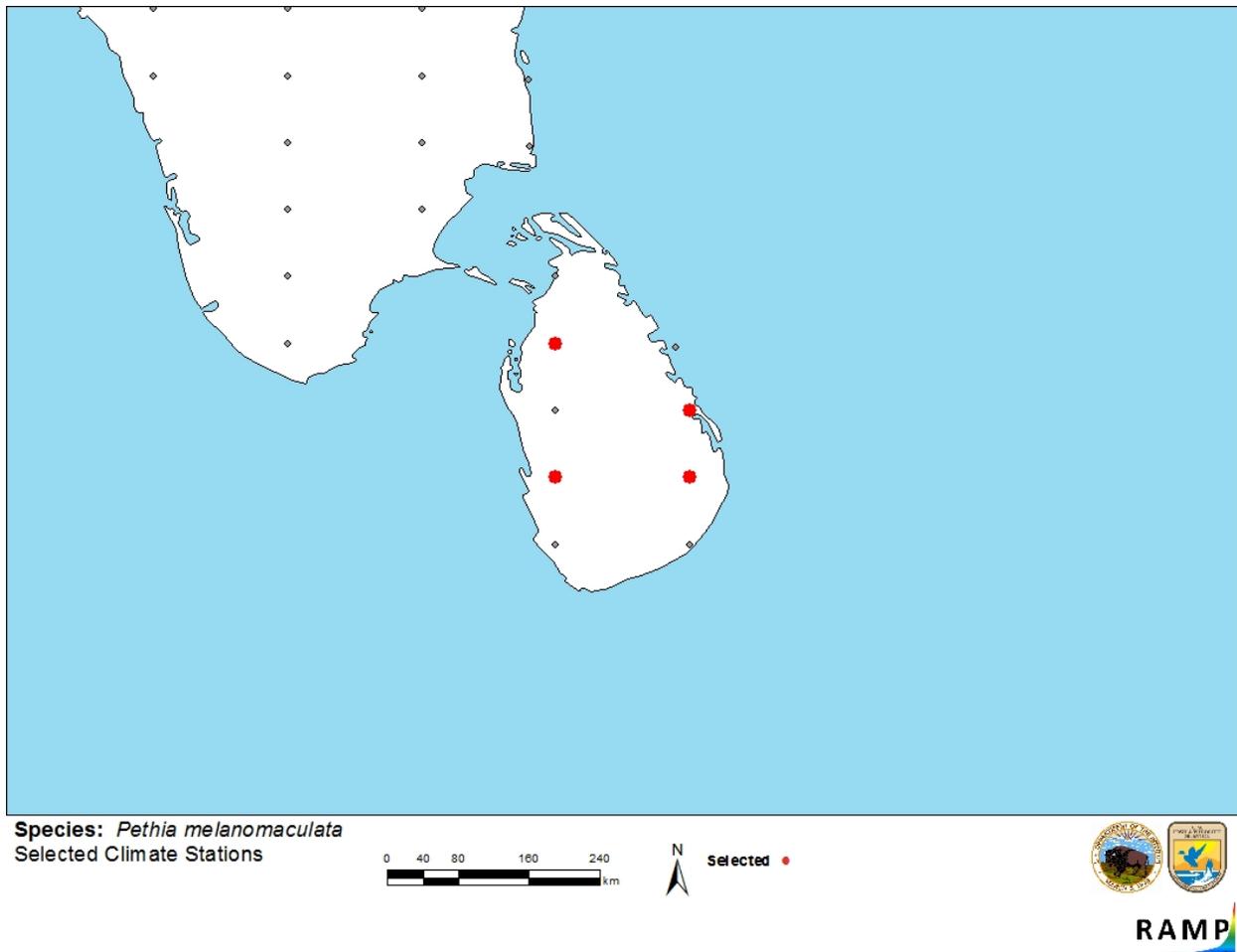


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in Sri Lanka selected as source locations (red) and non-source locations (gray) for *Pethia melanomaculata* climate matching. Source locations from Batuwita et al. (2015). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

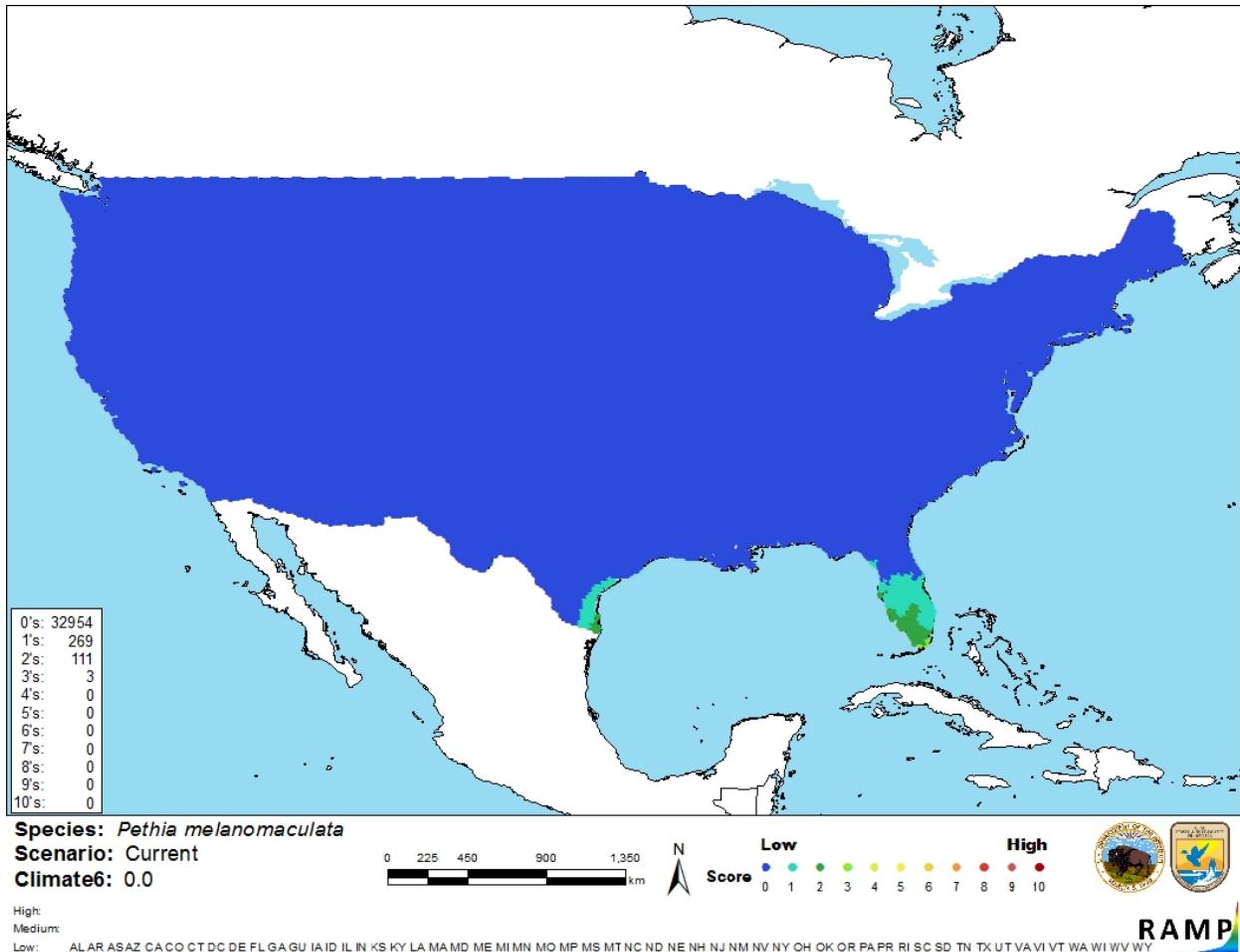


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Pethia melanomaculata* in the contiguous United States based on source locations reported by Batuwita et al. (2015). Counts of climate match scores are tabulated on the left. 0/Blue = Lowest match, 10/Red = Highest match.

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

Little information is published on *Pethia melanomaculata* regarding its biology, ecology, and distribution. No records of introduction were found so there is no information on impacts of introduction to evaluate. The certainty of this assessment is low due to a lack of information about the species.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Pethia melanomaculata is a small cyprinid fish that is endemic to Sri Lanka. The history of invasiveness is classified as No Known Nonnative Population. No records of introduction were found. One source listed the species as present in the ornamental trade but no further information on this species in trade was found. The climate match with the contiguous United States is low. There were no areas of medium or high match in the contiguous United States. The certainty of assessment is low due to a general lack of information about the species. The overall risk assessment category is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 4): No Known Nonnative Population**
- **Overall Climate Match Category (Sec. 7): Low**
- **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.

Batuwita S, Maduwage K, Sudasinghe H. 2015. Redescription of *Pethia melanomaculata* (Teleostei: Cyprinidae) from Sri Lanka. *Zootaxa* 3936:575–583.

ESRI. 2020. ArcGIS Desktop: Release 10.7.1. Redlands, California: Environmental Systems Research Institute.

Fricke R, Eschmeyer WN, van der Laan R, editors. 2018. Catalog of fishes: genera, species, references. California Academy of Science. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp> (October 2018).

Froese R, Pauly D, editors. 2018a. *Pethia melanomaculata* (Deraniyagala, 1956). FishBase. Available: <https://www.fishbase.de/summary/Pethia-melanomaculata.html> (October 2018).

Froese R, Pauly D, editors. 2018b. *Pethia melanomaculata* (Deraniyagala 1956). In World Register of Marine Species. Available: <http://www.marinespecies.org/aphia.php?p=taxdetails&id=1013984> (October 2018).

Miththapala S. 2015. Conservation revisited. *Ceylon Journal of Science (Biological Science)* 44:1–26.

[OIE] World Organisation for Animal Health. 2020. OIE-listed diseases, infections and infestations in force in 2020. Available: <http://www.oie.int/animal-health-in-the-world/oie-listed-diseases-2020/> (June 2020).

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.

Meegaskumbura M, Silva A, Maduwage K, Pethiyagoda R, 2008. *Puntius reval*, a new barb from Sri Lanka (Teleostei: Cyprinidae). *Ichthyological Explorations of Freshwaters* 19:141–152.