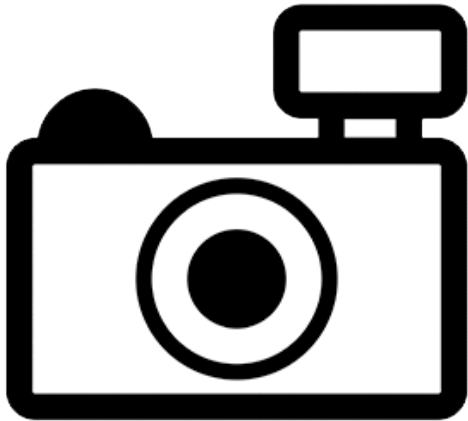


Bowany Barb (*Barbodes bovanicus*) (a fish)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, March 2015
Revised, September 2017, October 2017
Web Version, 8/28/2018



No Photo Available

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2014):

“Asia: restricted to the Cauvery river system in India.”

From Manimekalan et al. (2013):

“*Barbodes bovanicus* has been recorded from the Bhavani river system and the Cauvery river system at the base of the Nilgiri hills, Tamil Nadu. Apparently only the population in the Mettur reservoir survives today (Menon 1999). However, surveys conducted over the last decade at Mettur reservoir have not yielded any specimens (M. Arunachalam pers. comm. 2010). The last individual collected was in 1998 from Mudumalai (Manimekalan 1998).”

Status in the United States

No records of *Barbodes bovanicus* in the wild or in trade in the United States were found.

Means of Introductions in the United States

No records of *Barbodes bovanicus* in the United States were found.

Remarks

From Manimekalan et al. (2013):

“IUCN Red List Category & Criteria: Critically Endangered D[Possibly Extinct] ver 3.1”

“*Barbodes bovanicus* is assessed as Critically Endangered Possibly Extinct. It has undergone a drastic population decline, the causes of which are unclear and the last individual was recorded in 1998. Only the population in the Mettur reservoir (2 km²) is thought to still be extant, however, surveys conducted over the last decade at Mettur reservoir have not yielded any specimens (M. Arunachalam pers. comm. 2010). More surveys are needed to see if the species is still extant or has become extinct.”

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Eschmeyer et al. (2017), *Barbodes bovanicus* (Day 1877) is the valid name for this species. It was originally described as *Barbus bovanicus* and had been previously known as *Puntius bovanicus*. Other sources list *Barbodes bovanicus* as a junior synonym of *Neolissochilus bovanicus* (Manimekalan et al. 2015; Froese and Pauly 2017).

From ITIS (2015):

“Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Osteichthyes
Class Actinopterygii
Subclass Neopterygii
Infraclass Teleostei
Superorder Ostariophysi
Order Cypriniformes
Superfamily Cyprinoidea
Family Cyprinidae
Genus *Barbodes*
Species *Barbodes bovanicus* (Day, 1878)”

Size, Weight, and Age Range

From Froese and Pauly (2014):

“Max length: 36.0 cm TL male/unsexed; [Menon 1999]”

Environment

From Froese and Pauly (2017):

“Freshwater; benthopelagic.”

Climate/Range

From Froese and Pauly (2014):

“Tropical”

Manimekalan et al. (2015) lists the lower elevation limit as 300m and the upper limit as 450m.

Distribution Outside the United States

Native

From Froese and Pauly (2014):

“Asia: restricted to the Cauvery river system in India.”

From Manimekalan et al. (2013):

“*Barbodes bovanicus* has been recorded from the Bhavani river system and the Cauvery river system at the base of the Nilgiri hills, Tamil Nadu. Apparently only the population in the Mettur reservoir survives today (Menon 1999). However, surveys conducted over the last decade at Mettur reservoir have not yielded any specimens (M. Arunachalam pers. comm. 2010). The last individual collected was in 1998 from Mudumalai (Manimekalan 1998).”

Introduced

No records of *Barbodes bovanicus* introductions were found.

Means of Introduction Outside the United States

No records of *Barbodes bovanicus* introductions were found.

Short Description

From India Biodiversity Portal (2015):

“A species of *Barbodes* with moderately deep body, without any bands or spots; two pairs of barbels; lips thin, plain, lower labial fold complete in the adult; dorsal ray osseous, strong, smooth; 24–26 lateral line scales.”

Biology

From Froese and Pauly (2014):

“Found in reservoirs [Menon 1999]”

From Manimekalan et al. (2013):

“Collected from Mudumalai in a larger (fourth order) stream. The water was turbid with boulders and good riparian cover (A. Manimekalan pers. obs.)”

Human Uses

From Manimekalan et al. (2013):

“There is no information on the use of this species.”

Diseases

Information on pathogens of *Barbodes bovanicus* was not found.

Threat to Humans

From Froese and Pauly (2014):

“Harmless”

3 Impacts of Introductions

No records of *Barbodes bovanicus* introductions were found.

4 Global Distribution



Figure 1. Known global distribution of *Barbodes bovanicus*. The location is in southern India. Map from GBIF Secretariat (2017).

5 Distribution Within the United States

No records of *Barbodes bovanicus* in the United States were found.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Barbodes bovanicus* was low across the entire contiguous United States. The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous United States was 0.000, low, and no states had an individually high climate score.

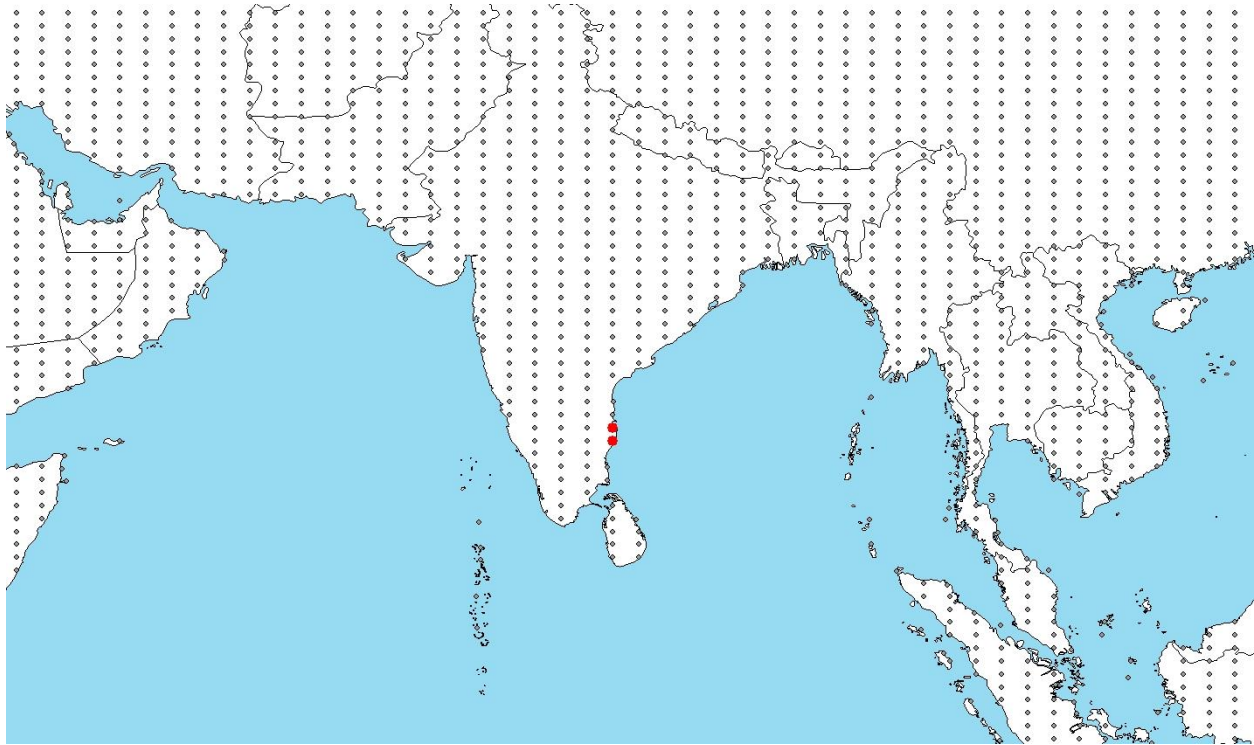


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red; India) and non-source locations (gray) for *Barbodes bovanicus* climate matching. Source locations from GBIF Secretariat (2017).

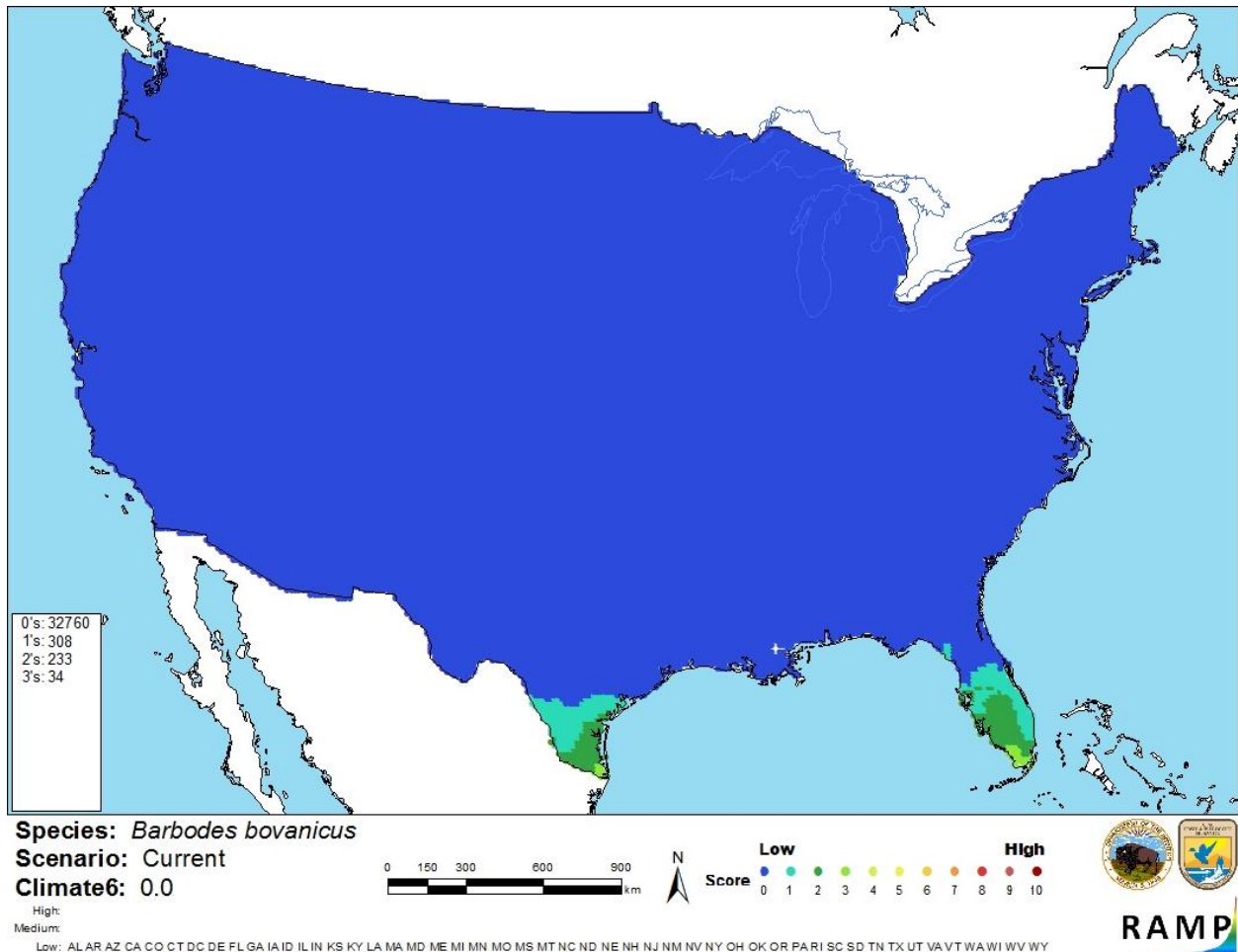


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Barbodes bovanicus* in the contiguous United States based on source locations reported by GBIF Secretariat 2017. 0 = Lowest match, 10 = Highest match. Counts of climate match scores are tabulated on the left.

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 this assessment is low. There was very limited quality information available. There were no records of introduction found.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Bowany Barb (*Barbodes bovanicus*) is a species of cyprinid native to southern India. The fish is extremely rare and may be extinct. The history of invasiveness is uncertain. There were no records of introductions found. The climate match is low. The certainty of assessment is low. Information about this species was very limited. The overall risk assessment category is uncertain. *Barbodes bovanicus* is possibly extinct.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): Low**
- **Certainty of Assessment (Sec. 7): Low**
- **Remarks/Important additional information** *Barbodes bovanicus* is listed as critically endangered and possibly extinct.
- **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.

- Eschmeyer, W. N., R. Fricke, and R. van der Laan, editors. 2017. Catalog of fishes: genera, species, references. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (September 2017).
- Froese, R., and D. Pauly, editors. 2014. *Barbodes bovanicus* (Day 1877). FishBase. Available: <http://www.fishbase.org/summary/Barbodes-bovanicus.html>. (March 2015).
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Sanders, S., C. Castiglione, and M. Hoff. 2014. Risk assessment mapping program: RAMP. 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.

Day, F. 1877. The fishes of India; being a natural history of the fishes known to inhabit the seas and fresh waters of India, Burma, and Ceylon. Part 3:369–552.

Manimekalan, A. 1998. The fishes of Mudumalai Wildlife Sanctuary, Tamil Nadu, South India. *Journal of the Bombay Natural History Society* 95(3):431–443.

Menon, A. G. K. 1999. Check list - fresh water fishes of India. Records of the Zoological Survey of India, Miscellaneous Publication, Occasional Paper 175.