

Carnatic Carp (*Barbodes carnaticus*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, March 2015
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1 Native Range and Status in the United States

Native Range

From Ali and Raghavan (2013):

“*Barbodes carnaticus* is endemic to the Western Ghats (Dahanukar et al. 2004). Known from rivers in the states of Kerala, Tamil Nadu and Karnataka including Cauvery, Krishna (Jayaram 1999), Moyar (Rajan 1963, Arunachalam et al. 2000), Kabini, Bhavani, Bharathapuzha,

Chalaky, Periyar, Pambar, Muvattupuzha, Manimala, Pamba, Achenkovil, Karamana, Neyyar (Shaji and Easa 2003, Chhapgar and Mankadan 2000, Kurup et al. 2004), Chaliyar (R. Raghavan and A. Ali pers. obs.). Ooty Lake (Jayaram 1999). Besides it has also been reported from the water bodies inside the Mudumalai Wildlife Sanctuary (Manimekalan 1998), from the drainages in the Dharmapuri district of Tamil Nadu (Rema Devi and Raghunathan 1999) and from Kolli Hills of Eastern Ghats (Arunachalam and Johnson 1998). The record from Tambraparini (Johnsingh and Vickram 1987) is erroneous (Johnson and Arunachalam pers. comm.). The report from southern Kerala is also doubtful (M. Arunachalam pers. comm.).”

Status in the United States

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

Means of Introductions in the United States

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

Remarks

No additional remarks.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Eschmeyer et al. (2017), *Barbodes carnaticus* (Jerdon 1849) is the valid name for this species. It was originally described as *Barbus carnaticus* and has been previously known as *Systemus carnaticus*, *Puntius carnaticus*, and *Hypselobarbus carnaticus*.

From ITIS (2015):

“Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Osteichthyes
Class Actinopterygii
Subclass Neopterygii
Infraclass Teleostei
Superorder Ostariophysii
Order Cypriniformes
Superfamily Cyprinoidea
Family Cyprinidae
Genus *Barbodes*
Species *Barbodes carnaticus* (Jerdon, 1849)”

Size, Weight, and Age Range

From Froese and Pauly (2014):

“Max length: 60.0 cm TL male/unsexed; [Gopalakrishnan and Ponniah 2000]; max. published weight: 12.0 kg [Talwar and Jhingran 1991]; max. reported age: 5 years”

From Ali and Raghavan (2013):

“Longevity of the species which was estimated as 4-5 years (Manojkumar and Kurup 2010) is doubtful (M. Arunachalam, R. Kumar pers. comm.).”

Environment

From Froese and Pauly (2014):

“Freshwater; benthopelagic; potamodromous [Riede 2004].”

Climate/Range

From Froese and Pauly (2014):

“Tropical”

Distribution Outside the United States

Native

From Ali and Raghavan (2013):

“*Barbodes carnaticus* is endemic to the Western Ghats (Dahanukar et al. 2004). Known from rivers in the states of Kerala, Tamil Nadu and Karnataka including Cauvery, Krishna (Jayaram 1999), Moyar (Rajan 1963, Arunachalam et al. 2000), Kabini, Bhavani, Bharathapuzha, Chalakudy, Periyar, Pambar, Muvattupuzha, Manimala, Pamba, Achenkovil, Karamana, Neyyar (Shaji and Easa 2003, Chhapgar and Mankadan 2000, Kurup et al. 2004), Chaliyar (R. Raghavan and A. Ali pers. obs.). Ooty Lake (Jayaram 1999). Besides it has also been reported from the water bodies inside the Mudumalai Wildlife Sanctuary (Manimekalan 1998), from the drainages in the Dharmapuri district of Tamil Nadu (Rema Devi and Raghunathan 1999) and from Kolli Hills of Eastern Ghats (Arunachalam and Johnson 1998). The record from Tambraparini (Johnsingh and Vickram 1987) is erroneous (Johnson and Arunachalam pers. comm.). The report from southern Kerala is also doubtful (M. Arunachalam pers. comm.).”

Introduced

No records of *Barbodes carnaticus* introductions were found.

Means of Introduction Outside the United States

No records of *Barbodes carnaticus* introductions were found.

Short Description

From India Biodiversity Portal (2015):

“A species of *Barbodes* with 28–32 lateral line scales; 10–12 predorsal scales; two pairs of barbels; dorsal fin inserted slightly nearer to tip of snout than base of caudal fin, its last undivided ray osseous, strong and smooth; ; rostral barbel black; four or five fine and faint longitudinal stripes above lateral line. (Mishra et al. 2013).”

Biology

From Froese and Pauly (2014):

“Found in large pools and riffles of rapid rivers and streams. Adults are observed to hide under bedrocks, boulders and undercuttings. Feeds on allochthonous fallen leaves and seeds [Arunachalam et al. 2000]. Does not breed in ponds but spawns in flooded rivers during monsoon months [Talwar and Jhingran 1991]. Spawns in July-August and fry are available in September to December [Arunachalam et al. 2000].”

From Ali and Raghavan (2013):

“The young of *B. carnaticus* are seen in groups along the banks of rivers and reservoirs, while the mature carps are rarely seen along the banks (Biju 2005).”

“*B. carnaticus* is threatened by a wide range of factors including decline in habitat quality due to destructive fishing practices such as poisoning and dynamiting, altered river flow due to construction of dams, competition with exotic and transplanted carps and pollution from point sources.”

Human Uses

From Froese and Pauly (2014):

“Fisheries: commercial; aquaculture: commercial”

From Ali and Raghavan (2013):

“*B. carnaticus* is a much preferred food fish and are caught from wherever they occur. They form minor fisheries in several reservoirs located in the Cauvery drainage.”

Diseases

No records of OIE-reportable diseases were found for *Barbodes carnaticus*.

Poelen et al. (2014) lists *Caballeroia bhavani*, *Falcaustra nilgiriensis*, *F. kaverii*, and *F. brevispiculata* as parasites of *B. carnaticus*.

Threat to Humans

From Froese and Pauly (2014):

“Harmless”

3 Impacts of Introductions

No records of *Barbodes carnaticus* introductions were found, therefore there is no information on impacts of introductions.

4 Global Distribution



Figure 1. Known global distribution of *Barbodes carnaticus*. Locations are in India. Map from GBIF Secretariat (2016).

The northern point is outside any other description of the range of *Barbodes carnaticus* and was not used as a source point for the climate match.

5 Distribution Within the United States

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

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Barbodes carnaticus* 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 match.

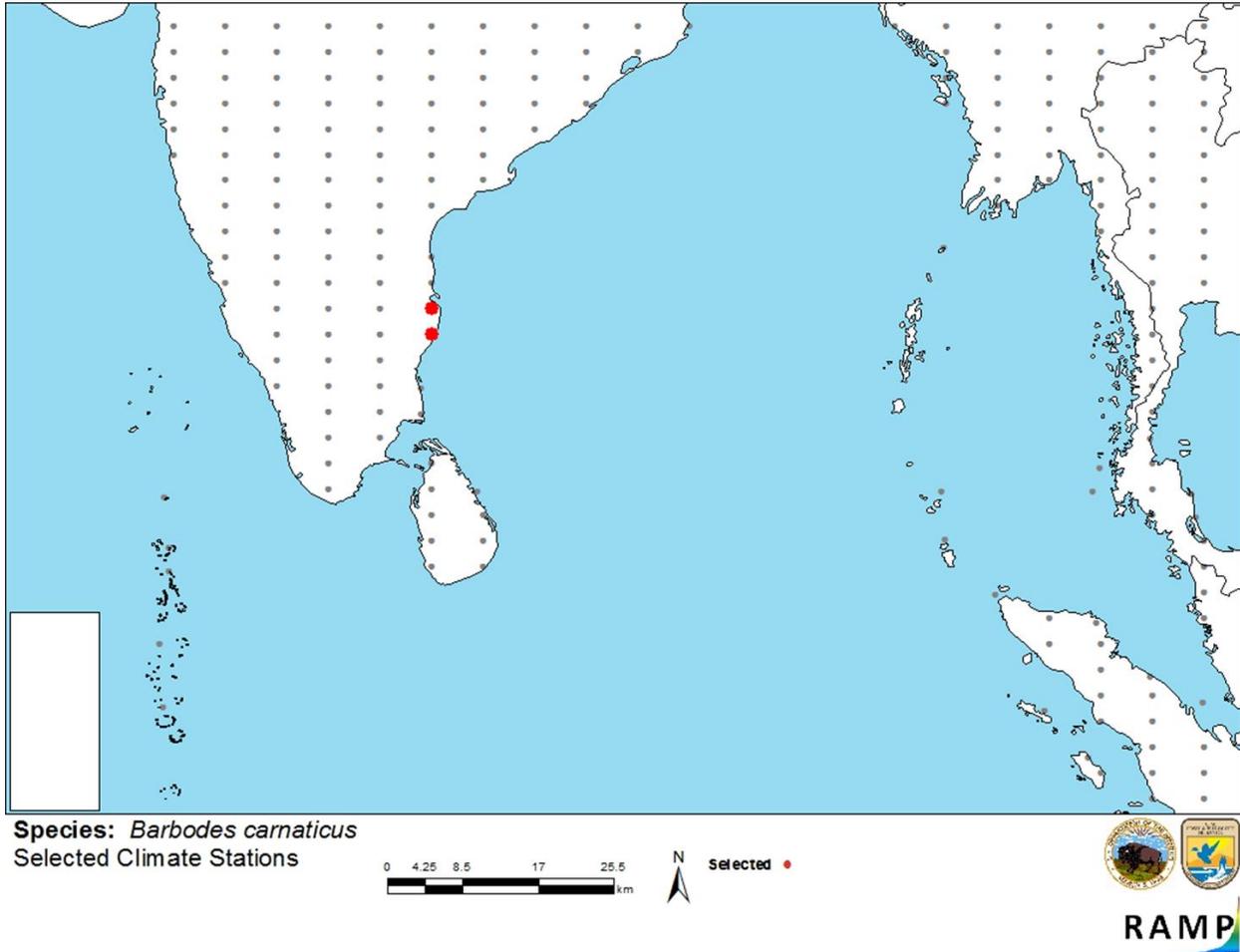


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations in India selected as source locations (red) and non-source locations (gray) for *Barbodes carnaticus* climate matching. Source locations from GBIF Secretariat (2016).

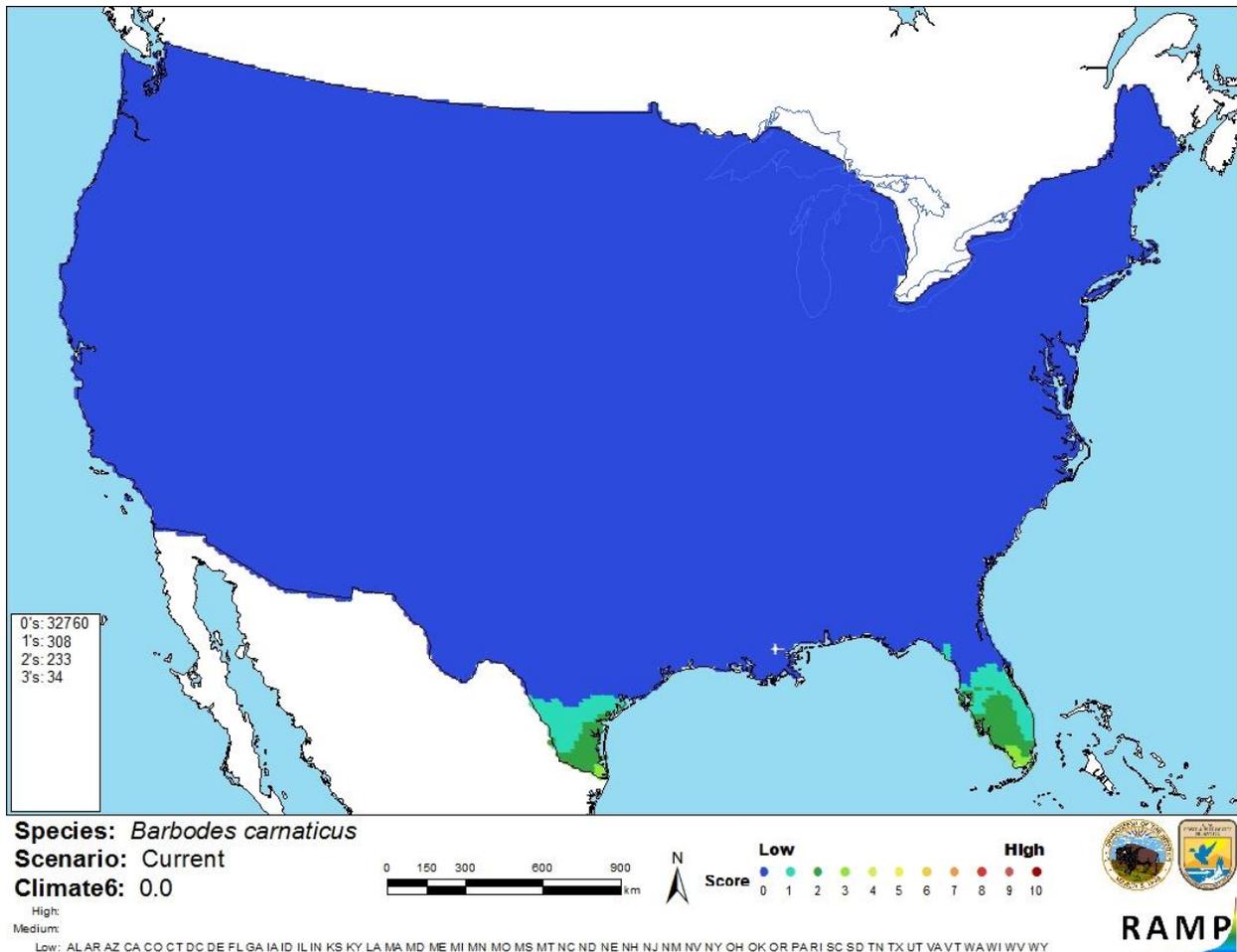


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Barbodes carnaticus* in the contiguous United States based on source locations reported by GBIF Secretariat (2016). 0 = Lowest match, 10 = Highest match. Counts of climate match scores are tabulated on the left.

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 assessment is medium. There was adequate, quality biological and ecological information available for *Barbodes carnaticus*. No records of introductions were found. The georeferenced distribution used for the climate match was very limited based on the text based descriptions of the species' range.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Carnatic Carp (*Barbodes carnaticus*) is a species of carp native to river drainages in India. It is used as a food fish and is a small commercial fishery in some areas. The history of invasiveness is uncertain. There were no records of introductions found. The climate match is low; the climate 6 score was 0.000. The certainty of assessment is medium. The information used in the climate match was incomplete. The overall risk assessment is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): Low**
- **Certainty of Assessment (Sec. 7): Medium**
- **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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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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