

Bombay Labeo (*Labeo porcellus*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, January 2012

Revised, June 2018

Web Version, 6/29/2018

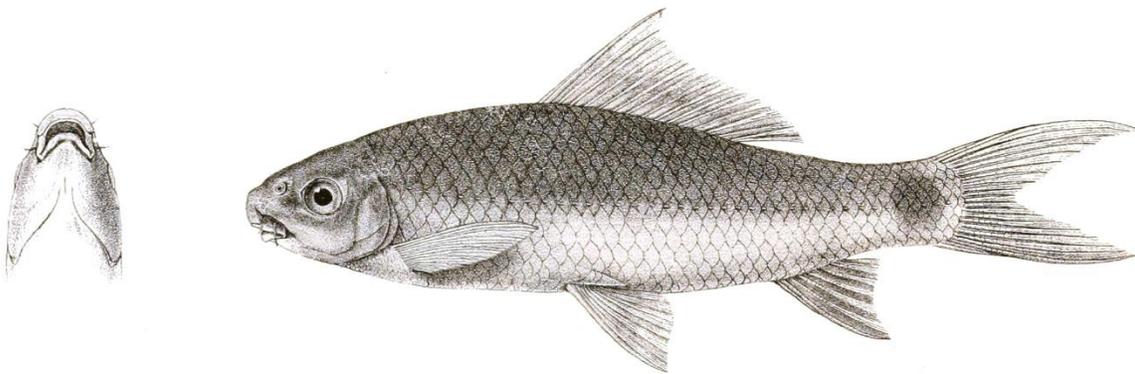


Image: C. L. Griesbach, from *The Fishes of India*, volume 2, by F. Day. Public domain. Available: <https://commons.wikimedia.org/w/index.php?curid=48243369>. (June 2018).

1 Native Range and Status in the United States

Native Range

From Dahanukar (2011):

“*Labeo porcellus* is known only from the Krishna and Godavari river systems of Western Ghats [India] (Menon 1999, 2004, Jayaram and Dhas 2000). Presence of this fish in Sri Lanka is due to synonymy of *Labeo porcellus lankae* with *Labeo porcellus*. Since this synonymy is doubtful (Menon 1999) the presence of this species in Sri Lanka is also doubtful.”

“In India the species is known from Western Ghats of Maharashtra (Hora and Misra 1937, Kalawar and Kelkar 1956, Jayaram and Dhas 2000, Ponniah and Gopalakrishnan 2000, Kharat *et al.* 2003, Wagh and Ghate 2003) and Karnataka (David 1956, Jayaram and Dhas 2000, Shahnawaz *et al.* 2010, Jadhav *et al.* 2011). It is mainly confined to east flowing rivers but Bhat (2004) recorded it from a west flowing river in Karnataka, however, exact locality is not mentioned.”

“Occurrence of this species in Badoda (now Vadodara) in Gujrat (Ranade 1953) and central India (Sarkar and Lakra 2007) is doubtful.”

Status in the United States

This species has not been reported as introduced or established in the United States. There is no indication that this species is in trade in the United States.

Means of Introduction into the United States

This species has not been reported as introduced or established in the United States.

Remarks

From Dahanukar (2011):

“*Labeo porcellus* was originally described as *Tylognathus porcellus* by Heckel (1844) from Bombay presidency (this should not be treated as Bombay, now Mumbai, since at that time even Pune and Nashik were also in Bombay presidency). Beavan (1877) changed the generic status of the fish to *Labeo*.”

“Synonym of *Labeo porcellus lankae* with *Labeo porcellus* needs to be confirmed (Menon 1999).”

From Froese and Pauly (2018):

“[...] the population in Sri Lanka, [for] which Pethiyagoda considers the valid name as *Labeo lankae*.”

Because the synonymy of *L. porcellus lankae* with *L. porcellus* is uncertain, the information in this ERSS focuses on *L. porcellus* in peninsular India, rather than *L. porcellus* or *L. porcellus lankae* in Sri Lanka.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2018):

“Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii
Class Teleostei
Superorder Ostariophysii

Order Cypriniformes
Superfamily Cyprinoidea
Family Cyprinidae
Genus *Labeo*
Species *Labeo porcellus* (Heckel, 1844)”

“Current Standing: valid”

Size, Weight, and Age Range

From Froese and Pauly (2018):

“Max length : 35.0 cm TL male/unsexed; [Pethiyagoda 1991]; common length : 20.0 cm TL male/unsexed; [Pethiyagoda 1991]”

Environment

From Froese and Pauly (2018):

“Freshwater; benthopelagic.”

From Dahanukar (2011):

“*Labeo porcellus* is found in rivers and large streams of moderate current [...]

From Fraser (1938):

“It favours sections of the rivers where there are fairly strong currents and the bed is rock or pebbled or part silted.”

Climate/Range

From Froese and Pauly (2018):

“Tropical”

Distribution Outside the United States

Native

From Dahanukar (2011):

“*Labeo porcellus* is known only from the Krishna and Godavari river systems of Western Ghats [India] (Menon 1999, 2004, Jayaram and Dhas 2000). Presence of this fish in Sri Lanka is due to synonymy of *Labeo porcellus lankae* with *Labeo porcellus*. Since this synonymy is doubtful (Menon 1999) the presence of this species in Sri Lanka is also doubtful.”

“In India the species is known from Western Ghats of Maharashtra (Hora and Misra 1937, Kalawar and Kelkar 1956, Jayaram and Dhas 2000, Ponniah and Gopalakrishnan 2000, Kharat *et al.* 2003, Wagh and Ghate 2003) and Karnataka (David 1956, Jayaram and Dhas 2000,

Shahnawaz *et al.* 2010, Jadhav *et al.* 2011). It is mainly confined to east flowing rivers but Bhat (2004) recorded it from a west flowing river in Karnataka, however, exact locality is not mentioned.”

“Occurrence of this species in Badoda (now Vadodara) in Gujrat (Ranade 1953) and central India (Sarkar and Lakra 2007) is doubtful.”

Introduced

No introductions of this species have been reported.

Means of Introduction Outside the United States

No introductions of this species have been reported.

Short Description

From Day (1878-1888):

“Length of head 6, of caudal $4\frac{1}{2}$, height of body $4\frac{1}{2}$ in the total length. *Eyes*—diameter 5 in the length of head, 2 diameters from the end of snout and also apart. Interorbital space rather convex. Dorsal profile rather more convex than that of the abdomen. The greatest width of the head equals its length excluding the snout. Width of the mouth equals $\frac{2}{5}$ of the length of the head. Snout rather projecting. Lips thick, with a distinct inner fold to both jaws, which have each a thin cartilaginous internal covering. Gill-rakers small and rather closely set. *Barbels*—four, the maxillary rather longer than the rostral pair. *Fins*—dorsal not quite so high as the body, it commences somewhat in advance of the ventral, and midway between the snout and the posterior end of the base of the anal fin, its upper edge is rather concave. Pectoral as long as the head: [*sic*] ventral rather shorter. Caudal forked. *Lateral-line*—5 rows of scales between it and the base of the ventral fin. *Colours*—grayish superiorly, becoming dull white on the sides and beneath; most of the scales darkest at their edges. A dark spot, usually present, at the base of the caudal fin. A bluish spot behind the centre of the opercle, and which may be continued on to the shoulder. Fins grayish, darkest along their centres.”

Biology

From Froese and Pauly (2018):

“Inhabits large streams and rivers in the upper reaches [Menon 1999]. Found in reservoirs and still waters [Pethiyagoda 1994].”

From Dahanukar (2011):

“Exact population status of *Labeo porcellus* is not known, but the species is relatively rare (Shahnawaz and Venkateshwarlu 2009, Jadhav *et al.* 2011). Discussions with the fisherman [*sic*] from Pune and Satara suggests [*sic*] that the population of this species is declining (Dahanukar, unpublished). Menon (2004) has suspected that the decline of the population could be attributed to introduction of Gangetic carps in the [*sic*] peninsular India.”

From Rama Rao (2014):

“Feeds on diatoms, algae, aquatic plants, insects and detritus”

Human Uses

From Dahanukar (2011):

“*Labeo porcellus* has minor fishery value (Talwar and Jhingran 1991) and is often caught and sold in the local markets. Heavy harvesting of the fish could be a threat to this species as heavy harvesting is common in some of the areas where the fish is found (Kharat *et al.* 2003).”

Diseases

No information is available for *L. porcellus* in India, and no OIE-reportable diseases have been documented among *L. porcellus* there.

Costa and Wijeyaratne (1989) list Sri Lankan *L. porcellus* as a species susceptible to ulcerative epizootic syndrome. **Ulcerative epizootic syndrome is an OIE-reportable disease.**

Threat to Humans

From Froese and Pauly (2018):

“Harmless”

3 Impacts of Introductions

No information available. No introductions of this species have been reported.

4 Global Distribution



Figure 1. Known global distribution of *Labeo porcellus*, reported from India and Sri Lanka. Map from GBIF Secretariat (2017). The taxonomic status of the population in Sri Lanka is questionable (see Remarks, above), so this population was excluded from the climate matching analysis.

5 Distribution within the United States

This species has not been reported in the United States.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2018; 16 climate variables; Euclidean Distance) was low for the majority of the United States. The climate match was medium in southern Arizona and southern Texas. Climate 6 score indicated that the contiguous United States has a low climate match overall. The range of scores indicating a low climate match is 0.005 and below; Climate 6 score for *L. porcellus* is 0.000.

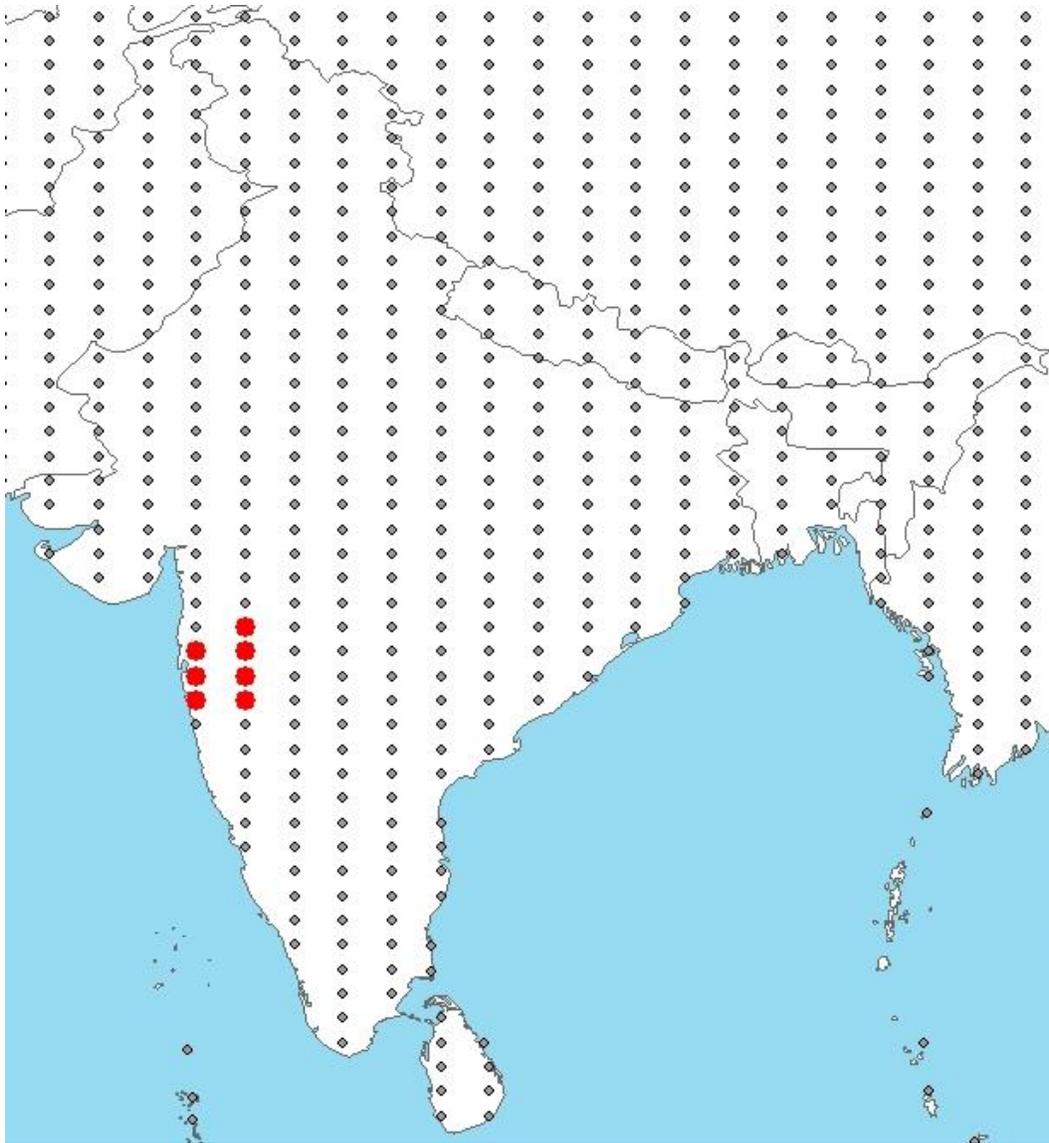


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in India selected as source locations (red) and non-source locations (gray) for *L. porcellus* climate matching. Source locations from GBIF Secretariat (2017).

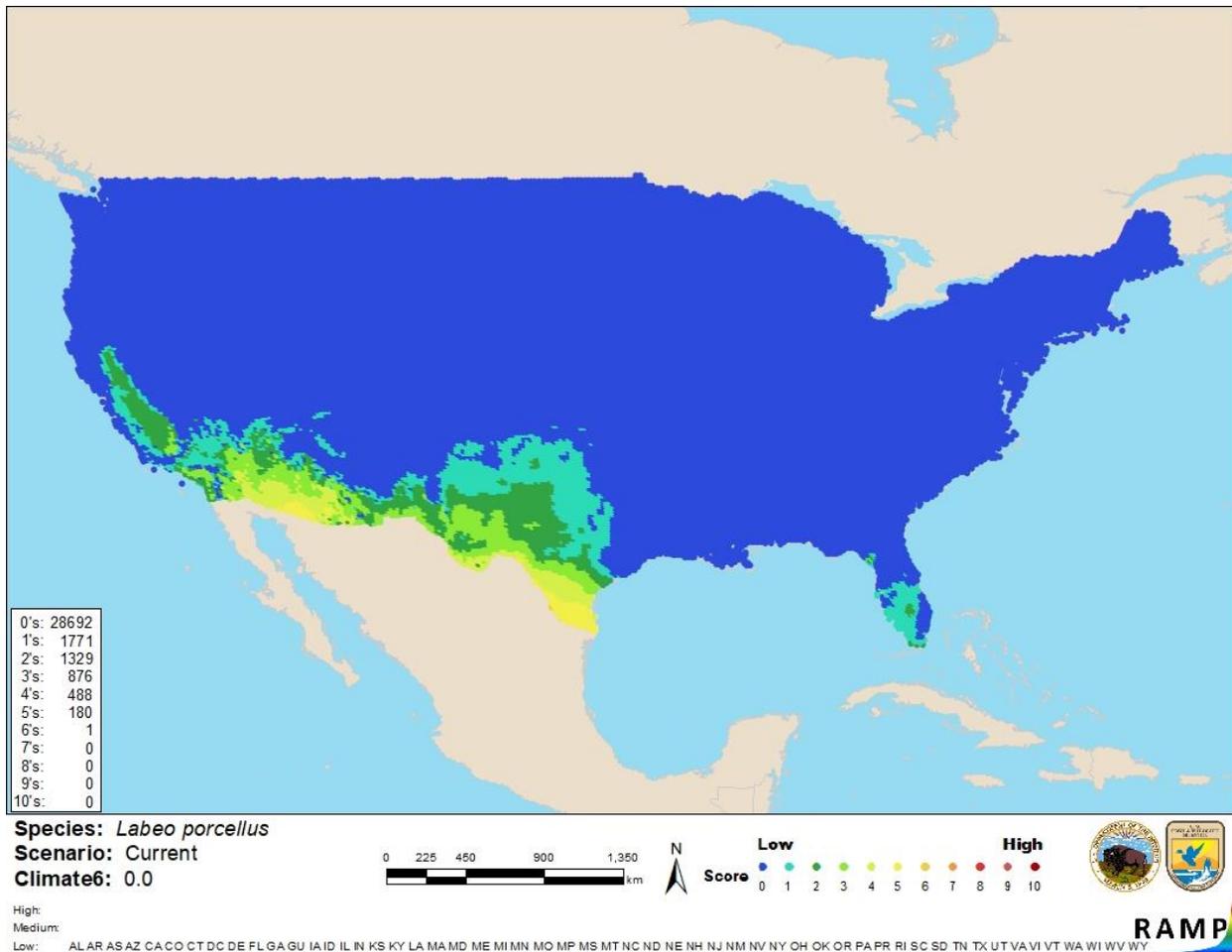


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *L. porcellus* in the contiguous United States based on source locations reported by GBIF Secretariat (2017). 0=Lowest match, 10=Highest match.

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

Information is available on the biology and ecology of *Labeo porcellus*; more limited information is available on the species distribution. No impacts of introduction are known because no introductions have been reported. Additionally, there is uncertainty over whether populations in Sri Lanka belong to the same species as populations in India, described in this ERSS. Certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Bombay labeo (*Labeo porcellus*) is a rare carp of western peninsular India. It has been synonymized with *L. porcellus lankae* in Sri Lanka, but this synonymy is doubtful. Therefore, this ERSS focuses on *L. porcellus* in peninsular India. *L. porcellus* has minor commercial importance and is sold locally for food. It has not been reported as introduced or established outside its native range. Climate match to the contiguous United States was low overall, with areas of medium match in southern Texas and southern Arizona. Overall risk posed by *L. porcellus* to the contiguous United States is uncertain.

Assessment Elements

- **History of Invasiveness: Uncertain**
- **Climate Match: Low**
- **Certainty of Assessment: Low**
- **Remarks/Important additional information: Sri Lankan population (for which the taxonomy is uncertain) is susceptible to ulcerative epizootic syndrome, an OIE-reportable disease.**
- **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

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