

***Labeo pangusia* (a carp, no common name)**

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, May 2012

Revised, May 2018

Web Version, 6/15/2018

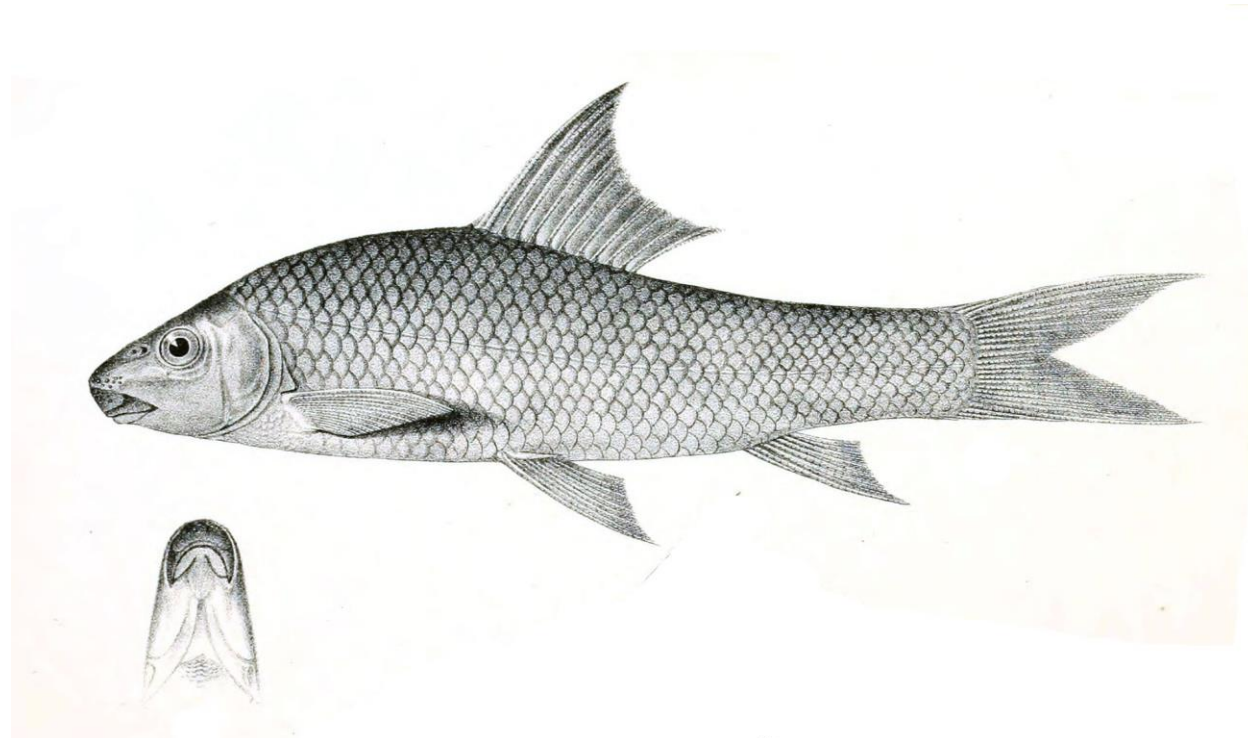


Image: Francis Day, from *The fishes of India*, volume 2. Public domain. Available: <https://commons.wikimedia.org/w/index.php?curid=50936653>. (May 2018).

1 Native Range and Status in the United States

Native Range

From Dahanukar (2010):

“It is widely distributed in India (Ganga and the Brahmaputra drainage systems of the Himalaya, Uttar Pradesh, Bihar, West Bengal, Assam, Vindhya-Satpura ranges, Deccan plateau: Godavari and Krishna River systems), Pakistan, Buthan [sic], Nepal and Bangladesh (Talwar and Jhingran 1991, Menon 1999).”

From Froese and Pauly (2018):

“Asia: Pakistan, India, Nepal and Bangladesh [Menon 1999]. Recorded from Afghanistan [Petr 1999a], Bhutan [Petr 1999b] and Myanmar [Oo 2002].”

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 (2010):

“There are no taxonomic discrepancies associated with this species.”

“Even though the species is wide spread, populations are declining due to indiscriminate killing by damming the streams and using explosives and polluting streams in the upper reaches (Menon 2004). This species does not qualify for any threatened category [on the IUCN Red List], nevertheless due to decline in populations and habitat degradation this species is assessed as Near Threatened as it is close to meet [sic] Vulnerable category.”

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 Ostariophysi
Order Cypriniformes
Superfamily Cyprinoidea
Family Cyprinidae
Genus *Labeo*
Species *Labeo pangusia* (Hamilton, 1822)”

“Current Standing: valid”

Size, Weight, and Age Range

From Froese and Pauly (2018):

“Max length : 90.0 cm TL male/unsexed; [Menon 1999]”

Environment

From Froese and Pauly (2018):

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

From Biswas and Boruah (2000):

“[...] downstream of the river where it is deeper with a sandy bed and the current is weak (<0.6 m/s), the dominant ichthyospecies are *Labeo dero*, *L. pangusia*, *Neolissocheilus hexagonolepis*, and *Tor* spp. All of them [...] are typical cold water species of the highlands of northeastern India.”

Climate/Range

From Froese and Pauly (2018):

“Tropical”

From Biswas and Boruah (2000):

“[...] typical cold water species of the highlands [...]”

Distribution Outside the United States

Native

From Dahanukar (2010):

“It is widely distributed in India (Ganga and the Brahmaputra drainage systems of the Himalaya, Uttar Pradesh, Bihar, West Bengal, Assam, Vindhya-Satpura ranges, Deccan plateau: Godavari and Krishna River systems), Pakistan, Buthan [sic], Nepal and Bangladesh (Talwar and Jhingran 1991, Menon 1999).”

From Froese and Pauly (2018):

“Asia: Pakistan, India, Nepal and Bangladesh [Menon 1999]. Recorded from Afghanistan [Petr 1999a], Bhutan [Petr 1999b] and Myanmar [Oo 2002].”

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 Fahad (2011):

“Body elongate and dorsal profile more convex than that of ventral. Overhanging small mouth with distinct lateral lobes. Eyes small, lips thick and not fringed. One short maxillary barbells [*sic*], concealed in labial fold. Dorsal fin inserted to snout tip, pectoral fins do not extend up to pelvic fins and fin deeply forked. Lateral line complete with 40 to 43 moderate scales (Rahman, 1989 and 2005).”

“Fish body color varies with water color. In river fish: brownish above, yellowish and white at sides and below. But in hill stream fish: dark or blackish above and light yellowish below.”

Biology

From Froese and Pauly (2018):

“Lives in rivers, lakes and ponds [Talwar and Jhingran 1991]; in active currents of large streams and upper reaches of rivers [Menon 1999]. Feeds mostly on algae and diatoms [Arunachalam et al. 2000].”

From Dahanukar (2010):

“Menon (2004) has reported that even though this species is widely distributed, populations are steadily declining. However, it is not possible to determine exact population decline without further research.”

Human Uses

From Froese and Pauly (2018):

“Fisheries: commercial”

From Dahanukar (2010):

“It is an excellent food fish, which attains a length of 60cm, has minor fishery value (Talwar and Jhingran 1991).”

From Biswas and Boruah (2000):

“Fishing is done mainly by cast net during post-monsoon and winter months (October to February).”

From Singh (2016):

“[...] captive maturation and breeding technology for *Labeo pangusia* has also been developed.”

Diseases

Chaudhary et al. (2013) report *L. pangusia* as the host of the monogenean parasite *Diplozoon cauveri*.

No OIE-reportable diseases have been documented for *L. pangusia*.

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 *L. pangusia*. Map from GBIF Secretariat (2017). No georeferenced occurrences were available from GBIF Secretariat (2017) for parts of the range of *L. pangusia*, including Afghanistan, Pakistan, Bangladesh, Bhutan, and Myanmar.

5 Distribution within the United States

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

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) was low for most of the United States. The climate match was medium in southwestern Florida and southern Texas, and high in the Southwest, particularly Arizona. Climate 6 score indicated that the contiguous United States has a medium climate match overall. Scores between 0.005 and 0.103 are classified as medium match; Climate 6 score for *L. pangusia* was 0.008.

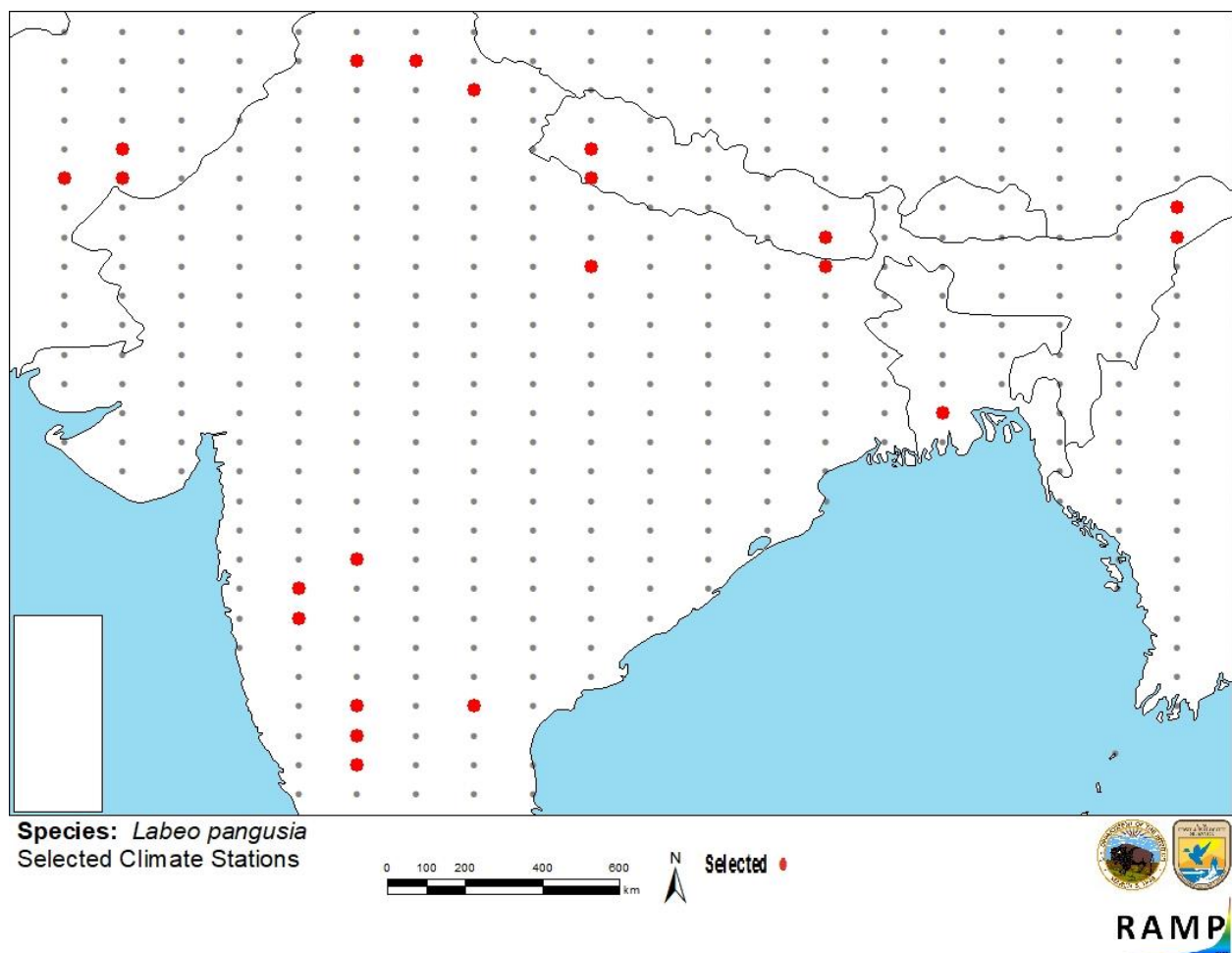


Figure 2. RAMP (Sanders et al. 2014) source map of southern Asia showing weather stations selected as source locations (red; Pakistan, India, Nepal, Bangladesh) and non-source locations (gray) for *L. pangusia* climate matching. Source locations from Froese and Pauly (2018) and GBIF Secretariat (2017). Additional source locations from Sarkar et al. (2007; Uttar Pradesh, India), Hanif et al. (2015; Bangladesh), and Robinson et al. (2016; Pakistan).

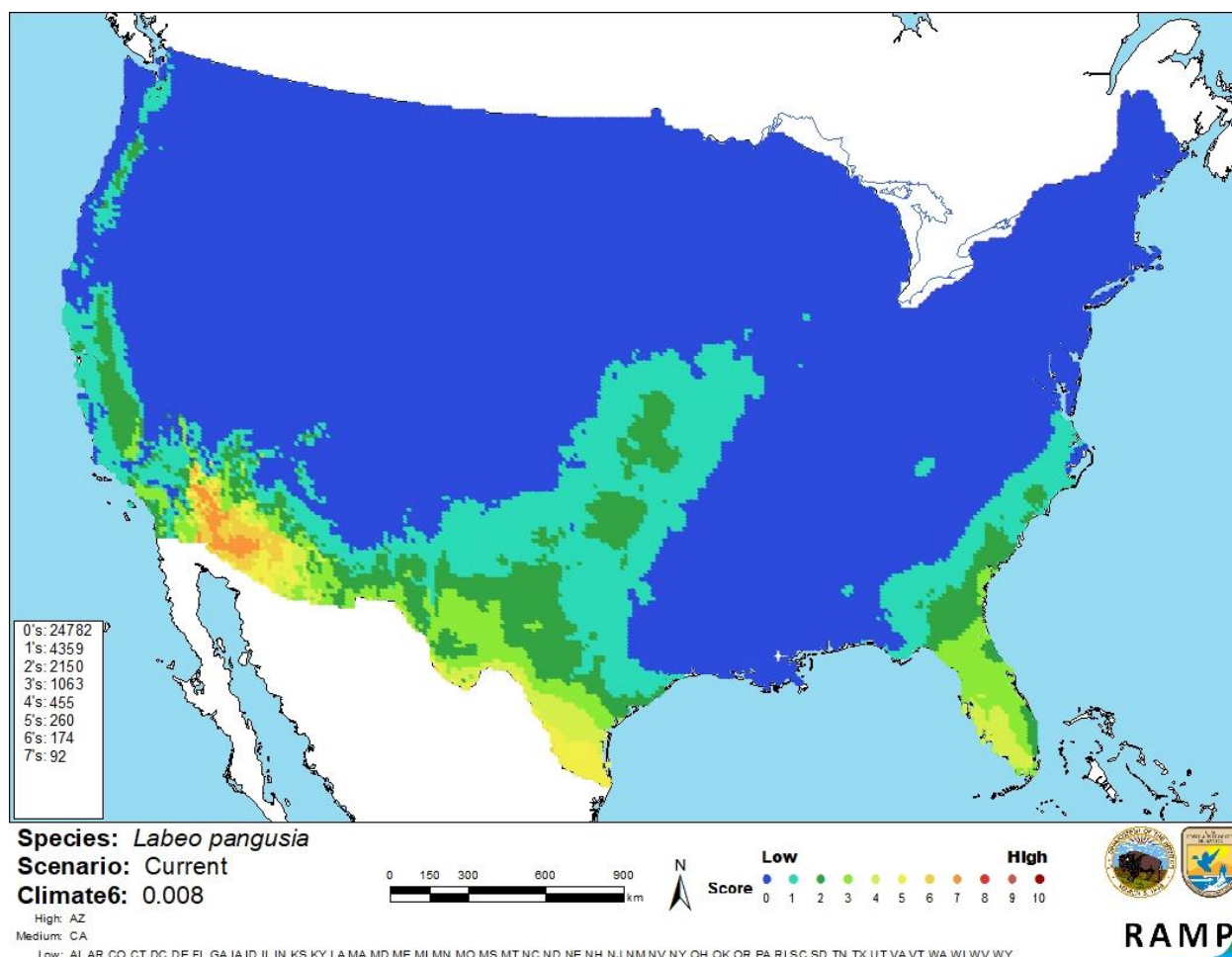


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *L. pangusia* in the contiguous United States based on source locations reported by Froese and Pauly (2018), GBIF Secretariat (2017), Sarkar et al. (2007), Hanif et al. (2015), and Robinson et al. (2016). 0=Lowest match, 10=Highest match. 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
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

7 Certainty of Assessment

Limited information is available on the biology, ecology, and distribution of *L. pangusia*. Not all of the described native range of *L. pangusia* was able to be included in the climate matching source locations due to a lack of georeferenced occurrences. No introductions of this species have been reported, so impacts of introduction are unknown. Certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Labeo pangusia is a cyprinid fish native to southern Asia from Afghanistan to Myanmar, and is particularly widely distributed in India. There are no reports of introduction or establishment in the United States or elsewhere outside the native range. Within the native range, the species has value for commercial fishing and aquaculture technology has been developed. The Climate 6 score indicated a medium climate match overall for the contiguous United States. The climate match for the majority of the contiguous United States was low, but it was high in Arizona and medium in limited other parts of the southern United States. Given the lack of introduction history, certainty of assessment is low and overall risk posed by *L. pangusia* to the contiguous United States is uncertain.

Assessment Elements

- **History of Invasiveness: Uncertain**
- **Climate Match: Medium**
- **Certainty of Assessment: Low**
- **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.

- Biswas, S. P., and S. Boruah. 2000. Fisheries ecology of the northeastern Himalayas with special reference to the Brahmaputra River. *Ecological Engineering* 16:39-50.
- Chaudhary, A., C. Verma, Shobhna, M. Varma, and H. S. Singh. 2013. A review of monogenean diversity in India: pathogens of fish diseases. *Journal of Coastal Life Medicine* 1(2):151-168.
- Dahanukar, N. 2010. *Labeo pangusia*. The IUCN Red List of Threatened Species 2010: e.T166497A6221734. Available: <http://dx.doi.org/10.2305/IUCN.UK.2010-4.RLTS.T166497A6221734.en>. (May 2018).
- Fahad, M. F. H. 2011. *Pangusia labeo*, *Labeo pangusia* (Hamilton, 1822). BdFISH. Available: <http://en.bdfish.org/2011/06/pangusia-labeo-labeo-pangusia-hamilton-1822/>. (May 2018).
- Froese, R., and D. Pauly, editors. 2018. *Labeo pangusia* (Hamilton, 1822). FishBase. Available: <https://www.fishbase.de/summary/Labeo-pangusia.html>. (May 2018).
- GBIF Secretariat. 2017. GBIF backbone taxonomy: *Labeo pangusia* (Hamilton, 1822). Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/5206129>. (May 2018).

- Hanif, M. A., M. A. B. Siddik, M. R. Chaklader, S. Mahmud, A. Nahar, M. S. Hoque, and S. Munilkumar. 2015. Biodiversity and conservation of threatened freshwater fishes in Sandha River, South West Bangladesh. *World Applied Sciences Journal* 33(9):1497-1510.
- ITIS (Integrated Taxonomic Information System). 2018. *Labeo pangusia* (Hamilton, 1822). Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=689322#null. (May 2018).
- Robinson, T., U. Ali, A. Mahmood, M. J. I. Chaudhry, J. Li, G. Zhang, K. C. Jones, and R. N. Malik. 2016. Concentrations and patterns of organochlorines (OCs) in various fish species from the Indus River, Pakistan: a human health risk assessment. *Science of the Total Environment* 541:1232-1242.
- Sanders, S., C. Castiglione, and M. Hoff. 2014. Risk Assessment Mapping Program: RAMP. U.S. Fish and Wildlife Service.
- Sarkar, U. K., D. Kapoor, S. K. Paul, A. K. Pathak, V. S. Basheer, P. K. Deepak, S. M. Srivastava, and L. K. Tyagi. 2007. Fish biodiversity in the water bodies of Samaspur Bird Sanctuary, Uttar Pradesh: towards developing a freshwater aquatic Sanctuary. *Journal of the Bombay Natural History Society* 104(1):51-54.
- Singh, A. K. 2016. Fish diversity of Himalayan Region, India for sustainable development. Pages 1140-1144 in Uttar Pradesh State Biodiversity Board. Mainstreaming biodiversity: sustaining people and their livelihoods. Uttar Pradesh State Biodiversity Board, Lucknow, India.

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.

- Arunachalam, M., J. A. Johnson, A. Sankaranarayanan, R. Soranam, A. Manimekalan, and P. N. Shanthi. 2000. Cultivable and ornamental fishes of Manimuthar river, Tamil Nadu. Pages 247-253 in A. G. Ponniah, and A. Gopalakrishnan, editors. Endemic fish diversity of Western Ghats. NBFGR-NATP Publication. National Bureau of Fish Genetic Resources, Lucknow, Uttar Pradesh, India.
- Menon, A. G. K. 1999. Check list - fresh water fishes of India. Records of the Zoological Survey of India, Miscellaneous Publications, Occasional Paper 175:366.
- Menon, A. G. K. 2004. Threatened fishes of India and their conservation. Zoological Survey of India.

- Oo, W. 2002. Inland fisheries of the Union of Myanmar. *In* T. Petr, and D. B. Swar, editors. Cold water fisheries in the Trans-Himalayan countries. FAO Fisheries Technical Paper 431.
- Petr, T. 1999a. Coldwater fish and fisheries in Afghanistan. Pages 138-148 *in* T. Petr, editor. Fish and fisheries at higher altitudes: Asia. FAO Fisheries Technical Paper no. 385. FAO, Rome.
- Petr, T. 1999b. Coldwater fish and fisheries in Bhutan. Pages 6-12 *in* T. Petr, editor. Fish and fisheries at higher altitudes: Asia. FAO Fisheries Technical Paper 385. FAO, Rome.
- Rahman, A. K. A. 1989. Freshwater fishes of Bangladesh, 1st edition. Zoological Society of Bangladesh, Department of Zoology, University of Dhaka, Dhaka, Bangladesh.
- Rahman, A. K. A. 2005. Freshwater fishes of Bangladesh, 2nd edition. Zoological Society of Bangladesh, Department of Zoology, University of Dhaka, Dhaka, Bangladesh.
- Riede, K. 2004. Global register of migratory species - from global to regional scales. Final report of the R&D-Projekt 808 05 081. Federal Agency for Nature Conservation, Bonn, Germany.
- Talwar, P. K., and A. G. Jhingran. 1991. Inland fishes of India and adjacent countries, volume 1. A. A. Balkema, Rotterdam, The Netherlands.