

Kuria Labeo (*Labeo gonius*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, March 2012
Revised, May 2018, June 2018
Web Version, 7/12/2018



Photo: H. B. Osmany. Licensed under Creative Commons Attribution 3.0 Unported. Available: https://commons.wikimedia.org/wiki/File:Labeo_gonius.jpg. (May 2018).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2018):

“Asia: Pakistan, India, Bangladesh and Myanmar [Talwar and Jhingran 1991]. Recorded from Afghanistan [Petr 1999] and Nepal [Shrestha 1994].”

From Mohanta et al. (2008):

“A medium carp, popularly called ‘kuria labeo; or “gonius”, it is distributed in Bengal, Orissa, Assam, Uttar Pradesh, Bihar, Rajsthan, Madhya Pradesh and Punjab [India] in the major freshwater rivers, reservoirs, lakes, jheels and tanks.”

Status in the United States

Labeo gonius has not been reported in the United States.
No information on trade of *L. gonius* in the United States was found.

Means of Introductions in the United States

Labeo gonius has not been reported in the United States.

Remarks

No additional remarks.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Eschmeyer et al. (2018), *Labeo gonius* (Hamilton 1822) is the current valid name of this species. *Labeo gonius* was originally described as *Cyprinus gonius* (Hamilton 1822).

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* Cuvier, 1816
Species *Labeo gonius* (Hamilton, 1822)”

Size, Weight, and Age Range

From Mohanta et al. (2008):

“It is the slowest growing among the potentially cultivable carps. The average size at maturity is around 300-500 g. The maximum reported size of *L. gonius* reported is 150 cm (Day, 1878), however around 50 cm is more typical of commercial catches. In one year it can reach 40 cm and 750 g.”

From Froese and Pauly (2018):

“Max length : 150 cm TL male/unsexed; [Talwar and Jhingran 1991]; max. published weight: 1.4 kg [Rahman 1989].”

Environment

From Froese and Pauly (2018):

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

Climate/Range

From Froese and Pauly (2018):

“Tropical; 38°N - 8°S”

Distribution Outside the United States

Native

From Froese and Pauly (2018):

“Asia: Pakistan, India, Bangladesh and Myanmar [Talwar and Jhingran 1991]. Recorded from Afghanistan [Petr 1999] and Nepal [Shrestha 1994].”

From Mohanta et al. (2008):

“A medium carp, popularly called ‘kuria labeo; or “gonius”, it is distributed in Bengal, Orissa, Assam, Uttar Pradesh, Bihar, Rajsthan, Madhya Pradesh and Punjab [India] in the major freshwater rivers, reservoirs, lakes, jheels and tanks.”

Introduced

No records of *Labeo forskalii* introductions were found.

Means of Introduction Outside the United States

No records of *Labeo forskalii* introductions were found.

Short Description

From Kumar et al. (2014):

“*Labeo gonius* (Hamilton-Buchanan) which is also medium-sized [*sic*] cyprinid that found [*sic*] as an important food fish [Ricker 2003, Kar 2013]. They are locally called as [*sic*] Gonia have silvery white on sides, greenish black dorsally scales [*sic*] darkest at their margins. Red specks on scales forming faint longitudinally [*sic*] lines on body.”

Biology

From Mohanta et al. (2008):

“It is also a high fecund [*sic*] fish like *rohu*, ranging from 245,000 (800-900 g fish) to 540,000 (1.5- 1.6 kg fish). [*sic*] Eggs are demersal, non-adhesive, transparent and round. The diameter of a fully swollen egg ranges from 2.8 – 4.5 mm. The size on first maturity varies from 14–23 cm in males and 18–30 cm in females in different freshwater ecosystems. The males attain maturity earlier than [*sic*] females both in terms of age and size. In nature, the usual maturity age is three years; however pond reared fish can mature even in one year. Peak maturity is found in May-June. All ova are shed during single spawning act. It can be induced to breed with pituitary injection. *L. gonius* is a herbivorous bottom feeder [...].”

From Froese and Pauly (2018):

“Adults inhabit rivers. They spawn during the southwest monsoon. Do not normally breed in ponds. Artificial breeding done through hypophysation. Cultured in ponds along with other carp species.”

Human Uses

From Mohanta et al. (2008):

“Excepting for Assam, it is not considered as an important culture fishery in India. In Assam, as *mrigal* is not consumed due to some religious belief, *L. gonius* is cultured instead as a bottom feeding substitute in composite fish culture.”

From Froese and Pauly (2018):

“Fisheries: commercial; aquaculture: commercial”

Diseases

No records of OIE reportable diseases were found for *Labeo gonius*.

Poelen et al. (2018) lists *Acanthogyrus betwai*, *Acanthosentis antspinis*, *Dactylogyrus brevitubus*, *Dactylogyrus catlaius*, *Dactylogyrus labei*, *Dogielius catlaius*, *Cucullanus gonii*, and *Plagioporus gonii* as parasites of *Labeo gonius*.

Threat to Humans

From Froese and Pauly (2018):

“Harmless”

3 Impacts of Introductions

No records of *Labeo gonius* introductions were found.

4 Global Distribution

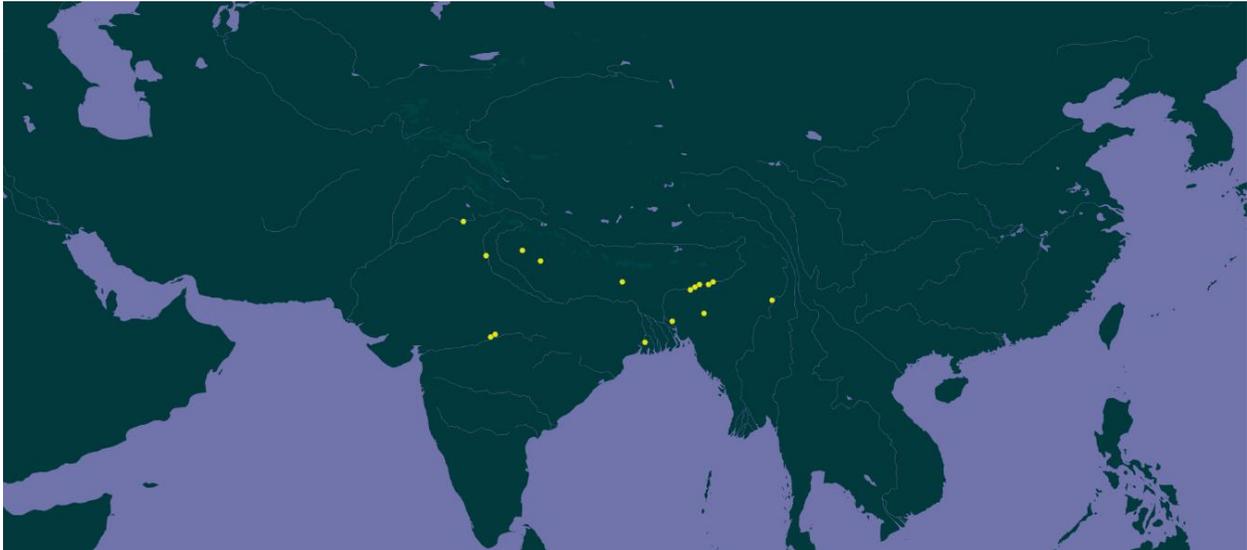


Figure 1. Known global distribution of *Labeo gonius*. Locations are in India, Nepal, Bangladesh, and Myanmar. Map from GBIF Secretariat (2018). *L. gonius* is reported from Pakistan and Afghanistan as well, but georeferenced locations are not available.

5 Distribution Within the United States

No records of *Labeo gonius* occurrences in the United States were found.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Labeo gonius* was low for the majority of the contiguous United States with pockets of medium match in southern Texas, southern Florida, and southern Arizona. The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous United States was 0.000, low and all states have individually low climate matches. The range for a low climate match is from 0.0 to 0.005, inclusive.

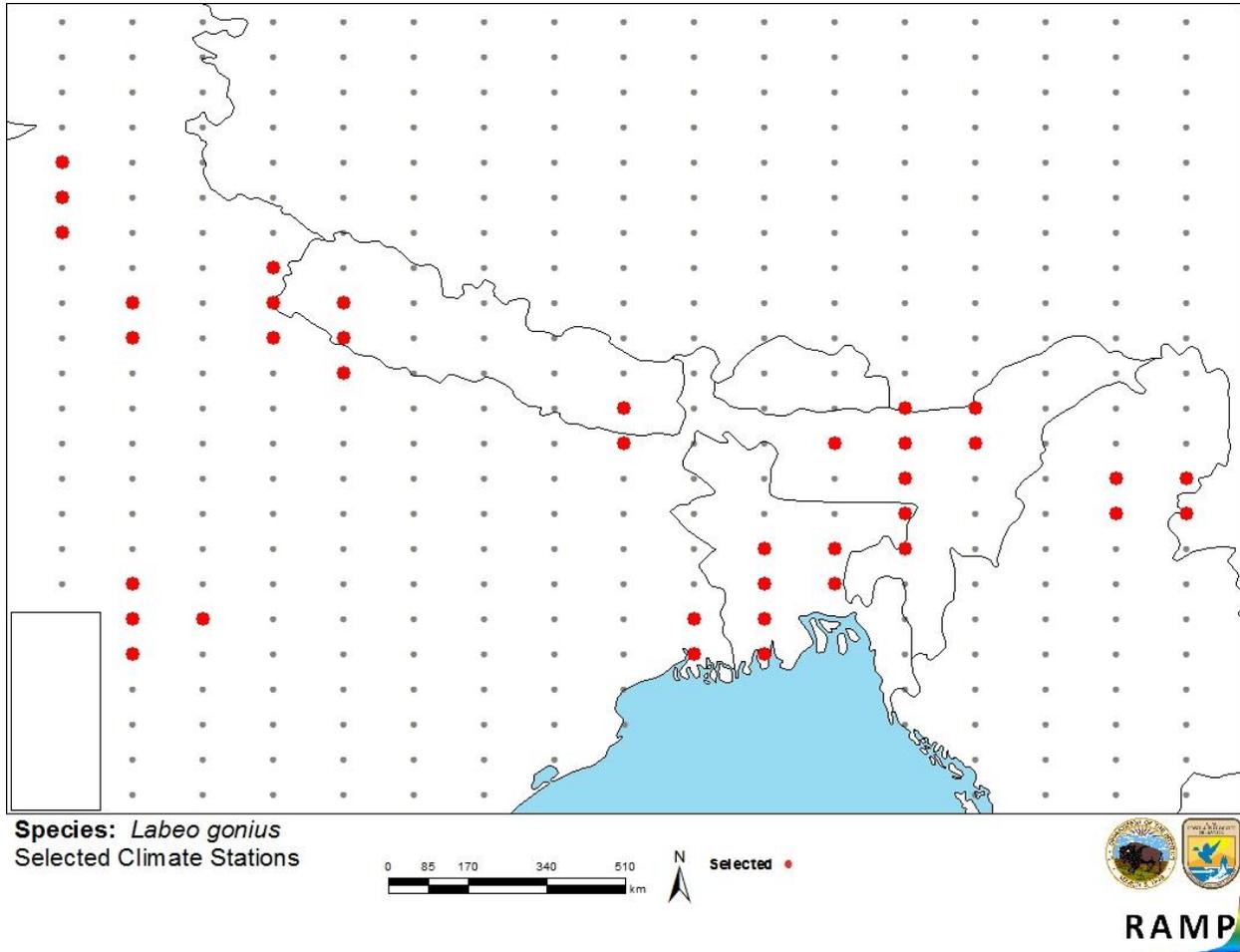


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations in central Asia selected as source locations (red; India, Nepal, Bangladesh, Myanmar) and non-source locations (gray) for *Labeo gonius* climate matching. Source locations from GBIF Secretariat (2018).

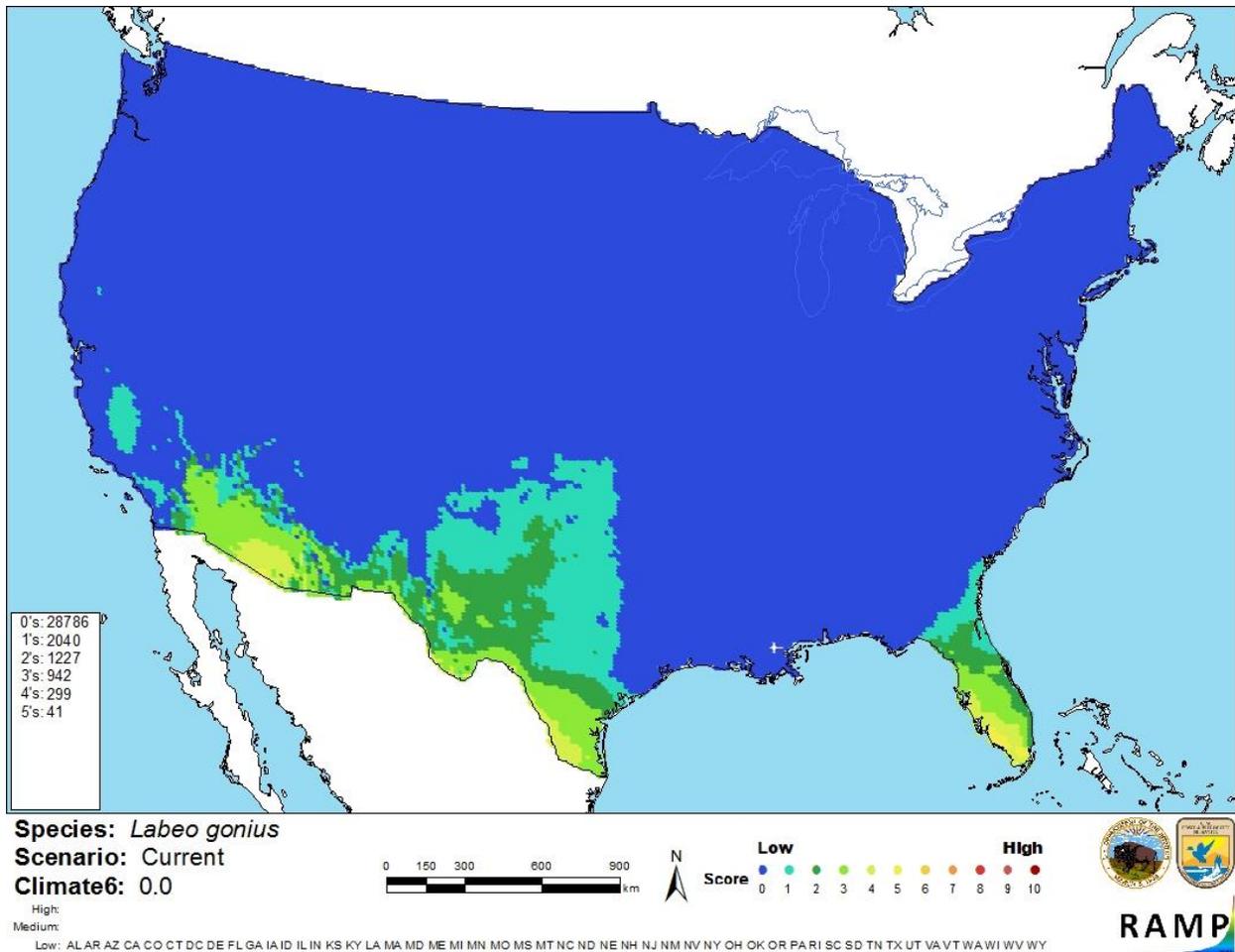


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Labeo gonius* in the contiguous United States based on source locations reported by GBIF Secretariat (2018). 0 = Lowest match, 10 = Highest match.

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
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

7 Certainty of Assessment

The certainty of this assessment is low. There is little information for *Labeo gonius* and a lack of peer-reviewed literature. No introductions of this species have been reported, so impacts of introduction are unknown.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Kuria Labeo (*Labeo gonius*) is a prolific fish species with a native distribution that ranges across the northern tier of five South Asian countries. Artificial breeding for human consumption occurs. *L. gonius* is host to several parasites. The history of invasiveness is uncertain, as it has not been reported as introduced or established outside of its native range. The climate match analysis resulted in a low match. The certainty of this assessment is low. The overall risk assessment category is uncertain.

Assessment Elements

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

Eschmeyer, W. N., R. Fricke, and R. van der Laan, editors. 2018. Catalog of fishes: genera, species, references. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (May 2018).

Froese, R., and D. Pauly, editors. 2018. *Labeo gonius* Hamilton, 1822. FishBase. Available: <https://www.fishbase.de/summary/Labeo-gonius.html>. (May 2018).

GBIF Secretariat. 2018. GBIF backbone taxonomy: *Labeo gonius* (Hamilton, 1822). Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/5206140>. (May 2018).

ITIS (Integrated Taxonomic Information System). 2018. *Labeo gonius* (Hamilton, 1822). Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=689296. (May 2018).

Kumar, D. B., N. R. Singh, D. Binku, and K. Devashish. 2014. Length-weight relationship of *Labeo rohita* and *Labeo gonius* (Hamilton-Buchanan) from Sone Beel, the biggest wetland of Assam, India. *Journal of Environmental Research and Development* 8:587–593.

- Mohanta, K. N., S. Subramanian, N. Komarpant, and S. Saurabh. 2008. Alternate carp species for diversification in freshwater aquaculture in India. *Aquaculture Asia Magazine* 11–15.
- Poelen, J. H., J. D. Simons, and C. J. Mungall. 2014. Global Biotic Interactions: an open infrastructure to share and analyze species-interaction datasets. *Ecological Informatics* 24:148–159.
- 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. 1994. *The fishes of India, volume 1*. Jagmander Book Agency, New Delhi.
- Hamilton, F. 1822. *An account of the fishes found in the river Ganges and its branches*. Edinburgh, Scotland, and London.
- Kar, D. 2013. *Wetlands and lakes of the world*. Springer, London.
- Petr, T. 1999. Coldwater fish and fisheries in Afghanistan. Pages 138–148 *in* T. Petr, editor. *Fish and fisheries at higher altitudes: Asia*. FAO, Fisheries Technical Paper 385, Rome.
- Rahman, A. K. A. 1989. *Freshwater fishes of Bangladesh*. Zoological Society of Bangladesh. Department of Zoology, University of Dhaka.
- Ricker W. E. 2003 Linear regression in fisheries research. *Journal of the Fisheries Research Board of Canada* 30:409–434.
- 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.
- Shrestha, J. 1994. *Fishes, fishing implements and methods of Nepal*. Smt. M.D. Gupta, Lalitpur Colony, Lashkar (Gwalior), India.
- Talwar, P. K., and A. G. Jhingran. 1991. *Inland fishes of India and adjacent countries*. A.A. Balkema, Rotterdam, Netherlands.