

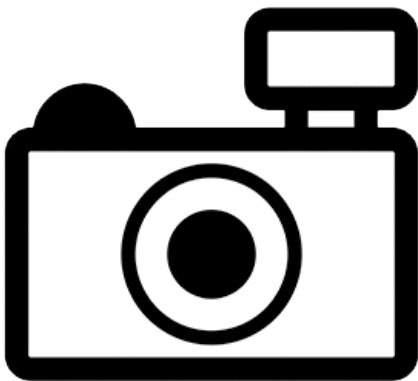
***Labeo rajasthanicus* (a carp, no common name)**

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, January 2012

Revised, June 2018

Web Version, 6/29/2018



No Photo Available

1 Native Range and Status in the United States

Native Range

From Lal et al. (2015):

“The species *L. rajasthanicus* is reported from the two isolated rivers, Tidi and Chambal and also from Jaisamand Lake [India]. The Jaisamand Lake and Tidi River are part of Mahi-Som River system flowing south-west into Arabian Sea, on the other hand Chambal River flows into river Yamuna, a tributary of Ganga River system flowing eastward into Bay of Bengal.”

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 Lal et al. (2015):

“The fish species, *Labeo rajasthanicus* was first described from Jaismund Lake in western Rajasthan region, India, based on a single specimen and has never been reported since its first description in 1970. The taxonomic status of the fish has not been stable due to the conflicting opinion among several authors either as a valid species or as a synonym of *L. boggut*. The present report redescribes the species *L. rajasthanicus* based on the specimen collected from its type and other adjoining localities, with confirmation of its taxonomic status as valid species and designation of a neotype as the holotype specimen is no longer available. [...] Genetic and morphological evidences support the distinction of *L. rajasthanicus* as a separate species from all related congeners [...]”

This ERSS is based on the recent confirmation of the species by Lal et al. (2015), including the expanded range described above.

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 rajasthanicus* Datta and Majumdar, 1970”

“Current Standing: valid”

Size, Weight, and Age Range

Lal et al. (2015) report a mean standard length of 185.22mm for *L. rajasthanicus* with standard deviation 70.31mm.

Environment

From Froese and Pauly (2018):

“Freshwater; benthopelagic.”

From Lal et al. (2015):

“Occurrence of *L. rajasthanicus* was recorded from rocky substrates with shelter and higher depth (5-20 m), having low water velocity [...].”

From Paliwal et al. (2016):

“From the results of the present study, it is evident that 30 °C is the optimal temperature for larval rearing, however temperatures in the range 26-33 °C are acceptable [for captive rearing].”

Climate/Range

From Froese and Pauly (2018):

“Tropical”

Distribution Outside the United States

Native

From Lal et al. (2015):

“The species *L. rajasthanicus* is reported from the two isolated rivers, Tidi and Chambal and also from Jaisamand Lake [India]. The Jaisamand Lake and Tidi River are part of Mahi-Som River system flowing south-west into Arabian Sea, on the other hand Chambal River flows into river Yamuna, a tributary of Ganga River system flowing eastward into Bay of Bengal.”

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 Lal et al. (2015):

“Diagnosis: The species of *L. rajasthanicus* is distinguished by a combination of the following characters: Lateral line scales 58-64 without red tinge along the margins; pre-dorsal scales 18-20; dorsal fin rays 14-15 [...]; ventral fin rays 09 [*sic*]; anal fin rays 6-7; dorsal fin lateral line transverse 9.5-12.5; pelvic fin lateral line transverse 8.5; anal fin lateral line transverse 6.5-7.5; circum-peduncular scales 24-26; eye diameter 4.16-5.47 in HL; depth of body 3.40-4.16 in SL [...].”

“Colour: Light black on dorsal surface, white on ventral side and scales without red tinged margins. Colour of preserved specimen turned black on the dorsal side and light yellowish on ventral side.”

Biology

From Molur and Walker (1998):

“Herbivorous, Column feeder.”

Human Uses

From Lal et al. (2015):

“The species has good market value as an important food fish in the region and the captive broodstock already raised and produced seeds which can be used for aquaculture and enhancement (Anon., 2014).”

Diseases

No information available. No OIE-listed diseases have been reported in this species.

Threat to Humans

From Froese and Pauly (2018):

“Harmless”

3 Impacts of Introductions

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

4 Global Distribution

No georeferenced occurrences were available for this species from GBIF Secretariat (2017).

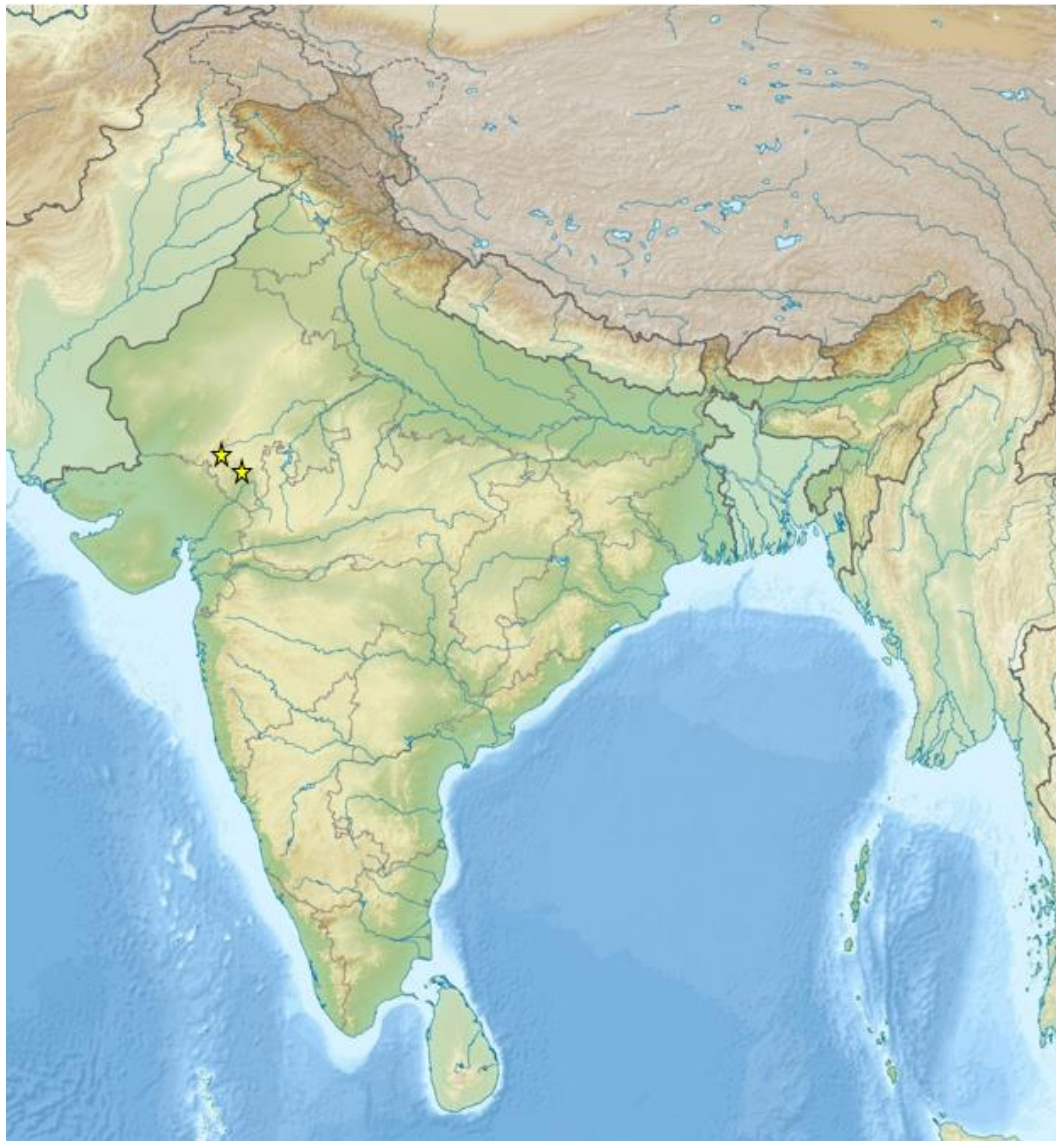


Figure 1. Map of India showing locations in Rajasthan, indicated by yellow stars, where *Labeo rajasthanicus* has been reported (Lal et al. 2015). Topographic map by Uwe Dederling. Licensed under Creative Commons CC BY-SA 3.0. Available: <https://commons.wikimedia.org/w/index.php?curid=10107973>. (June 2018).

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 throughout the contiguous United States, reflected in a Climate 6 score of 0.000. Climate 6 scores of 0.005 and less are classified as low match.

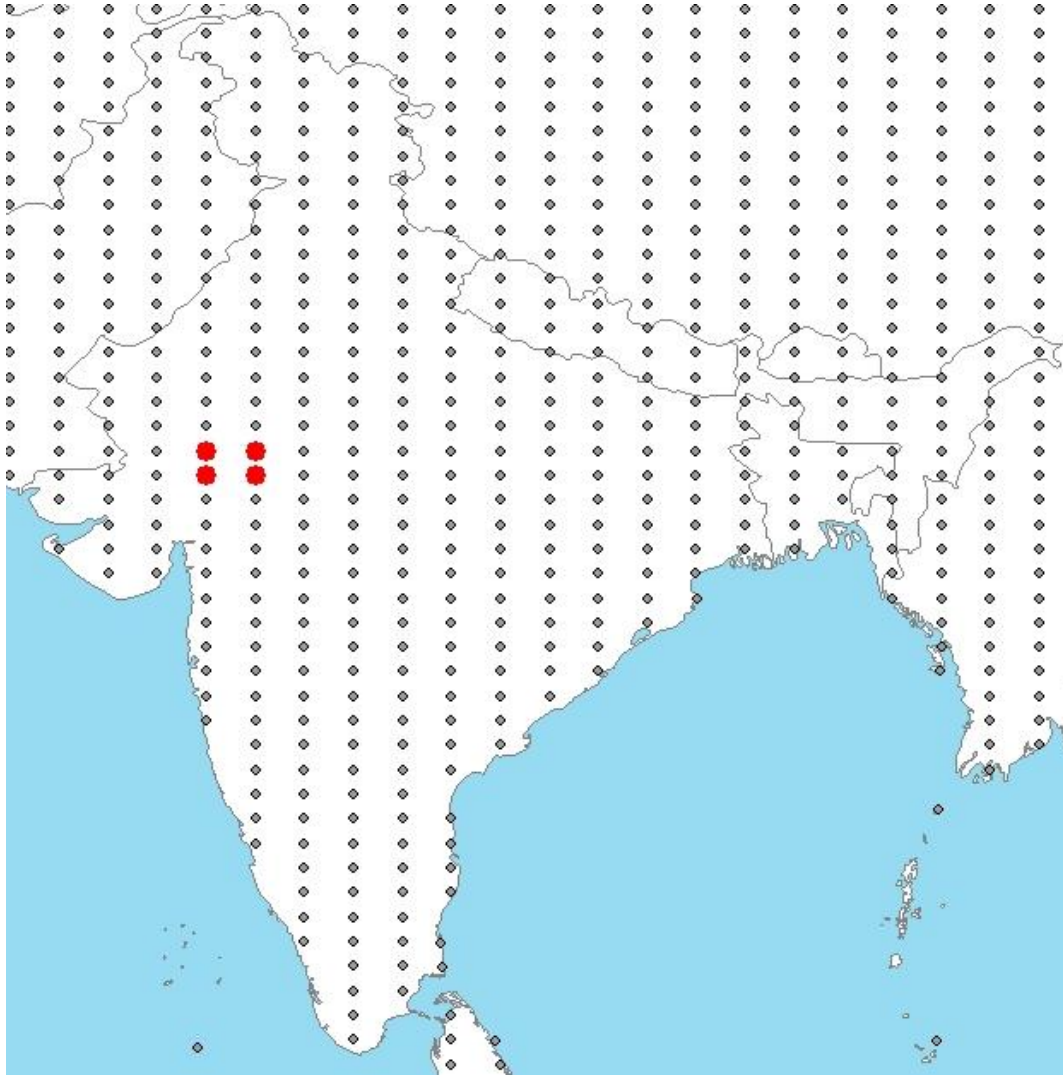


Figure 2. RAMP (Sanders et al. 2018) source map of South Asia showing weather stations selected as source locations (red; western India) and non-source locations (gray) for *L. rajasthanicus* climate matching. Source locations from Lal et al. (2015).

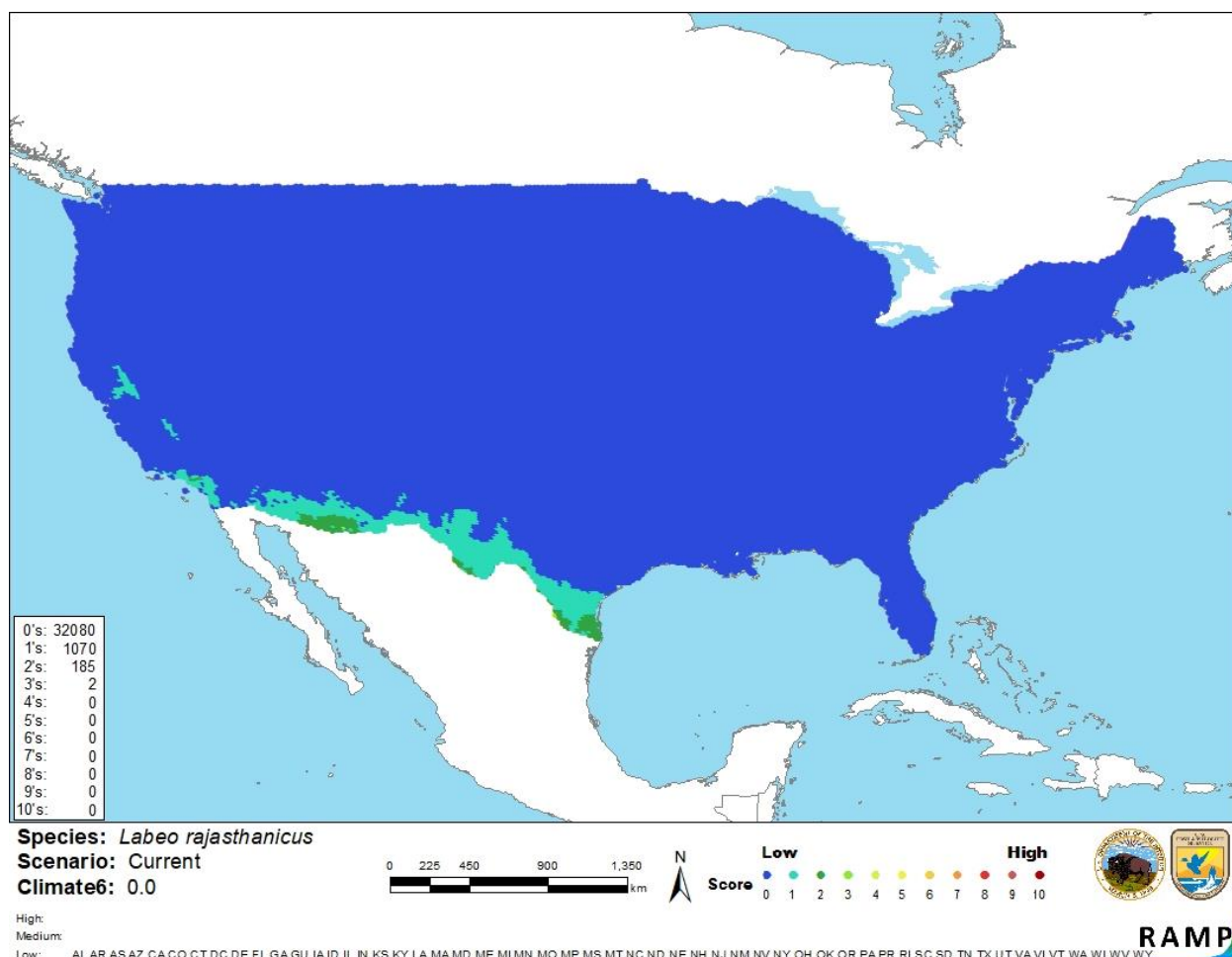


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *L. rajasthanicus* in the contiguous United States based on source locations reported by Lal et al. (2015). 0=Lowest match, 10=Highest match. Counts of climate match scores are tabulated on the left.

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

Very limited information is available on the biology, ecology, and distribution of *Labeo rajasthanus*. No introductions of this species have been reported, so the impacts of potential introductions remain unknown. Certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Labeo rajasthanicus is a carp species native to the state of Rajasthan, in northwestern India. Its status as a valid species has recently been confirmed in a study that expanded its known native distribution from a single lake into two river systems in the same region of India. *L. rajasthanicus* is valuable as a food fish and has been studied to find optimal growing conditions in captivity. It has not been reported as introduced or established anywhere outside its native range, so potential impacts of introduction remain unknown. Assessment certainty is low. The climate matching analysis showed that climate match to the contiguous United States is low. Overall risk posed by *L. rajasthanicus* to the contiguous United States is uncertain.

Assessment Elements

- **History of Invasiveness: Uncertain**
- **Climate Match: Low**
- **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.

Froese, R., and D. Pauly, editors. 2018. *Labeo rajasthanicus* Datta & Majumdar, 1970. FishBase. Available: <https://www.fishbase.de/summary/Labeo-rajasthanicus.html>. (June 2018).

GBIF Secretariat. 2017. GBIF backbone taxonomy: *Labeo rajasthanicus* Datta & Majumdar, 1970. Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/5206046>. (June 2018).

ITIS (Integrated Taxonomic Information System). 2018. *Labeo rajasthanicus* Datta and Majumdar, 1970. Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=689332#null. (June 2018).

Lal, K. K., B. K. Gupta, P. Punia, V. Mohindra, V. P. Saini, A. K. Dwivedi, R. K. Singh, S. Dhawan, R. K. Luhariya, V. S. Basheer, and J. K. Jena. 2015. Revision of gonius subgroup of the Genus *Labeo* Cuvier, 1816 and confirmation of species status of *Labeo rajasthanicus* (Cypriniformes: Cyprinidae) with designation of a neotype. Indian Journal of Fisheries 62(4):10-22.

Molur, S., and S. Walker, editors. 1998. Report of the workshop “Conservation assessment and management plan for freshwater fishes of India.” Zoo Outreach Organisation, Conservation Breeding Specialist Group, India, Coimbatore, India.

Paliwal, D., V. P. Saini, O. P. Sharma, M. L. Ojha, and H. K. Jain. 2016. The effect of rearing temperature on growth and survival of *Labeo rajasthanicus* spawn. International Journal of Fisheries and Aquatic Studies 4(3):599-603.

Sanders, S., C. Castiglione, and M. Hoff. 2018. Risk Assessment Mapping Program: RAMP, version 3.1. 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.

Anon. 2014. Harmonising biodiversity conservation and agricultural intensification through integration of plant, animal and fish genetic resources for livelihood security in fragile ecosystems. Final project report submitted to NAIP-GEF.