

Catla (*Labeo catla*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, April 2011
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1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2019a):

“Found in Choto Jamuna river [Bangladesh] [Galib et al. 2013].”

“Originally confined to the plains north of Krishna [in India], [...]”

“Found in Kachin, Chin and Shan states [Myanmar] [Oo 2002].”

“Indigenous of the Terai zone [in Nepal] [...] Status needs confirmation as this species was reported as introduced in the country [Shrestha 2008].”

“Known from Indus plain and adjoining hills [Pakistan] [Talwar and Jhingran 1991]; [...] Punjab, Sindh, and Balochistan [Mirza 2002].”

Froese and Pauly (2019a) also list *Labeo catla* as native to Andaman Islands.

Status in the United States

No records of *Labeo catla* in the wild or in trade in the United States were found.

Means of Introductions in the United States

No records of *Labeo catla* in the wild in the United States were found.

Remarks

The current valid name for this species is *Labeo catla*. This is a recent change with both *Catla catla* and *Gibelion catla* being used in the literature in the last 30 years (Fricke et al. 2019). All three names were used for information searches.

From Singh et al. (2013):

“Possibility of natural hybridization of *A. [Aristichthys] nobilis* with *Catla catla*.”

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From Fricke et al. (2019):

“**Current status:** Valid as *Labeo catla* (Hamilton 1822).”

The following hierarchy uses the synonym *Gibelion catla*, however it is still valid to the Family level for *Labeo catla* as *Gibelion* and *Labeo* are in the same Family (ITIS 2019). A hierarchy using the valid name was not available.

From ITIS (2019):

“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 *Gibelion*
Species *Gibelion catla* (Hamilton, 1822)”

Size, Weight, and Age Range

From Froese and Pauly (2019a):

“Max length : 182 cm TL male/unsexed; [Menon 1999]; max. published weight: 38.6 kg [Machacek 2007]”

Environment

From Froese and Pauly (2019a):

“Freshwater; brackish; benthopelagic; potamodromous [Riede 2004]; depth range 5 - ? m [Talwar and Jhingran 1991]. [...]; 18°C - 28°C [assumed to be recommended aquarium temperature] [Baensch and Riehl 1995]; [...]”

“Distribution limited to maximum altitude of 500 m and minimum [water] temperature of 14°C.”

Climate/Range

From Froese and Pauly (2019a):

“Subtropical; [...]; 34°N - 19°S”

Distribution Outside the United States

Native

From Froese and Pauly (2019a):

“Found in Choto Jamuna river [Bangladesh] [Galib et al. 2013].”

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“Known from Indus plain and adjoining hills [Pakistan] [Talwar and Jhingran 1991]; [...] Punjab, Sindh, and Balochistan [Mirza 2002].”

Froese and Pauly (2019a) also list *Labeo catla* as native to Andaman Islands.

Introduced

From Froese and Pauly (2019a):

“Found in Gayleghug ponds [Bhutan] [Petr 1999].”

“Cultured experimentally in southern China.”

“[...] has been transplanted to all river systems [in India] and reared in the tanks and reservoirs [Talwar and Jhingran 1991]. [...] Found in Chilka Lake [Rao 1995], Maharashtra [Archarya and Iftekhhar 2000], Tripura [Lipton 1983], Nainital, Bhimtal and Naukuchiatal lakes [Pal and Kundu 2011], Adma and Jayanti rivers [Ray and Mishra 2011], Periyar Lake, Tungabhadra River, Tambraparani river system, Parambikulam WLS, Bharathapuzha River, Chalakkudy River system, Chimmony and Peechi-Vazhani WLS, Southern Kerala river systems, Idukki and Neyyar WLS and Achenkoil river system [Radhakrishnan et al. 2012].”

“Released in Lake Chenderoh [Malaysia]. Occasionally caught in the Perak river near the Chenderoh dam [Mohsin and Ambak 1983].”

“[...] Azad Jammu and Kashmir [Pakistan] where it was introduced [Akhtar 1991]; North West Frontier Province (introduced), [...]”

“Present in Da River [Black River, Vietnam] [Bui et al. 2009; Nguyen et al. 2011].”

“Fingerlings were imported and raised in earthen ponds in the experimental fish station in Sde Nahum in the Beit Shean Valley [Israel]. Due to lack of interest, the raising of this species ceased less than two years after its inception. No specimens have been recorded in natural environment [Golani and Mires 2000].”

“Often captured on lines, this exotic species was introduced in 1942 and reintroduced in 1982. Breeding has not been recorded in Sri Lanka.”

“Reintroduced [to Japan] in 1970 from Pakistan. [...] Believed to be now extinct.”

“Reintroduced in 1973 and 1975 [to Mauritius]. Widespread for culture.”

“Artificially maintained in aquaculture installations only [former USSR].”

“Established in rivers [in the Philippines].”

“Introduced to Nong Tong and Tha Ngone fish farms in Vientiane, Lao PDR by the Mekong Secretariat with funding from the government of The Netherlands.”

“Introduction of Catla was not very successful [in Thailand] due to problems in artificial reproduction and in maintenance of the broodstock [De Iongh and Van Zon 1993].”

From Esmaeili et al. (2018):

“During the last few years, 3 species of Indian major carps, *Cirrhinus mrigala* (Hamilton, 1822), *Labeo catla* (Hamilton, 1822) and *Labeo rohita* (Hamilton, 1822) have been brought to Iran to increase fish production. Till date [sic], they have been only reported from the research centers in the south and north of Iran, [...]”

In addition to the locations listed above, Froese and Pauly (2019a) list *Labeo catla* as introduced but probably not established in Zimbabwe. FAO (2019) lists *Labeo catla* as introduced but status in the wild unknown in Cambodia and Jordan.

Means of Introduction Outside the United States

From FishBase:

“Most commonly introduced for aquaculture, likely some range expansion.”

“Introduced by the Department of Fisheries and raised in the Tapah Fish Breeding Station [Malaysia].”

Short Description

From Froese and Pauly (2019a):

“Dorsal soft rays (total): 17; Anal spines: 0; Anal soft rays: 7 - 8. Body deep, with depth 2.5 to 3 times in standard length [Talwar and Jhingran 1991]. Has a large, upturned mouth [Bhowmick et al. 1987], with a prominent protruding lower jaw [Talwar and Jhingran 1991]. Pectoral fins long, extending to pelvic fins; scales conspicuously large [Talwar and Jhingran 1991].”

From Das et al. (2013):

“Body greyish on back and flanks, silvery-white below. Fins dusky. Generally those inhabiting weedy or turbid ponds have a darker colour.”

Biology

From Froese and Pauly (2019a):

“Adults occur in rivers, lakes and culture ponds [Menon 1999]. Mature individuals breed in rivers [Talwar and Jhingran 1991]. Surface and mid-water feeders, mainly omnivorous with juveniles feeding on aquatic and terrestrial insects, detritus and phytoplankton.”

“Breeds in rivers [Talwar and Jhingran 1991]. Spawners migrate during the monsoon season towards the littoral zones of flood plains (see [Jhingran 1966]).”

Human Uses

From Froese and Pauly (2019a):

“Fisheries: highly commercial; aquaculture: commercial; gamefish: yes”

“Genetic research for the aquaculture sector is being done in the country [Bangladesh] [Nguyen 2004].”

“Cultured experimentally in southern China.”

“[...] sells at 65-70 Rs/kg at the Kathmandu [Nepal] market according to figures obtained for March 1992.”

Diseases

Epizootic ulcerative syndrome is an OIE-reportable disease (OIE-2019).

From John and George (2012):

“A wide range of freshwater and brackishwater wild and cultured fish involving over 100 species have been affected by EUS [epizootic ulcerative syndrome] [Lilley et al. 1992]. [...], Indian major carps (*Catla catla*, *Cirrhinus mrigala*, *Labeo rohita*), [...] were also among those seriously affected.”

From Lio-Po and Lim (2002):

“In India, *Achlya* spp., *Aphanomyces*, *Dictyuchus*, *Saprolegnia* and *Pythium* were isolated from rohu, grass carp, common carp, catla [*Labeo catla*], [...]”

“Trichodinids commonly cause mortality in hatcheries and these may continue to be a problem after fish are transferred to cage culture systems. [...] These are also found on silver carp, bighead carp and grass carp in hatcheries in China and Vietnam, and are also on pangasiids and *Catla* sp. in cage culture.”

From Sood et al. (2018):

“Yellowish deposits in the gills of catla infected with *Flavobacterium columnare*.”

From Froese and Pauly (2019a):

“White spot Disease, Parasitic infestations (protozoa, worms, etc.)
Fish louse Infestation 1, Parasitic infestations (protozoa, worms, etc.)
Dactylogyrus Gill Flukes Disease, Parasitic infestations (protozoa, worms, etc.)
Trichodinosis, Parasitic infestations (protozoa, worms, etc.)
Sporozoa-infection (*Myxobolus* sp.), Parasitic infestations (protozoa, worms, etc.)
Acanthogyrus Infestation 5, Parasitic infestations (protozoa, worms, etc.)
Neascus Disease, Parasitic infestations (protozoa, worms, etc.)”

Froese and Pauly (2019b) list *Labeo catla* as a host for *Acanthogyrus tripathi*, *Allocreadium catli*, *Catlyphila elongata*, *Lernaea chackoensis*, *Myxobolus mahendrae*, and *Dactylogyrus catlaius*.

Poelen et al. (2014) list *Labeo catla* as a host for *Aeromonas veronii* and *Aeromonas hydrophila*.

Perveen and Ullah (2013) list *Labeo catla* as a host for *Lernaea cyprinacea* and *Argulus* sp.

Chaudhary and Sing (2011) list *Labeo catla* as a host for *Gyrodactylus elegans indicus*.

Threat to Humans

From Froese and Pauly (2019a):

“Harmless”

3 Impacts of Introductions

From Acosta and Gupta (2005):

“FAO (2001b) reported that among the cyprinids, *A. nobilis*, *C. auratus*, *Catla catla*, *Labeo rohita* and *M. piceus* are the species generally viewed as “beneficial” where introduced.”

No other information regarding impacts of introduction was found.

4 Global Distribution

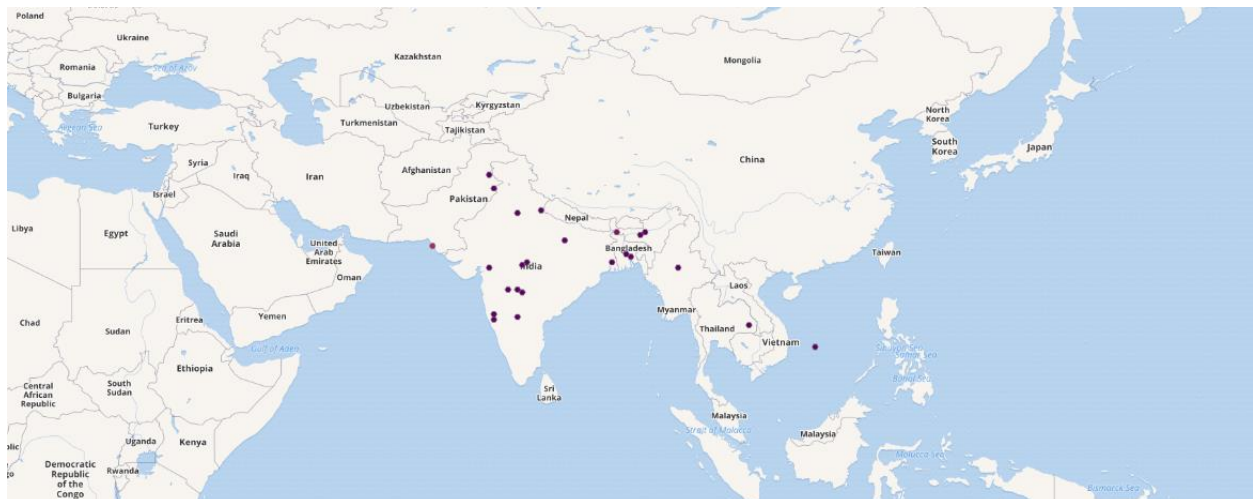


Figure 1. Known global distribution of *Labeo catla*. Map from GBIF Secretariat (2019). The location off the eastern coast of Vietnam was not used to select source points for the climate match, the recorded collection location does not match the coordinates. The locations in Thailand and Myanmar were not used to select sources points, the collections were not made in the wild.



Figure 2. Additional known global distribution of *Labeo catla*. Map from Froese and Pauly (2019a). The location off the eastern coast of Vietnam was not used to select source points for the climate match, the recorded collection location does not match the coordinates.

No georeferenced locations were available for reported established populations in Malaysia, Myanmar, Vietnam, and the Philippines.

5 Distribution Within the United States

No records of *Labeo catla* in the wild in the United States were found.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Labeo catla* was mostly low across the contiguous United States. There were areas of medium match in southwestern Peninsular Florida, southern Texas, and southern New Mexico and Arizona. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for contiguous United States was 0.003, low (scores between 0.000 and 0.005, inclusive, are classified as low). All States had low individual Climate 6 scores, except for Arizona and Texas which had medium scores.

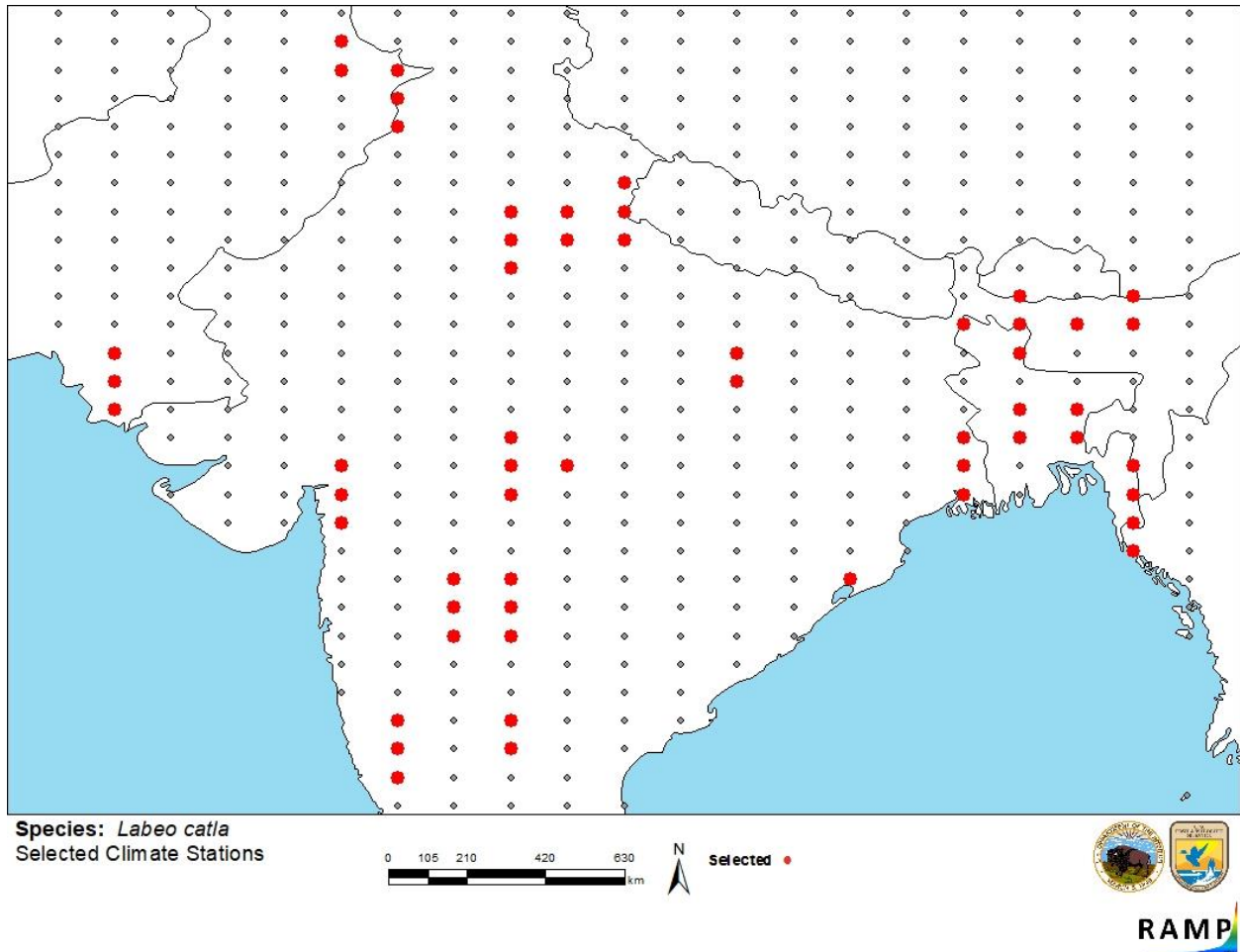


Figure 3. RAMP (Sanders et al. 2018) source map showing weather stations in southern Asia selected as source locations (red; Pakistan, India, Nepal, Bhutan, Bangladesh, Myanmar) and non-source locations (gray) for *Labeo catla* climate matching. Source locations from Froese and Pauly (2019a) and GBIF Secretariat (2019). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves. No georeferenced locations were available for reported established populations in Malaysia, Myanmar, Vietnam, and the Philippines.

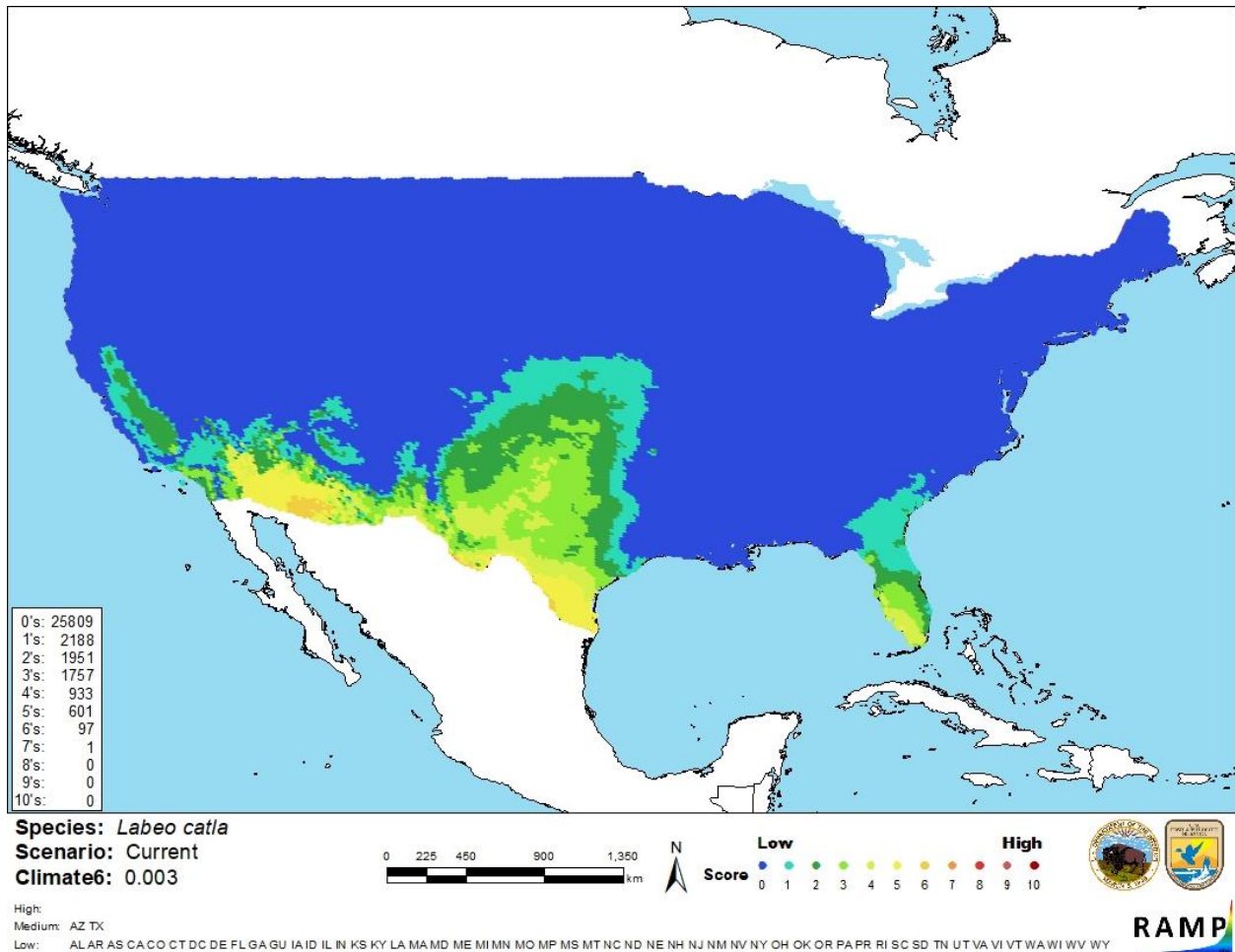


Figure 4. Map of RAMP (Sanders et al. 2018) climate matches for *Labeo catla* in the contiguous United States based on source locations reported by Froese and Pauly (2019a) and GBIF Secretariat (2019). Counts of climate match scores are tabulated on the left. 0 = Lowest match, 10 = Highest match.

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 assessment for *Labeo catla* is low. There is some information available about the biology and the ecology of the species. Many records of introduction were found. Only one highly generalized statement about the human perception of the species' impacts was found. No other information on impacts was found.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Catla (*Labeo catla*) is a large species of carp that is native to southern Asia from Pakistan through Myanmar. *L. catla* is one of a few species referred to as Indian Major Carps. The species is a highly utilized commercial fish and has been introduced to many countries for aquaculture. *L. catla* can be infected by epizootic ulcerative syndrome, which is an OIE-reportable disease. The history of invasiveness is not documented. Many records of introduction were found, some of which resulted in established populations. The only information found in regard to impacts of introduction was that introductions of Indian Major Carps were generally thought of in positive terms. The certainty of assessment is low. There is a lack of information about impacts of introduction. The overall risk assessment category is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): None Documented**
- **Climate Match (Sec. 6): Low**
- **Certainty of Assessment (Sec. 7): Low**
- **Remarks/Important additional information:** Infection with Epizootic ulcerative syndrome is 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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