

Purple Labeo (*Labeo congoro*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, April 2012

Revised, March 2018

Web Version, 6/6/2018



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<https://www.inaturalist.org/observations/6702938>. (March 2018).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2017):

“Africa: Zambezi river and the Incomati system. Present in the warm sections of the Middle Zambezi, Pungwe, Buzi, Sabi and Lundi rivers but absent from the cooler sections. Also from the rivers of Tanzania, the Luapula-Moero region of the Congo basin and Malagarasi River in Lake Tanganyika. [Countries: Democratic Republic of the Congo, Mozambique, South Africa, Tanzania, Zambia, and Zimbabwe.]”

Status in the United States

This species has not been reported as introduced or established in the U.S.

Means of Introductions in the United States

This species has not been reported as introduced or established in the U.S.

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 congoro* Peters, 1852”

From Eschmeyer et al. (2018):

“Current status: Valid as *Labeo congoro* Peters 1852. Cyprinidae: Labeoninae.”

Size, Weight, and Age Range

From Froese and Pauly (2017):

“Max length : 41.5 cm SL male/unsexed; [Skelton 1993]; max. published weight: 4.3 kg [Skelton 1993]”

Environment

From Froese and Pauly (2017):

“Freshwater; benthopelagic; potamodromous [Riede 2004]. [...] 22°C - 26°C [Baensch and Riehl 1997; assumed to be recommended aquarium temperature range];”

Climate/Range

From Froese and Pauly (2017):

“Subtropical; [...] 11°S - 27°S”

Distribution Outside the United States

Native

From Froese and Pauly (2017):

“Africa: Zambezi river and the Incomati system. Present in the warm sections of the Middle Zambezi, Pungwe, Buzi, Sabi and Lundi rivers but absent from the cooler sections. Also from the rivers of Tanzania, the Luapula-Moero region of the Congo basin and Malagarasi River in Lake Tanganyika.”

Introduced

This species has not been reported as introduced or established outside of its native range.

Means of Introduction Outside the United States

This species has not been reported as introduced or established outside of its native range.

Short Description

From Gilchrist and Thompson (1917):

“Body strongly compressed, its depth 3 to $3\frac{2}{3}$ times in total length. Head 4 to $4\frac{3}{4}$ times in total length in adult, 3 to 4 times in young, its width $\frac{3}{5}$ to $\frac{3}{4}$ its length; snout rounded, often more or less swollen, $\frac{2}{5}$ to $\frac{1}{2}$ length of head, at least as long as and often longer than postocular part of head; eye nearly perfectly lateral, $4\frac{1}{2}$ to 7 times in length of head in adult, 3 to 4 times in young; interorbital width $\frac{1}{2}$ to $\frac{3}{5}$ length of head; width of mouth, with lips, 2 to 3 times in length of head; lips not distinctly fringed on the edge, with small papillae forming transverse plicae on inner side; rostral flap large, completely detached at the sides, its edge entire or feebly denticulate; a minute barbel, usually hidden under folds of skin; tubercles on the snout, or their crater-like scars, much developed in adult.”

“Dorsal iv 11; longest rays about $1\frac{1}{2}$ times length of head, equally distant from anterior or posterior border of eye and from caudal, upper edge more or less convex in adult. Anal iii 5; reaching root of caudal or beyond. Pectoral nearly as long as or a little longer than head, not reaching ventral, the first ray of which falls below 4th or 5th branched ray of dorsal. Caudal deeply emarginated; caudal peduncle as long as deep or a little deeper than long. Scales 38-39 $\frac{5\frac{1}{2}}{6\frac{1}{2}}$, $4\frac{1}{2}$ between lateral line and root of ventral, 16 round caudal peduncle.

“Colour, golden above, darker on the back, silvery white beneath dorsal bluish black, anal and caudal reddish black.”

Biology

From Froese and Pauly (2017):

“Occurs in strong-flowing rocky stretches of larger perennial rivers. Grazes algae and ‘aufwuchs’ from rocks and firm surfaces including the backs of hippos, leaving characteristic tracks. Migrate upstream in swollen rivers to breed [Skelton 1993]. Can occur as either sail-fin or normal varieties [Eccles 1992].”

Human Uses

From Bills et al. (2017):

“Heavily fished in certain areas.”

From Froese and Pauly (2017):

“Fisheries: subsistence fisheries; gamefish: yes”

Diseases

From Dos Santos and Avenant-Oldewage (2016):

“All of the diplozoid specimens collected from both *L. rosae* and *L. congoro* in 1990–1992, as well as the specimens collected from *L. rosae* in 2012, shared similar morphological and morphometric properties and were indistinguishable from a taxonomic perspective. As such, the results obtained for these 18 specimens are representative of a single taxon; the details of which are as follows:”

“Class: Monogenoidea (van Beneden, 1858)
Subclass: Oligonchoinea Bychowsky, 1937
Order: Mazocraeidea Bychowsky, 1937
Suborder: Discocotylinea Bychowsky, 1957
Family: Diplozoidae Palombi, 1949
Subfamily: Diplozoinae Palombi, 1949
Genus: *Paradiplozoon* Akhmerov, 1974”

“*Paradiplozoon krugerense* n. sp. [...]”

Threat to Humans

From Froese and Pauly (2017):

“Harmless”

3 Impacts of Introductions

This species has not been reported as introduced or established outside of its native range.

4 Global Distribution



Figure 1. Known global distribution of *Labeo congoro*. Map from GBIF Secretariat (2018).

5 Distribution Within the United States

This species has not been reported as introduced or established in the U.S.

6 Climate Matching

Summary of Climate Matching Analysis

The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the Continental U.S. was 0.019, which is a medium climate match. The climate match was high in Florida and Texas, medium in Arizona, and low elsewhere in the contiguous U.S. In general, the climate match in the Northern U.S. was low, and the climate match in the Southern U.S. was medium-low to medium.

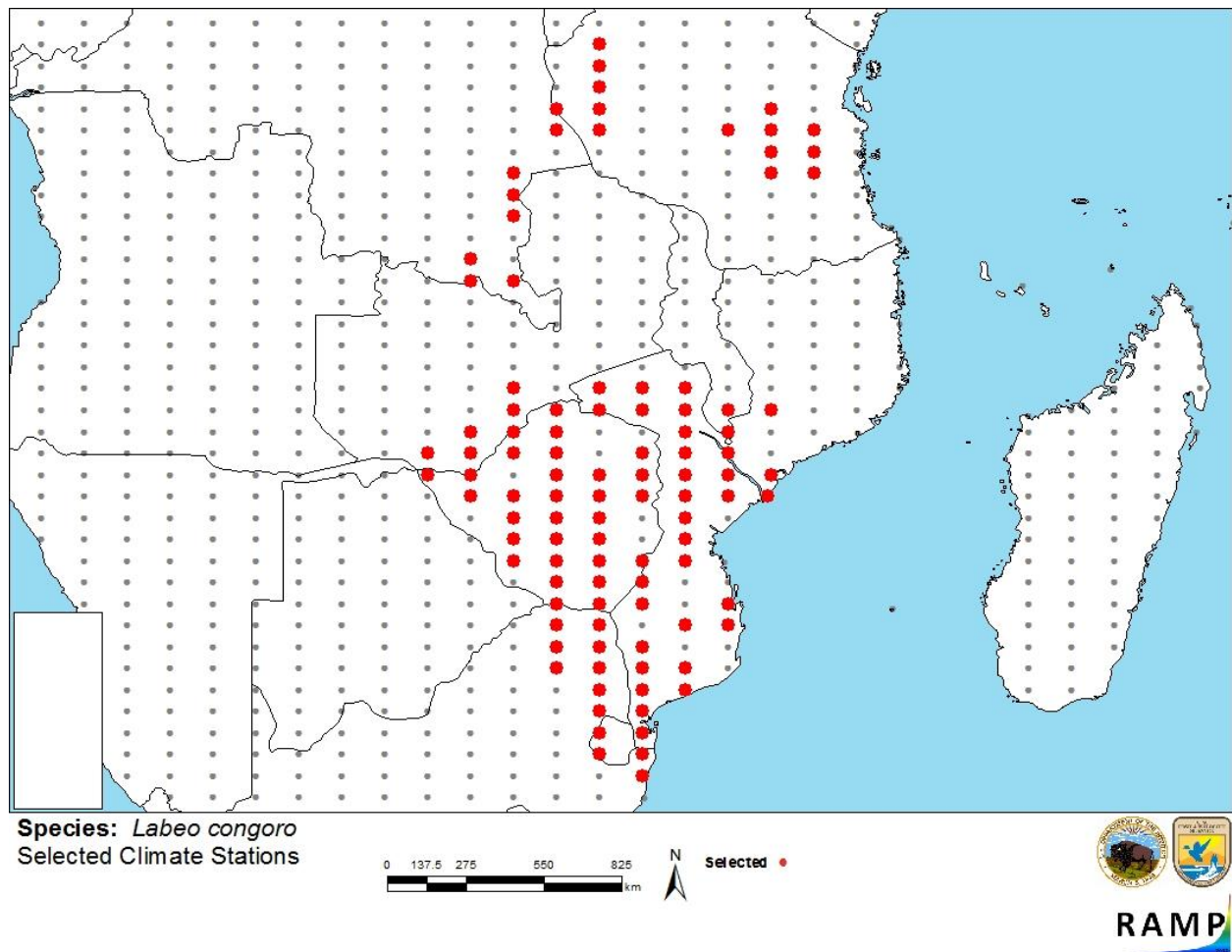


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red) and non-source locations (gray) for *Labeo congoro* climate matching. Source locations from GBIF Secretariat (2018).

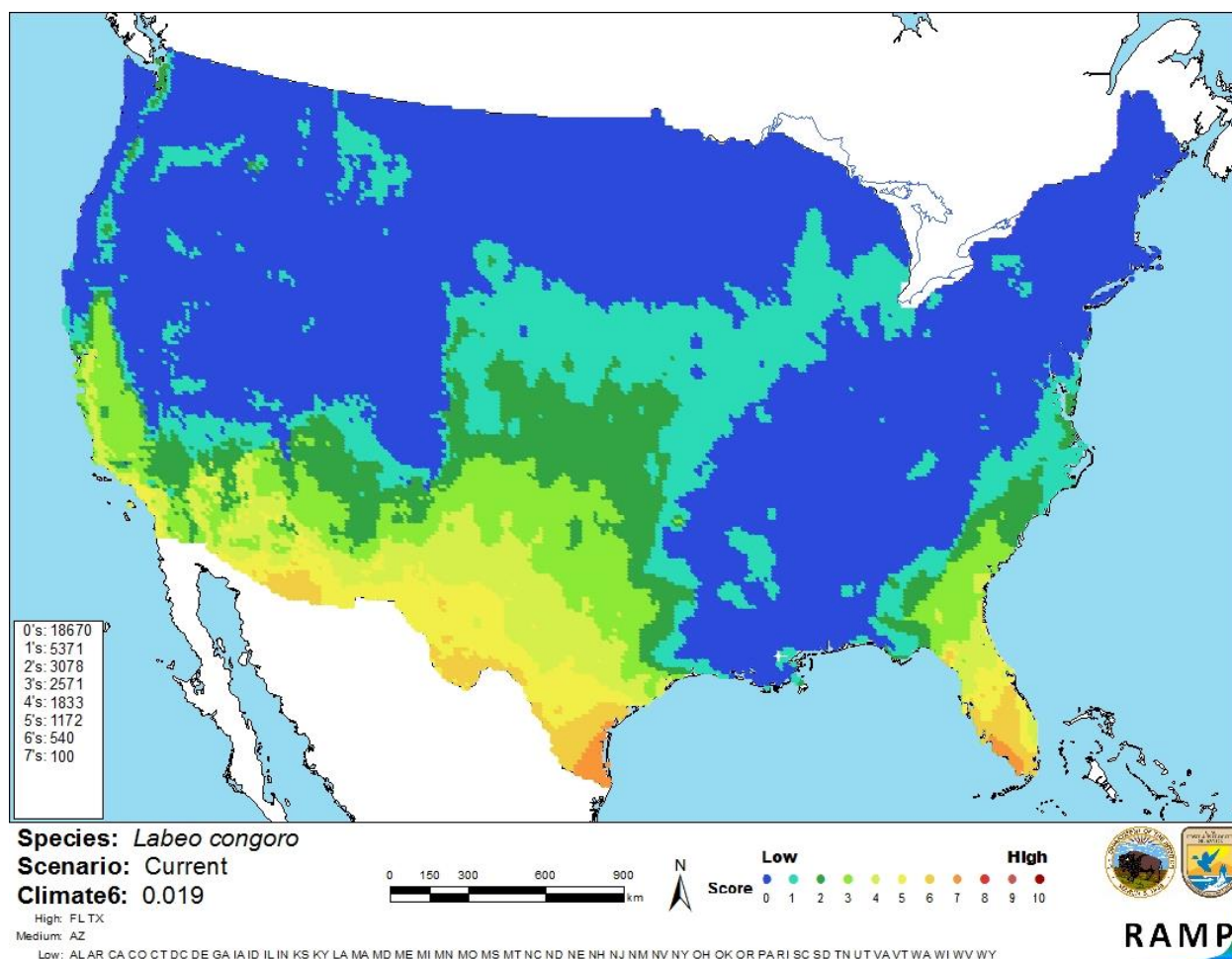


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Labeo congoro* in the contiguous United States based on source locations reported by GBIF Secretariat (2018). 0=Lowest match, 10=Highest match.

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

7 Certainty of Assessment

There is limited information available on the biology and distribution of *Labeo congoro*. No introductions of this species outside of its native range have been documented. Because of this, no impacts of introductions have been documented, so certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Labeo congoro, the purple labeo, is a carp native to southern and eastern Africa. This species is used as a food fish, but it has never been reported as introduced outside of its native range. *L. congoro* has a medium climate match with the contiguous United States. Because of a lack of information from which to base an assessment of invasive potential, 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): Medium**
- **Certainty of Assessment (Sec. 7): 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.

- Bills, R., B. Marshall, J. Cambray, D. Tweddle, O. Weyl, A. Chakona, and W. Coetzer. 2017. *Labeo congoro*. The IUCN Red List of Threatened Species 2017: e.T63281A58311109. Available: <http://www.iucnredlist.org/details/63281/0>. (March 2018).
- Dos Santos, Q. M., and A. Avenant-Oldewage. 2016. The description of a new diplozoid species, *Paradiplozoon krugerense* n. sp., from *Labeo rosae* Steindachner, 1894 and *Labeo congoro* Peters, 1852 in the Kruger National Park, South Africa with notes on the effect of water quality on its infection variables. *Hydrobiologia* 777(1):225-241.
- 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>. (March 2018).
- Froese, R., and D. Pauly, editors. 2017. *Labeo congoro* (Peters, 1852). FishBase. Available: <http://www.fishbase.org/summary/11536>. (March 2018).
- GBIF Secretariat. 2018. GBIF backbone taxonomy: *Labeo congoro*, Peters, 1852. Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/5206173>. (March 2018).
- Gilchrist, J. D. F., and W. W. Thompson. 1917. The freshwater fishes of South Africa. *Annals of the South African Museum* 11:321-463.

ITIS (Integrated Taxonomic Information System). 2018. *Labeo congoro* (Peters, 1852). Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=689276#null. (March 2018).

Sanders, S., C. Castiglione, and M. H. Hoff. 2014. Risk Assessment Mapping Program: RAMP. US 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.

Baensch, H. A., and R. Riehl, 1997. Aquarien Atlas, volume 5. Mergus Verlag, Melle, Germany.

Eccles, D. H. 1992. FAO species identification sheets for fishery purposes. Field guide to the freshwater fishes of Tanzania. Prepared and published with the support of the United Nations Development Programme (project URT/87/016). FAO, Rome.

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.

Skelton, P. H. 1993. A complete guide to the freshwater fishes of southern Africa. Southern Book Publishers, Johannesburg, South Africa.