

African Carp (*Labeo coubie*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, April 2012

Revised, March 2018

Web Version, 6/6/2018

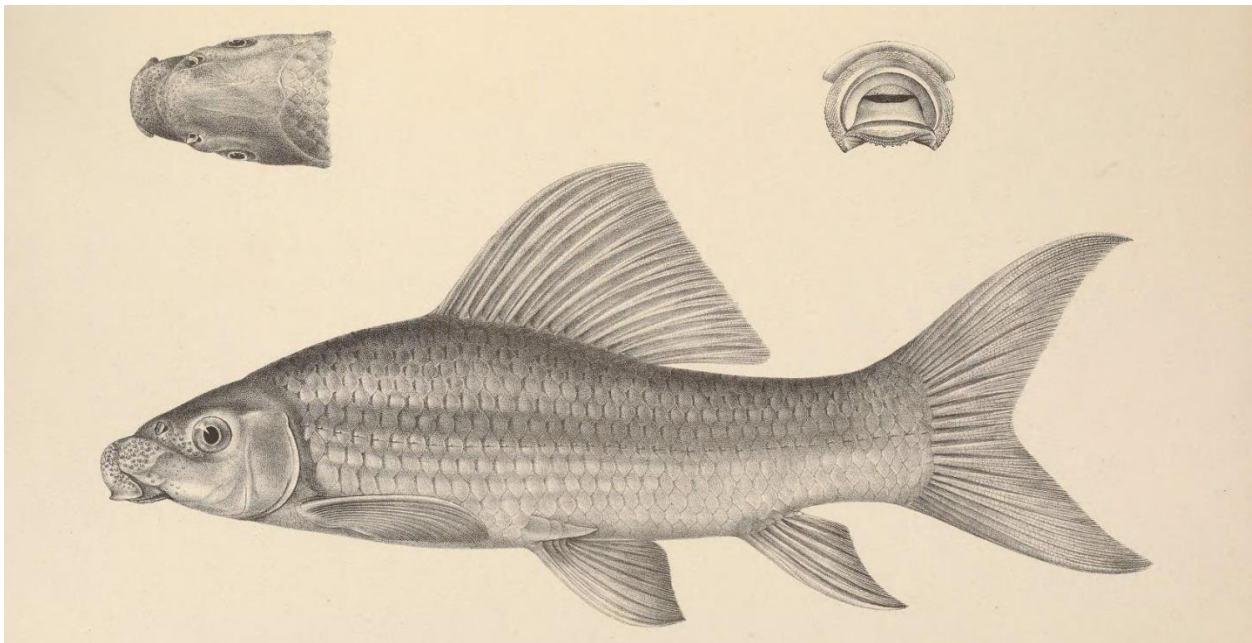


Photo: J. Green. Public domain. Available:

[https://commons.wikimedia.org/wiki/File:The_fishes_of_the_Nile_\(Pl._XXIX\)_\(6815494932\).jpg](https://commons.wikimedia.org/wiki/File:The_fishes_of_the_Nile_(Pl._XXIX)_(6815494932).jpg). (March 2018).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2018):

“Africa: very widespread, within the drainage basin of the Nile River [Reid 1985, Lévêque and Daget 1984, Lévêque 1990], Chad, Niger-Bénoué, Volta, Senegal and Gambia basins, as well as Cross River [Reid 1985, Lévêque 1990, Lévêque 2003]. Report from Cameroon coastal rivers [Reid 1985] unconfirmed in [De Weirtd et al. 2007]. Not reliable [*sic*] known from the Congo River basin [Reid 1985] and one controversial record from the East coast of Africa [Reid 1985]. [Lévêque and Daget 1984] reports presence in Warri (Nigeria) and Kingani (Tanzania).”

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 coubie* Rüppell, 1832”

From Eschmeyer et al. (2018):

“Current status: Valid as *Labeo coubie* Rüppell 1832. Cyprinidae: Labeoninae.”

Size, Weight, and Age Range

From Froese and Pauly (2018):

Max length : 75.0 cm SL male/unsexed; [Lévêque and Daget 1984]; max. published weight: 5.0 kg [Ita 1984]”

From Ayotunde et al. (2007):

“They have elongated, subcylindrical bodies and grow to about 700 mm in length and at least 10 kg in weight.”

Environment

From Froese and Pauly (2018):

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

Climate/Range

From Froese and Pauly (2018):

“Tropical; 6°N - 6°S”

Distribution Outside the United States

Native

From Froese and Pauly (2018):

“Africa: very widespread, within the drainage basin of the Nile River [Reid 1985, Lévêque and Daget 1984, Lévêque 1990], Chad, Niger-Bénoué, Volta, Senegal and Gambia basins, as well as Cross River [Reid 1985, Lévêque 1990, Lévêque 2003]. Report from Cameroon coastal rivers [Reid 1985] unconfirmed in [De Weirdt et al. 2007]. Not reliable [sic] known from the Congo River basin [Reid 1985] and one controversial record from the East coast of Africa [Reid 1985]. [Lévêque and Daget 1984] reports presence in Warri (Nigeria) and Kingani (Tanzania).”

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 Froese and Pauly (2018):

“Dorsal soft rays (total): 15-19; Anal soft rays: 8 - 11; Vertebrae: 31 - 33. Diagnosis: dorsal profile straight to slightly arched; body dark and dull, distal margin of dorsal fin straight or convex; rostral lobe poorly developed, its free margin smooth; inner surface of lips with transverse folds; body depth 2.3-3.3x SL; depth of caudal peduncle 0.7-1.3x its length; 26-46 (50-150mm) and 37-47 (150-250mm) gill rakers; scale formula 5.5-7.5/36-40/6.5-7.5; 4.5 scales between lateral line and pelvic-fin base; 16 (18) scales around caudal peduncle; 12-14 dorsal fin branched rays [Lévêque 1990, Lévêque 2003].”

Biology

From Ayotunde et al. (2007):

“The prominence food items in the gut of *L. coubie* include whole worm, worm part, nematode, mud, plant part, unidentified items, and detritus. Other food item food present in small quantities includes Rotifera (*Keratella* sp., *Polyarthra* sp. and *Philodina* sp.) and Crustacean (*Copepod* sp., *Decapods* sp. and *Daphnia* sp.).”

“Among the rotifers, *Keratella* sp. is the most frequently occurring. Among crustaceans identified, decapods were most prominent followed by *Daphnia* sp. The copepods were

relatively a minor component of the crustaceans. The result presented in this work is similar to that obtained by Ugwumba (1988) who worked on the food and feeding habits of juvenile and cultivable freshwater fishes and stated that, their food cover wide spectrum ranging from various types of planktons to invertebrates and fish. The worms were the single most prominent food group. It is likely that being a detritivore, *L. coubie* forages the river bottom. In the process it catches worm and this may account for the prominence of worm and worm parts in its food.”

“The presence of plant tissue (68.7% occurrence) shows that *L. coubie* is able to digest plant matter, making it also herbivorous. The wide range of food exploited due to its ability to function as an omnivore as well as a detritivore may account for why *L. coubie* can attain large sizes of up to 700 mm in length and 10 kg in weight (Reed et al., 1972). The food items identified in the stomachs of *L. coubie* were rotifers, crustaceans, worms, mud, insects, plant material and detritus.”

“The presence of detritus in the food diet of *L. coubie* throughout the year shows that it is detritivorous. Insect and insect larvae occurred in the food of *L. coubie* throughout the year with a peak in July when the river overflows its banks. At that time, *L. coubie* like other freshwater fish will spread into the inundated forest where a lot of food in the form of insects, insect larvae, other vertebrates and leaves of higher plants has become abundant (Moses, 1983).”

From Azeroual et al. (2010):

“*Labeo coubie* is a benthopelagic and potamodromous species. It inhabits rivers and lakes (Skelton 1993), particularly sheltered bays. It is a bottom feeder, on mud, plant debris and diatoms. Mature ovaries are voluminous and well developed in spring and summer.”

Human Uses

From Azeroual et al. (2010):

“This is a well marketable fish.”

From Froese and Pauly (2018):

“Fisheries: commercial; aquarium: public aquariums”

Diseases

From Ayotunde et al. (2007):

“The food composition and the parasitic infections of the African carp (*Labeo coubie*) were investigated. [...] The parasites were *Gyrodactylus*, *Clinostomum*, *Lytocestus*, *protocephalus* [sic], *Procamallanus*, *Capillaria*, *Acanthocephalus*, *Batrachobdella*, *Argulus*, *Dolops*, and *Ergasilus*. Of all the parasites, the more prominent in decreasing order of percentage prevalence are *Acanthocephalus* (81.7%), *Batrachobdella* (74.6%), *Procamallanus* (62.5%), *Argulus* (60%), and *Dolops* (40.8%). The platyhelminthes had the lowest infection prevalence.”

No OIE-reportable diseases have been documented for this species.

Threat to Humans

From Froese and Pauly (2018):

“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 coubie*. 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 0.017, which is a medium climate match. The climate match was high in Arizona and California. Florida, Nevada, and Texas had a medium climate match. The climate match in all other States was low.

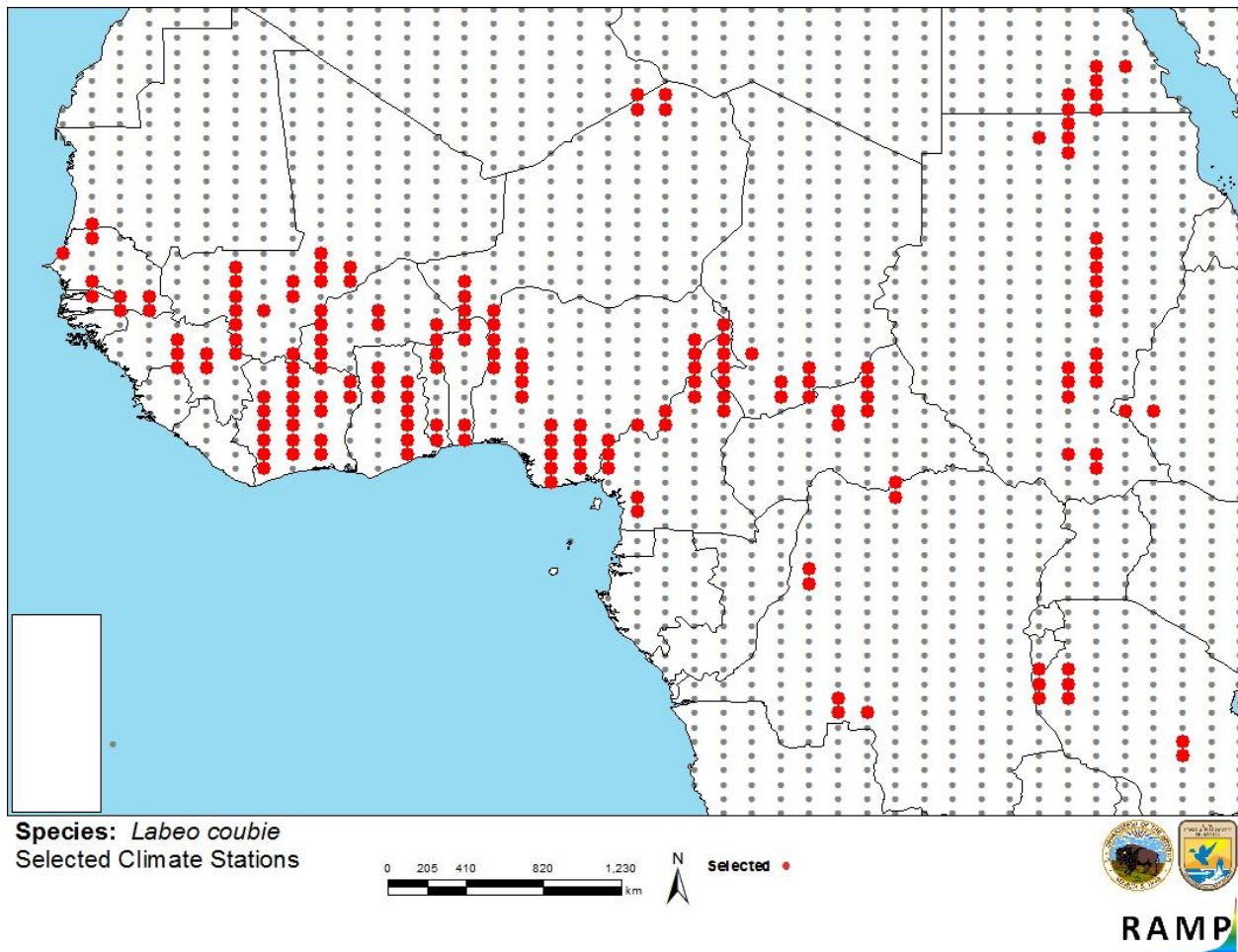


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red) and non-source locations (gray) for *Labeo coubie* climate matching. Source locations from GBIF Secretariat (2018).

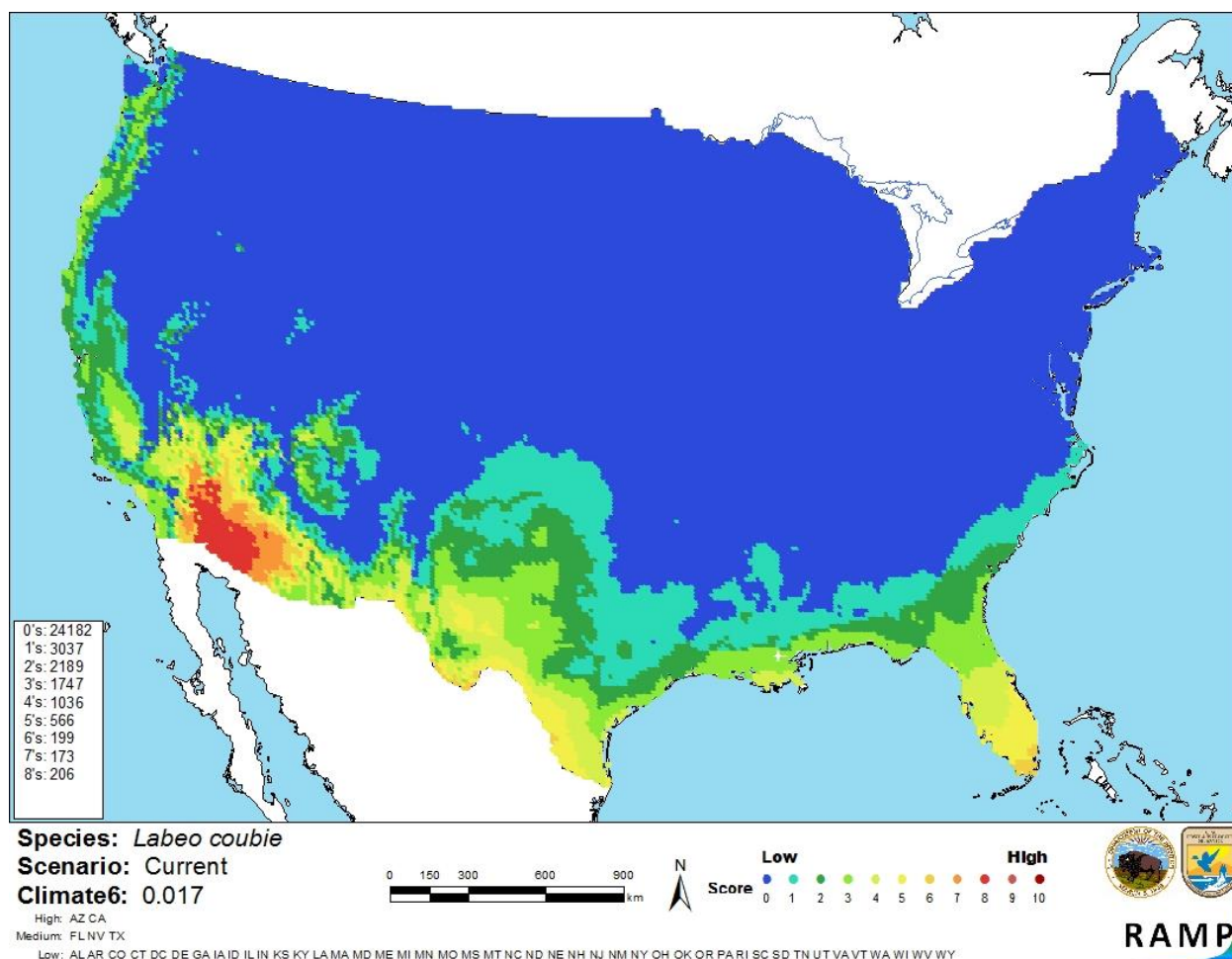


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Labeo coubie* in the contiguous United States based on source locations reported by GBIF Secretariat (2018). 0= Lowest match, 10=Highest match.

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 adequate information available on the biology and distribution of *Labeo coubie*. 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 coubie is a carp native to and widespread in Africa. This species is used as a food fish, but it has never been reported as introduced outside of its native range. *L. coubie* 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.

Ayotunde, E. O., N. Stephen, and I. B. Okey. 2007. Parasitological examinations and food composition in the gut of feral African carp, *Labeo coubie* in the Cross River, Southeastern, Nigeria. *African Journal of Biotechnology* 6(5):625-630.

Azeroual, A., M. Entsua-Mensah, A. Getahun, M. Hanssens, P. Lalèyè, T. Moelants, and T. Twongo. 2010. *Labeo coubie*. The IUCN Red List of Threatened Species 2010: e.T182352A7866561. Available: <http://www.iucnredlist.org/details/182352/0>. (March 2018).

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. 2018. *Labeo coubie* (Rüppell, 1832). FishBase. Available: <http://www.fishbase.org/summary/Labeo-coubie.html>. (March 2018).

GBIF Secretariat. 2018. GBIF backbone taxonomy: *Labeo coubie*, Rüppell, 1832. Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/5206092>. (March 2018).

ITIS (Integrated Taxonomic Information System). 2018. *Labeo coubie* (Rüppell, 1832). Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=689277#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.

De Weirtdt, D., A. Getahun, S. Tshibwabwa, and G. G. Teugels. 2007. Cyprinidae. Pages 466-572 in M. L. J. Stiassny, G. G. Teugels, and C. D. Hopkins, editors. The fresh and brackish water fishes of Lower Guinea, West-Central Africa. Volume I. Collection Faune et Flore tropicales 42. Institut de Recherche pour le Développement, Paris, France, Muséum National d'Histoire Naturelle, Paris, France, and Musée Royal de l'Afrique Centrale, Tervuren, Belgium.

Ita, E. O. 1984. Kainji (Nigeria). Pages 43-103 in J. M. Kapetsky and T. Petr, editors. Status of African reservoir fisheries. CIFA Technical Paper 10.

Lévêque, C. 1990. Cyprinidae. Pages 269-361 in C. Lévêque, D. Paugy and G. G. Teugels, editors. Faune des poissons d'eaux douces et saumâtres d'Afrique de l'Ouest. Tome I. Coll. Faune Tropicale n° XXVIII. Musée Royal de l'Afrique Centrale, Tervuren, Belgium, and O.R.S.T.O.M., Paris.

Lévêque, C., 2003. Cyprinidae. Pages 322-436 in D. Paugy, C. Lévêque and G. G. Teugels, editors. The fresh and brackish water fishes of West Africa Volume 1. Coll. faune et flore tropicales 40. Institut de recherche de développement, Paris, France, Muséum national d'histoire naturelle, Paris, France and Musée royal de l'Afrique Central, Tervuren, Belgium.

Lévêque, C., and J. Daget. 1984. Cyprinidae. Pages 217-342 in J. Daget, J.-P. Gosse and D. F. E. Thys van den Audenaerde, editors. Check-list of the freshwater fishes of Africa (CLOFFA). ORSTOM, Paris and MRAC, Tervuren, Belgium.

Moses, B. S. 1983. Introduction to tropical fisheries. Ibadan University Press, Ibadan, Nigeria.

Reed, et al. 1972. [Source material did not provide the full citation for this reference.]

Reid, G. M. 1985. A revision of African species of *Labeo* (Pisces: Cyprinidae) and a re-definition of the genus. Verlag von J. Cramer, Braunschweig, Germany.

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. 1993. [Source material did not provide the full citation for this reference.]

Ugwumba, A. A. A. 1988. Food and feeding habits of some culturable fish species in Nigeria. Technical Paper, Nigeria Institute for Oceanography and Marine Research, Lagos, Nigeria.