U.S. Fish & Wildlife Service

Oreochromis chungruruensis (a tilapia, no common name)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, March 2012
Revised, June 2018
Web Version, 12/14/2020

Organism Type: Fish
Overall Risk Assessment Category: Uncertain

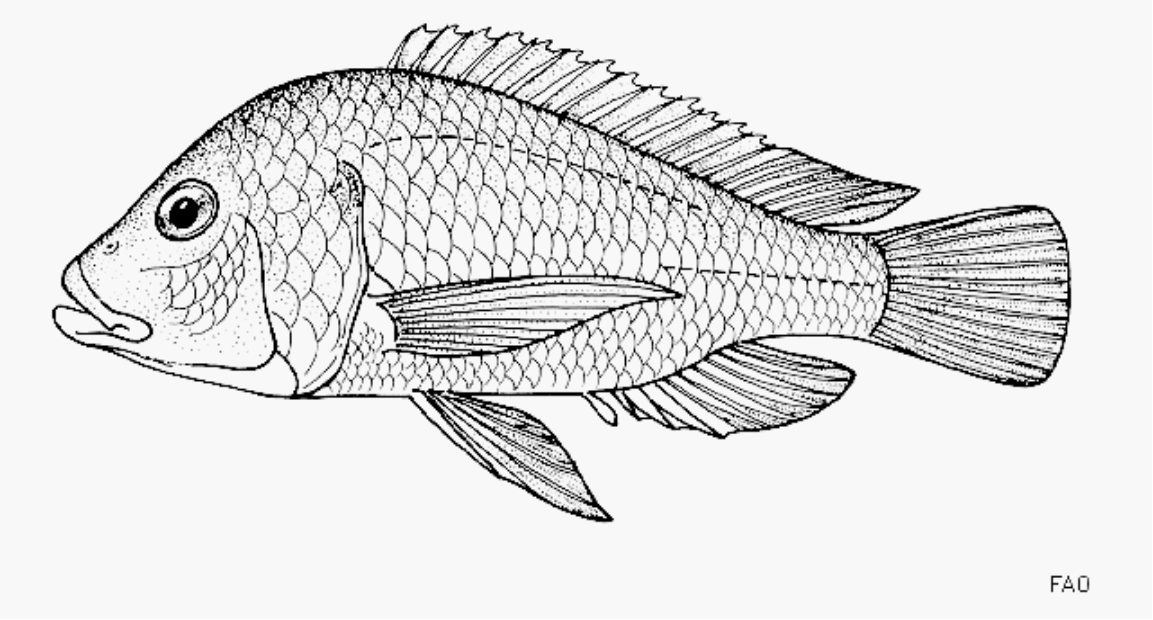

Photo: FAO. Licensed under Creative Commons BY-NC 3.0. Available: http://eol.org/data_objects/20923806.

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2018):

"Africa: Lake Chungruru, a crater lake in the Rungwe Mountains, north of Lake Malawi in Tanzania."

Status in the United States

No records of *Oreochromis chungruruensis* in the wild or in trade in the United States were found.

The Florida Fish and Wildlife Conservation Commission has listed the tilapia *Oreochromis chungruruensis* as a prohibited species. Prohibited nonnative species (FFWCC 2016), "are considered to be dangerous to the ecology and/or the health and welfare of the people of Florida. These species are not allowed to be personally possessed or used for commercial activities.

O. chungruruensis falls within Group I of New Mexico's Department of Game and Fish Director's Species Importation List (New Mexico Department of Game and Fish 2010). Group I species "are designated semi-domesticated animals and do not require an importation permit."

Possession of any species of tilapia is prohibited without permit in the State of Louisiana (Louisiana State Legislature 2019).

Tilapia species are prohibited to be sold and used as bait or stocked in heated-water reservoirs in the State of Oklahoma (Oklahoma Secretary of State 2019).

All species in the genus *Oreochromis* are listed as prohibited in Texas (Texas Parks and Wildlife 2020).

A permit is required to import, possess, or sell any species of tilapia in Virginia (Virginia Department of Game and Inland Fisheries 2020).

All species in the genus *Oreochromis* are considered regulated Type A species in Washington. Regulated Type A species (Washington State Senate 2019) are "nonnative aquatic animal species that pose a low to moderate invasive risk that can be managed based on intended use or geographic scope of introduction, have a beneficial use, and are a priority for department-led or department-approved management of the species' beneficial use and invasive risks."

Means of Introductions in the United States

No records of *Oreochromis chungruruensis* in the United States were found.

Remarks

The IUCN Red List has *Oreochromis chungruruensis* listed as Critically Endangered (Bayona 2006).

From Pillay (2016):

"Turner (2015) also included that *O. chungruruensis* is most likely in danger of extinction through overfishing or genetic dilution and competition from introduced tilapia species such as *Coptodon rendalli* (Redbreast tilapia) and *Tilapia Sparrmanii* [*sic*] (Banded tilapia)."

"Since the 1920s when *O. chungruruensis* was first formerly described no other effort has been put in place to study this species […]"

"Molecular analysis revealed that *O. chungruruensis* has either ancestral origins from *O. shiranus* or have recently hybridised with introduced *O. shiranus* populations, […]"

Information searches for this screening were conducted using the valid name *Oreochromis chungruruensis* and the synonym *Tilapia chungruruensis*.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Eschmeyer et al. (2018), *Oreochromis chungruruensis* (Ahl 1924) is the valid name for this species. *Oreochromis chungruruensis* was originally described as *Tilapia chungruruensis* Ahl 1924.

From ITIS (2018):

Kingdom Animalia
  Subkingdom Bilateria
    Infrakingdom Deuterostomia
      Phylum Chordata
        Subphylum Vertebrata
          Infraphylum Gnathostomata
            Superclass Actinopterygii
              Class Teleostei
                Superorder Acanthopterygii
                  Order Perciformes
                    Suborder Labroidei
                      Family Cichlidae
                        Genus *Oreochromis*
                          Species *Oreochromis chungruruensis* (Ahl, 1924)

Size, Weight, and Age Range

From Froese and Pauly (2018):

"Max length : 19.0 cm SL male/unsexed; [Eccles 1992]"

Environment

From Froese and Pauly (2018):

"Freshwater; benthopelagic."

Climate
From Froese and Pauly (2018):

"Tropical; 9°S - 10°S"

Distribution Outside the United States
Native
From Froese and Pauly (2018):

"Africa: Lake Chungruru, a crater lake in the Rungwe Mountains, north of Lake Malawi in Tanzania."

Introduced
No records of *Oreochromis chungruruensis* introductions were found.

Means of Introduction Outside the United States
No records of *Oreochromis chungruruensis* introductions were found.

Short Description
From Froese and Pauly (2018):

"Dorsal spines (total): 14 - 15; Dorsal soft rays (total): 10-12; Anal spines: 3; Anal soft rays: 8 - 11; Vertebrae: 30. Diagnosis: breeding male black; length of head 37.6-40.5% SL; toothed area of lower pharyngeal with concave sides; median length of bone 1.0-1.24 times its width and 31.6-35.5 % length of head; blade 1.2-1.4 times median length of toothed area; length of lower jaw 32.0-39% head length; teeth of jaws in 4 or 5 rows [Trewavas 1983]."

"[…] breeding male black; […]"

"Scales cycloid [Ahl 1924], in 2-3 series on cheek [Ahl 1924; Trewavas 1976]. Last dorsal spine the longest; third anal spine longer than last dorsal spine; pectoral fin reaching middle or end of anal fin; pelvic fins not reaching anal fin [Ahl 1924]. Caudal not densely scaled [Ahl 1924; Trewavas 1976], but with small scales extending part-way along upper and lower rays [Trewavas 1976]. Genital papilla with 2 bunches of short branches [Trewavas 1983], arising from a club-shaped base [Trewavas 1976]."

Froese and Pauly (2018) also report 32 scales on lateral line.

Biology
From Bayona (2006):

"This species is restricted to a single small crater lake, which is subject to ongoing habitat loss due to siltation and in which the extent of occurrence fluctuates greatly due to changes in lake level during drought years."

Human Uses

No information on human uses of *Oreochromis chungruruensis* was found.

Diseases

No records of OIE-reportable diseases (OIE 2020) were found for *Oreochromis chungruruensis*. No information on parasites of pathogens of *O. chungruruensis* was found.

Threat to Humans

From Froese and Pauly (2018):

"Harmless"

3 Impacts of Introductions

No records of *Oreochromis chungruruensis* introductions were found.

4 History of Invasiveness

No records of introductions were found for *Oreochromis chungruruensis*. Therefore the history of invasiveness is classified as "No Known Nonnative Population."

5 Global Distribution

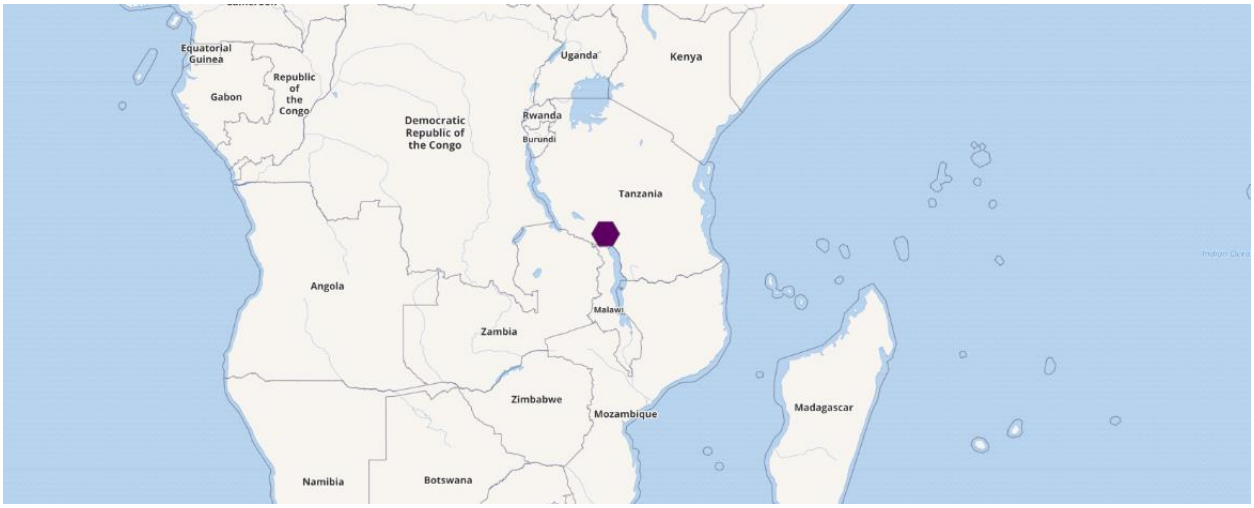

Figure 1. Known global distribution of *Oreochromis chungruruensis*. Location is in Tanzania (Africa). Map from GBIF Secretariat (2018).

6 Distribution Within the United States

No records of *Oreochromis chungruruensis* in the United States were found.

7 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Oreochromis chungruruensis* was low for most of the contiguous United States. There was an area of medium match southern Florida. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.000, low (Scores less than 0.005 are considered low). All states had low individual climate scores.

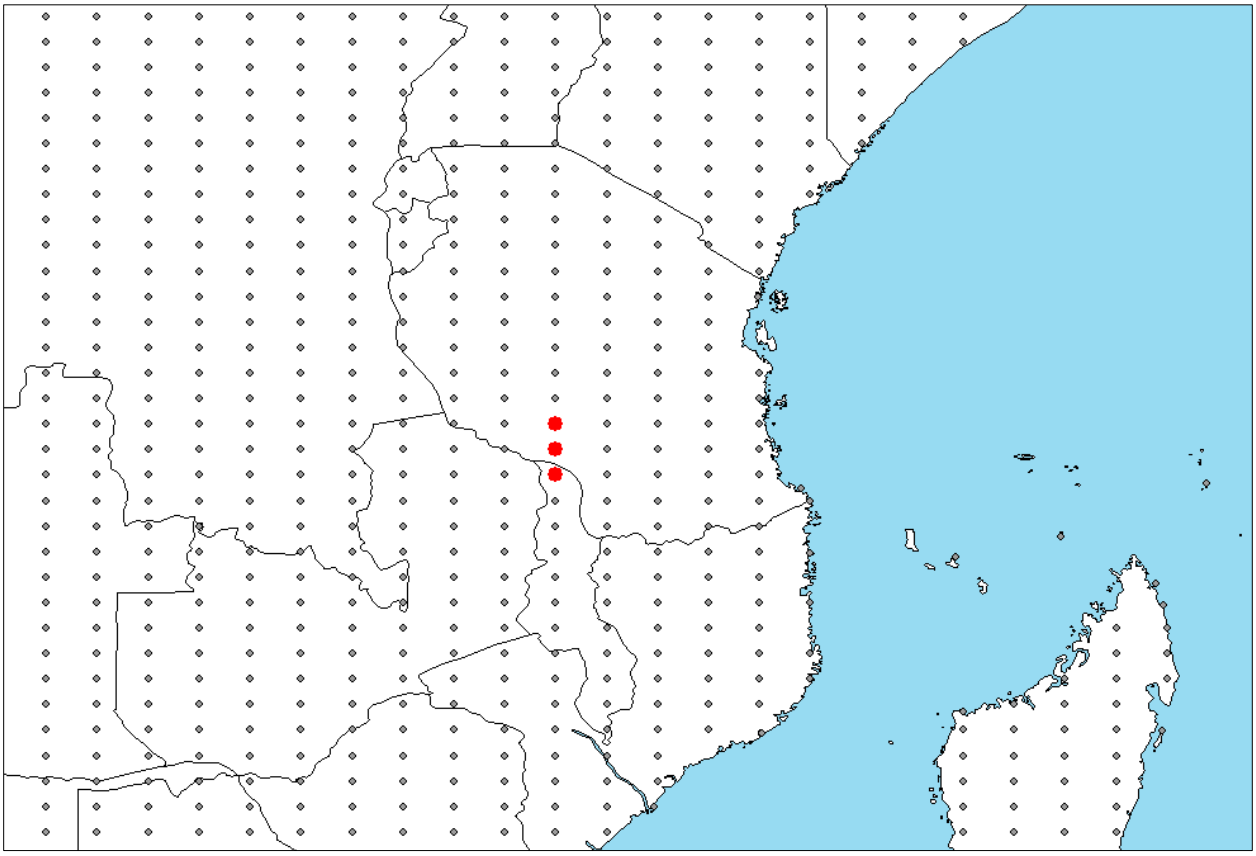

Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in Africa selected as source locations (red; Tanzania, Malawi) and non-source locations (gray) for *Oreochromis chungruruensis* climate matching. Source locations from GBIF Secretariat (2018). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

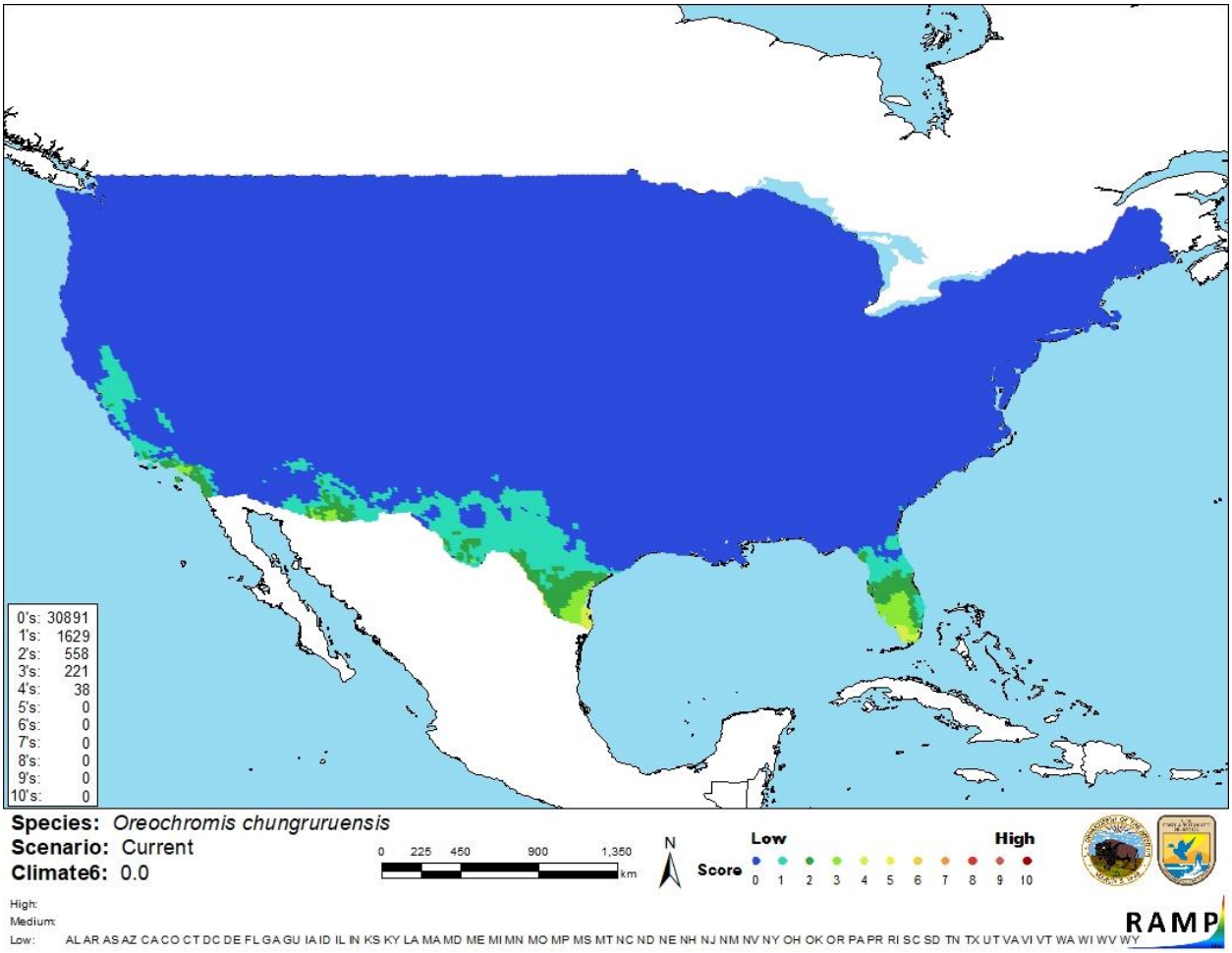

Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Oreochromis chungruruensis* in the contiguous United States based on source locations reported by GBIF Secretariat (2018). Counts of climate match are tabulated on the left. 0/Blue = Lowest match, 10/Red = Highest match.

The High, Medium, and Low Climate match Categories are based on the following table:

Climate 6: (Count of target points with climate scores 6-10)/ (Count of all target points)	Overall Climate Match Category
0.000≤X≤0.005	Low
0.005<X<0.103	Medium
≥0.103	High

8 Certainty of Assessment

The certainty of assessment is low. There is a general lack of information about this species. One source stated that there has been no research about this species since it was described to science in the 1920s. There were no records of introductions found.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Oreochromis chungruruensis is endemic to Lake Chungruru and has been listed as critically endangered on the IUNC Red List. The history of invasiveness is classified as "No Known Nonnative Populations." No records of introductions and there for no impacts from introductions were found. The climate match was low. The only area that did not have a low climate match was a small area of southern Florida which had a medium match. The certainty of assessment is low. The overall risk assessment category is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 4): No Known Nonnative Population**
- **Overall Climate Match Category (Sec. 7): Low**
- **Certainty of Assessment (Sec. 8): Low**
- **Remarks/Important additional information:** *Oreochromis chungruruensis* is endemic to Lake Chungruru.
- **Overall Risk Assessment Category: Uncertain**

10 Literature Cited

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 11.

Bayona JDR. 2006. *Oreochromis chungruruensis*. The IUCN Red List of Threatened Species 2006: e.T60626A12388100. Available: http://www.iucnredlist.org/details/full/60626/0 (June 2018).

Eschmeyer WN, Fricke R, van der Laan R, editors. 2018. Catalog of fishes: genera, species, references. California Academy of Science. Available: http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp (June 2018).

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Washington State Senate. 2019. Invasive/nonnative species. Washington Administrative Code, Chapter 220-640.

11 Literature Cited in Quoted Material

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.

Ahl E. 1924. Über einen neuen Cichliden aus Ost-Afrika. Zoologischer Anzeiger 59:86–87.

Eccles DH. 1992. FAO species identification sheets for fishery purposes. Field guide to the freshwater fishes of Tanzania. Rome: FAO. United Nations Development Programme, Project URT/87/016.

Trewavas E. 1976. Tilapiine fishes from crater-lakes north of Lake Malawi. Bulletin of the British Museum (Natural History). Zoology 30:149–158.

Trewavas E. 1983. Tilapiine fishes of the genera *Sarotherodon*, *Oreochromis* and *Danakilia*. London: Bulletin of the British Museum (Natural History).

Turner GF. 2015. *Oreochromis chungruruensis* (Ahl, 1924). [Online] Available: http://www.cichlidae.com (September 2016).