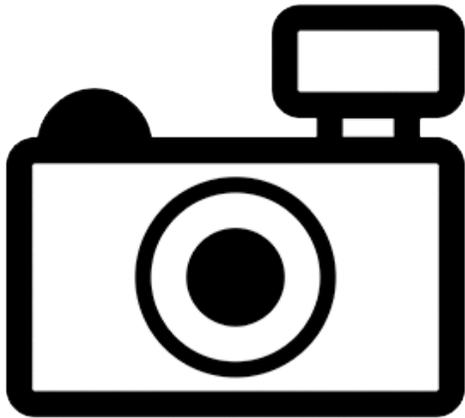


Golden Tropheops (*Tropheops tropheops*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, November 2014
Revised, December 2017
Web Version, 11/6/2019



No Photo Available

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2017):

“Africa: Endemic to Lake Malawi. Recorded from Maleri Islands to Chinyamwezi Rocks [Konings 1990].”

From Kasembe (2006):

“Endemic to Lake Malawi. Known from Maleri Island, Chemwezi rocks, Chinyankhwazi Island and Chinyamwezi Island.”

Status in the United States

There were no records of established populations of *Tropheops tropheops* in the United States.

From Nico (2017):

“One specimen [*Pseudotropheus* sp.] was taken with a hook and line from the San Marcos River below the Spring Lake dam in Hays County, Texas, on 3 September 1991 (Whiteside and Berkhouse 1992).”

“Many members of the mbuna cichlids are popular in the aquarium trade.”

Tropheops tropheops was bred in captivity in the United States in 1979 (Anonymous 1981: listed under the name *Pseudotropheus tropheops*).

Tropheops tropheops was imported to the United States in October 1992 (Chapman et al. 1994: listed under the name *Pseudotropheus tropheops*).

Means of Introductions in the United States

From Nico (2017):

“Probable aquarium release (Whiteside and Berkhouse 1992).”

Remarks

From Kasembe (2006):

“Red List Category & Criteria: Vulnerable D2 ver 3.1”

The valid name for this species is *Tropheops tropheops* (Eschemeyer et al. 2017). Some databases have not included this update and still use an older name, *Pseudotropheus tropheops* (ITIS 2017). Information searches were conducted using both names to gather as much relevant information about the species as possible for the assessment.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From Fricke et al. (2019):

“**Current status:** Valid as *Tropheops tropheops* (Regan 1922).”

From Froese and Pauly (2019):

“Animalia (Kingdom) > Chordata (Phylum) > Vertebrata (Subphylum) > Gnathostomata (Superclass) > [...] Actinopterygii (Class) > Perciformes (Order) > Labroidei (Suborder) > Cichlidae (Family) > Pseudocrenilabrinae (Subfamily) > *Tropheops* (Genus) > *Tropheops tropheops* (Species)”

Size, Weight, and Age Range

From Froese and Pauly (2017):

“Max length : 14.0 cm TL male/unsexed; [Konings 1990]”

Environment

From Froese and Pauly (2017):

“Freshwater; demersal; pH range: 8.0 - 8.5; dH range: 10 - 20. [...]; 24°C - 26°C [assumed to be recommended aquarium temperature range] [Riehl and Baensch 1996]; [...]”

Climate/Range

From Froese and Pauly (2017):

“Tropical; [...]; 13°S - 15°S”

Distribution Outside the United States

Native

From Froese and Pauly (2017):

“Africa: Endemic to Lake Malawi. Recorded from Maleri Islands to Chinyamwezi Rocks [Konings 1990].”

From Kasembe (2006):

“Endemic to Lake Malawi. Known from Maleri Island, Chemwezi rocks, Chinyankhwazi Island and Chinyamwezi Island.”

Introduced

FAO (2017) reports *Tropheops tropheops* [under the name *Pseudotropheus tropheops*] as introduced to Israel. It is listed as established in the wild through continuous restocking, not as a self-sustaining population.

Xiong et al. (2015) list *Tropheops tropheops* as introduced to China through the aquarium trade but give no further information.

Means of Introduction Outside the United States

From FAO (2017):

“Reasons of Introduction: 1) ornamental”

Short Description

From Goldstein (2009):

“Teeth in 7-8 transverse rows on lower jaw and 7-8 rows on upper jaw; 10-11 teeth in outer row of left lower jaw. Dorsal fin with 17 spines and 10 rays. Pectoral fins with 13-14 rays. Anal fin with 3 spines and 8 rays. Lateral line scales 30-31; 2 pored 29 scales posterior to hypural plate; 4 cheek scale rows. First gill arch with 10 rakers on ceratobranchial, 3 on epibranchial (Table 3.1).

The body has traces of dark cross bars on body bearing a series of darker spots above the lateral line and another on the middle of the side. There is an opercular spot and a spot on the base of the caudal fin; dorsal fin with a blackish intramarginal band (Regan 1922). Regan did not include color notes beyond presence of pigmentation in the species description; photographs of *Tropheops tropheops* by Konings (2007) show males as purple-brown above with a yellow face, lower cheek and opercle, gular, and chest and contrasts with the dark vertical bars; dorsal fin mainly yellow with a black band; there is some blue in the dorsal and caudal rays; the female is light brown with bluish scale centers and dark brown vertical bars that contrast with the body.”

Biology

From Froese and Pauly (2017):

“Occurs throughout the rocky habitat. In other places, it is mostly found in the sediment-free zone. Typical feeding position is at an angle of about 45° with the horizontal substrate. Nibbles, tears, and wrenches tightly attached algae from the substrate. May feed exclusively on plankton if it is abundant [Konings 1990].”

“Produces up to 40 eggs.”

From Kasembe (2006):

“Breeding males are seen throughout the year and they defend their territories against intruders.”

Human Uses

From Froese and Pauly (2017):

“Aquarium: commercial”

“Exported [from Malawi] as an aquarium fish [Konings 1990].”

From Kasembe (2006):

“It is a polymorphic cichlid exported in the aquarium trade.”

Tropheops tropheops is present in the ornamental trade in Hungary (Takács et al. 2017: listed under the name *Pseudotropheus tropheops*).

Tropheops tropheops present in the ornamental trade in Singapore (Youguang 2014: listed under the name *Pseudotropheus tropheops*).

Detailed information on the species' duration or volume in trade was not found.

Diseases

White spot disease is on the 2017 list of OIE reportable diseases (OIE 2017).

From Froese and Pauly (2017):

“White spot Disease, Parasitic infestations (protozoa, worms, etc.)
Bacterial Infections (general), Bacterial diseases”

Threat to Humans

From Froese and Pauly (2017):

“Harmless”

3 Impacts of Introductions

No information on impacts of introductions of *Tropheops tropheops* was found.

From Nico (2017):

“Impact of Introduction: Unknown.”

From FAO (2017):

“Ecological effects: unknown”

4 Global Distribution

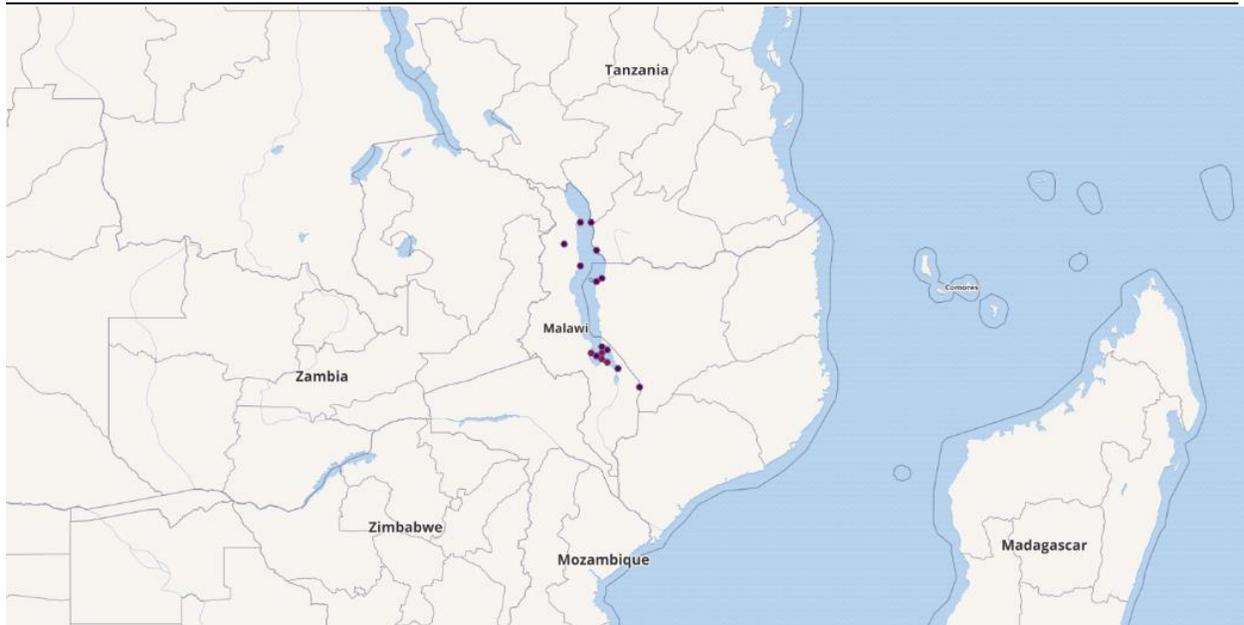


Figure 1. Known global distribution of *Tropheops tropheops*. Map from GBIF Secretariat (2017).

The introduced population in Israel is not a self-sustaining population (FAO 2017) and was not used to select source locations for the climate match.

5 Distribution Within the United States



Figure 2. Location of *Pseudotropheus* sp. specimen in the United States. Map from USGS NAS (Nico 2017). A single fish of *Pseudotropheus* (former genus for *Tropheops tropheops*) was caught with hook and line in 1991 but the actual species identification is unknown. This single specimen of undetermined species in Texas was not used to select source locations for the climate match.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Tropheops tropheops* was low across the country with small pockets of medium risk in New Mexico, Arizona, southern Florida, southern Texas, and southern California. The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous United States was 0.000, low. (Scores between 0.000 and 0.005, inclusive, are classified as low.) All States had low individual Climate 6 scores.

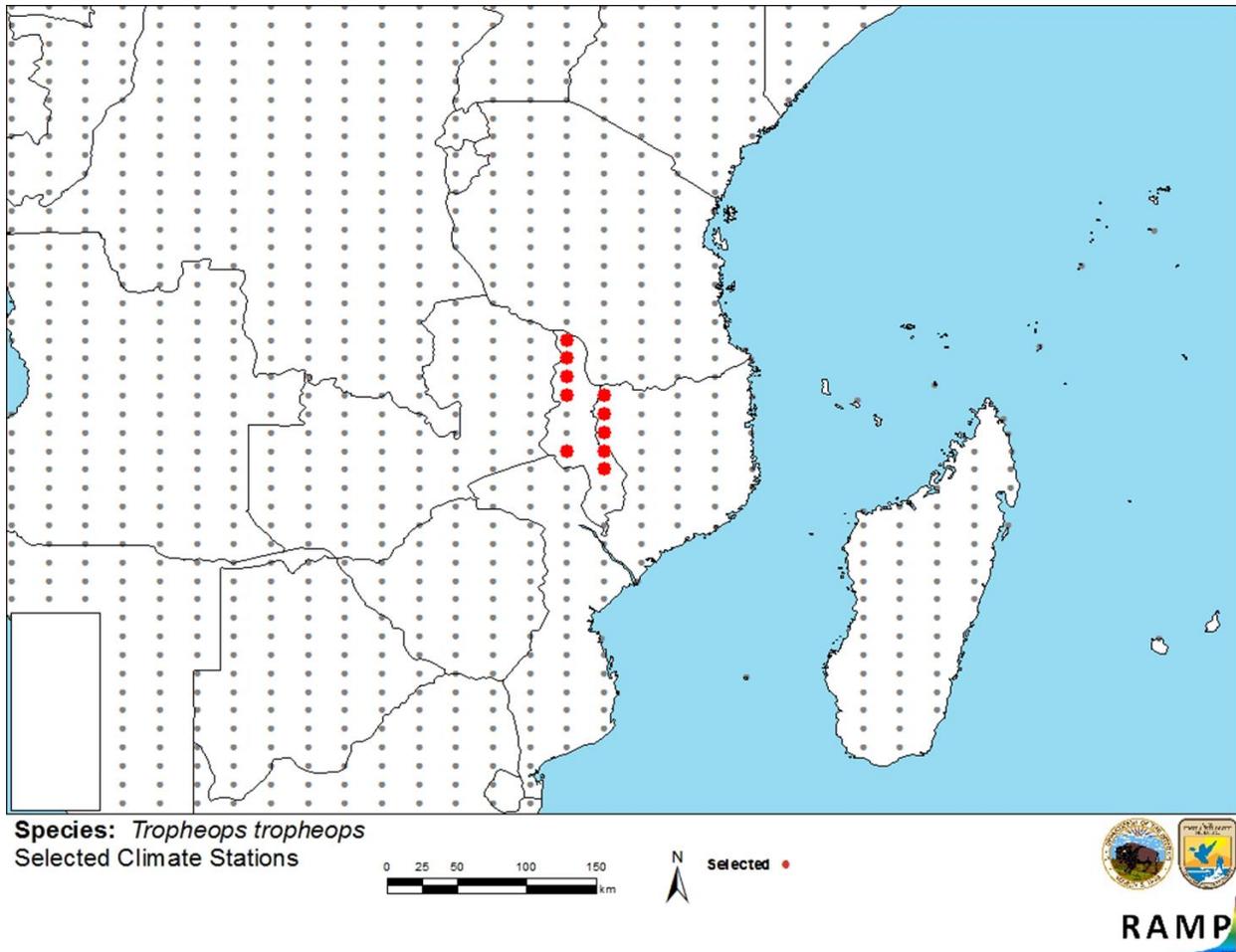


Figure 3. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red; Malawi, Mozambique) and non-source locations (grey) for *Tropheops tropheops* climate matching. Source locations from GBIF Secretariat (2017). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

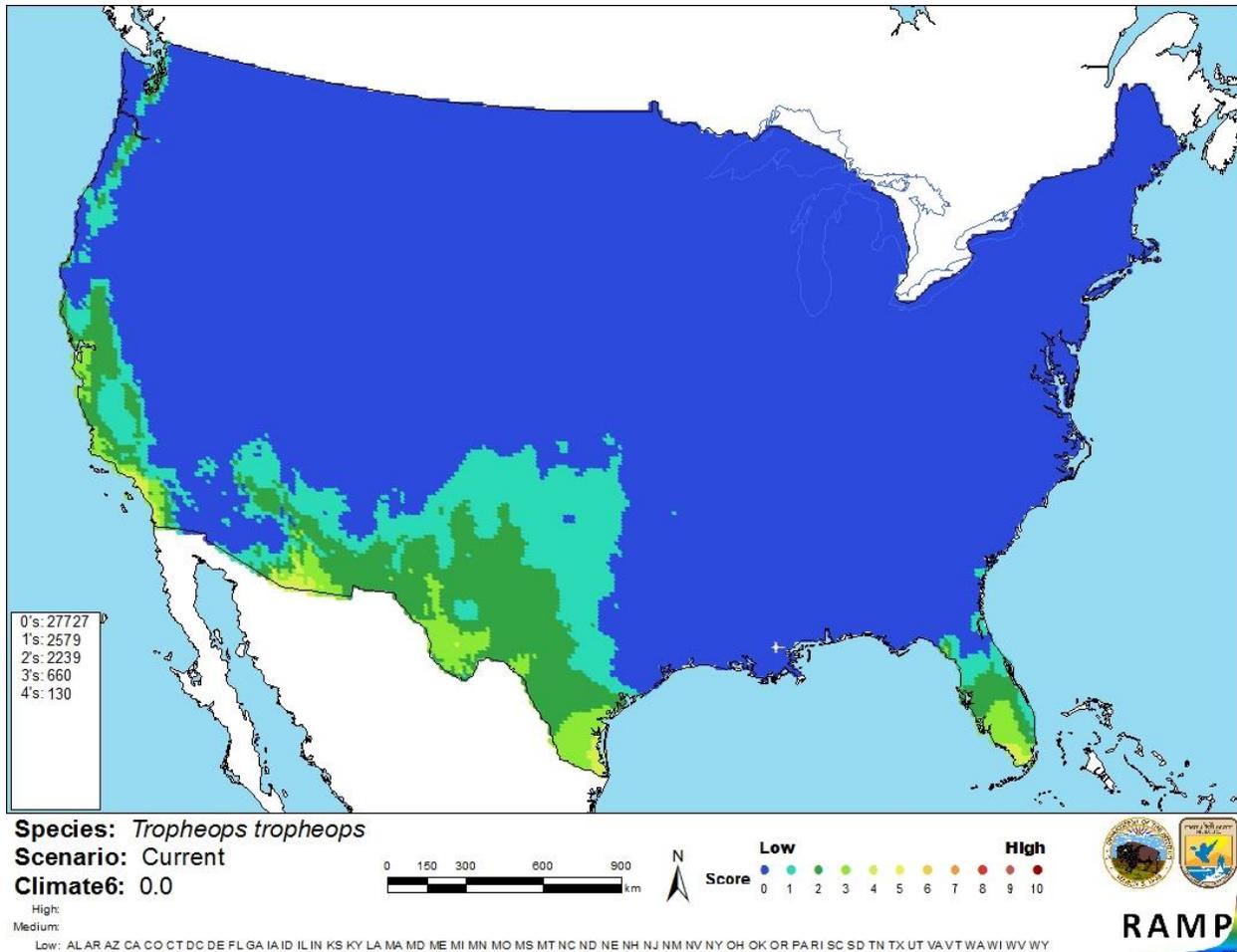


Figure 4. Map of RAMP (Sanders et al. 2014) climate matches for *Tropheops tropheops* in the contiguous United States based on source locations reported by GBIF Secretariat (2017). 0 = Lowest match, 10 = Highest match.

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 this assessment is low. There was adequate general information available for this species. Records of introduction were found but there were no records found of a self-sustaining established population. No information on impacts of introduction was found.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Golden Tropheops (*Tropheops tropheops*) is a cichlid endemic to Lake Malawi in Africa. *T. tropheops* is present in the aquarium trade. Detailed information on the species' duration or volume in trade was not found. The history of invasiveness is uncertain. There are records of introductions. One introduction failed to establish a population, another is an artificially sustained population, and the status of the third introduction is unknown. The climate match with the contiguous United States was low. The certainty of the assessment is low due to a lack of information. The overall risk assessment is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): Low**
- **Certainty of Assessment (Sec. 7): Low**
- **Remarks/Important additional information** No additional remarks.
- **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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- Youguang, Y. 2014. Developing monitoring tools for tomorrow's invasives: species lists, DNA barcodes, and images for ornamental fish. Doctoral dissertation. National University of Singapore

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.

- Konings, A. 1990. Ad Konings's book of cichlids and all the other fishes of Lake Malawi. T.F.H. Publications.

Konings. 2007. [Source material did not give full citation for this referece.]

Regan, C. T. 1922. The cichlid fishes of Lake Nyassa. Proceedings of the Zoological Society of London 1921(4)(36):675–727.

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