

Tilapia kottae

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, June 2015

Photo not available.

1 Native Range, and Status in the United States

Native Range

From Froese and Pauly (2015):

“Africa: Lake Barombi-ba-kotta and Lake Mboandong, Cameroon [Stiassny et al. 2008]”

Status in the United States

This species has not been reported in the U.S.

Means of Introductions in the United States

This species has not been reported in the U.S.

Remarks

From Moelants (2010):

“Red List Category & Criteria: Endangered B1ab(iii)+2ab(iii) ... The species is endemic to the Lake Barombi-ba-kotta and Lake Mboandong. The species is currently major threat is from oil plantations and slash and burn agriculture leading to sedimentation and pollution in the lakes (two locations). There is also a potential threat from the lake 'burping' - CO₂ (as in Lake Nyos and Lake Barombi-Mbo). In addition deforestation of the surroundings of the crater may cause more wind which could lead to the lake 'turning', as the lake is stratified, lower layer being very low in oxygen and high in organic matter. Higher winds may cause currents in the lake which could cause this lower layer to mix with the upper layer where the fish live. This would cause a massive decrease in oxygen in the water and kills the fish.”

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2015):

“Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata

Infraphylum Gnathostomata
Superclass Osteichthyes
Class Actinopterygii
Subclass Neopterygii
Infraclass Teleostei
Superorder Acanthopterygii
Order Perciformes
Suborder Labroidei
Family Cichlidae
Genus Tilapia
Species *Tilapia kottae* Lönnberg, 1904”

“Taxonomic Status: valid”

Size, Weight, and Age Range

From Froese and Pauly (2015):

“Max length : 15.0 cm TL male/unsexed; [Teugels and Thys van den Audenaerde 1991]”

Environment

From Froese and Pauly (2015):

“Freshwater; benthopelagic.”

Climate/Range

From Froese and Pauly (2015):

“Tropical; 24°C - 26°C [Baensch and Riehl 1995]”

Distribution Outside the United States

Native

From Froese and Pauly (2015):

“Africa: Lake Barombi-ba-kotta and Lake Mboandong, Cameroon [Stiassny et al. 2008].”

Introduced

No introductions of this species have been reported.

Means of Introduction Outside the United States

No introductions of this species have been reported.

Short description

From Froese and Pauly (2015):

“Dorsal spines (total): 14 - 16; Dorsal soft rays (total): 10-13; Anal spines: 3; Anal soft rays: 8 - 9. Diagnosis: dorsal fin with 14-16 spines and 10-13 soft rays; anal fin with 3 spines and 8-9 soft rays; 28-30 scales in lateral line; 8-10 gill rakers on lower limb of first arch [Stiassny et al. 2008].”

Biology

From Froese and Pauly (2015):

“Substrate brooder [Stiassny et al. 2008].”

From Corbet et al. (1973):

“Specimens caught in the middle of Lake Kotto were less frequently ripe than those caught in traps close inshore. Ripe gonads were found in only three out of 50 caught in a gill net set in mid lake, but in six out of 11 fishes of the same size (60-70 mm standard length) from inshore traps. This may indicate an inshore movement of ripe fishes.”

“In Lake Kotto we examined the stomachs of 59 fishes ranging in standard length from 70 to 178 mm. The main contents in most of them was phytoplankton, and in others organic debris or dark plant tissues predominated. Evidently the fishes took some of their food very close to the bottom of the lake because many stomachs contained a few chironomid larvae or mayfly larvae. Some had eaten the eggs of other fishes. Items presumably ingested along with the phytoplankton included rotifers, *Chaoborus* larvae and schistosome eggs.”

“From Mboandong we examined 14 small fishes ranging in length from 9 to 22 mm, and seven larger fishes ranging from 51 to 73 mm in length. The larger fishes had a much larger proportion of organic debris in their stomachs than the fishes from Lake Kotto, but four also contained phytoplankton. The smaller fishes had a different diet, with ostracods and copepods as the most important items, together with hydracarinae and mayfly larvae. Some organic debris and dark plant tissues were also taken, but none of the smaller fishes had taken phytoplankton.”

Human uses

No information available.

Diseases

No OIE-notifiable diseases have been reported for this species.

Threat to humans

From Froese and Pauly (2015):

“Harmless”

3 Impacts of Introductions

No introductions of this species have been reported.

4 Global Distribution



Figure 1. Global distribution of *T. kottae*. Map from GBIF (2015).

5 Distribution within the United States

This species has not been reported in the U.S.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) was low throughout the contiguous U.S., reflected in a Climate 6 proportion of 0.0. The range for a low climate match is 0.000 to 0.005.

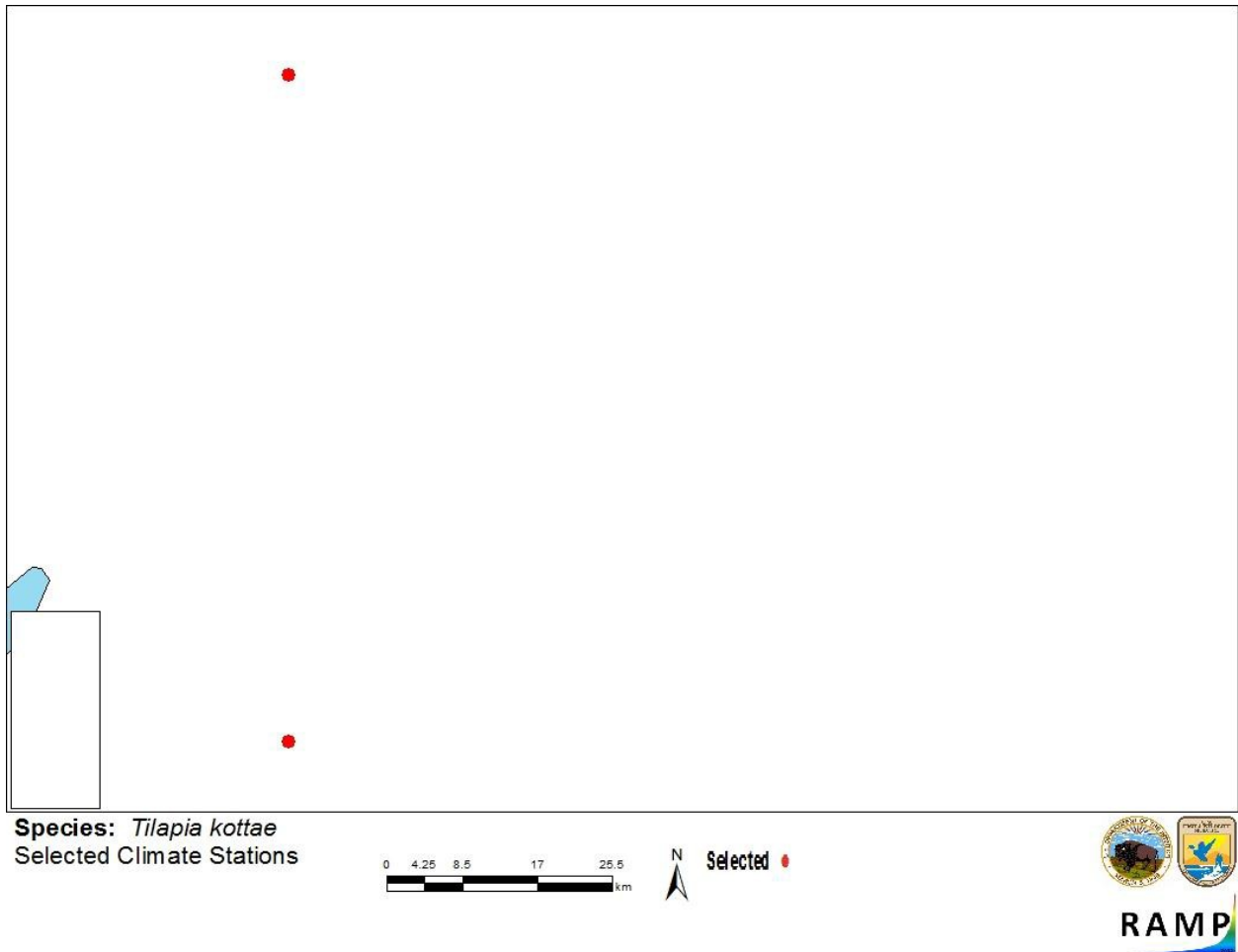


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red) and non-source locations (gray) for *T. kottae* climate matching. Source locations from GBIF (2015). All source locations are in Cameroon.

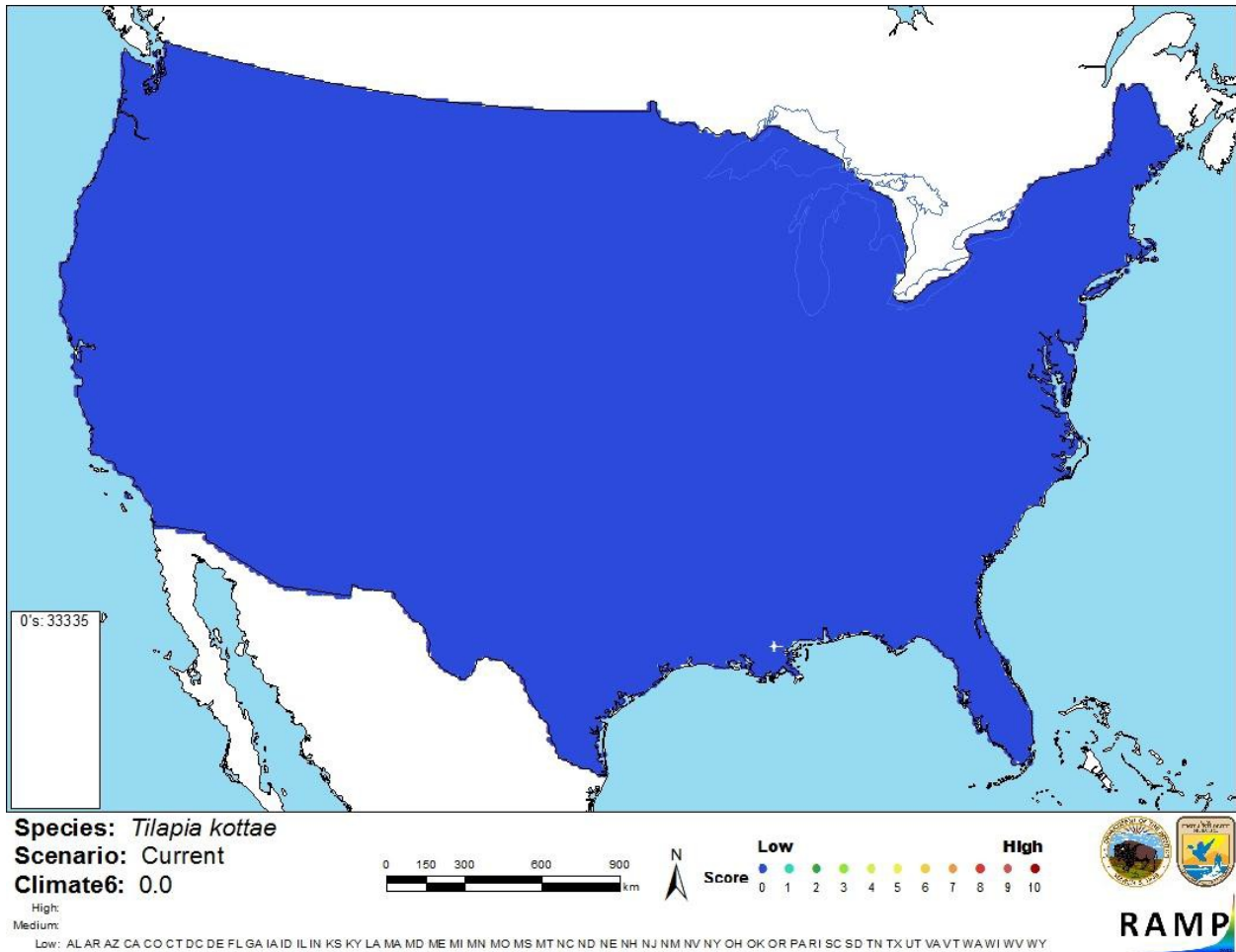


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *T. kottae* in the continental United States based on source locations reported by GBIF (2015). 0= Lowest match, 10=Highest match. Counts of climate match scores are tabulated on the left.

7 Certainty of Assessment

Little information is available on the biology of *T. kottae* and it has not become established outside its native range. The certainty of this assessment is high because the lack of information about this species precludes any assessment other than “uncertain” risk.

8 Risk Assessment

Summary of Risk to the Continental United States

Tilapia kottae is a benthopelagic cichlid endemic to two lakes in western Cameroon. The species has not been reported as introduced outside of this location. Because *T. kottae* has no history of invasiveness, it is currently impossible to know what impacts *T. kottae* might have if introduced to the U.S. Climate match to the contiguous U.S. is low. Overall risk of this species is uncertain.

Assessment Elements

- History of Invasiveness (Sec. 3):** Uncertain
- Climate Match (Sec.6):** Low
- Certainty of Assessment (Sec. 7):** High
- 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.

Corbet, S. A., J. Green, J. Griffith, and E. Betney. 1973. Ecological studies on crater lakes in West Cameroon Lakes Kotto and Mboardong. *Journal of Zoology* 170:309-324.

Froese, R., and D. Pauly, editors. 2015. *Tilapia kottae* Lönnberg, 1904. FishBase. Available: <http://www.fishbase.org/summary/8919>. (June 2015).

Global Biodiversity Information Facility (GBIF). 2015. GBIF backbone taxonomy: *Tilapia kottae* Lönnberg, 1904. Global Biodiversity Information Facility, Copenhagen. (June 2015).

Integrated Taxonomic Information System (ITIS). 2015. *Tilapia kottae* Lönnberg, 1904. Integrated Taxonomic Information System, Reston, Virginia. Available: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=648975. (June 2015).

Moelants, T. 2010. *Tilapia kottae*. The IUCN Red List of Threatened Species, version 2015.2. Available: <http://www.iucnredlist.org/details/21898/0>. (June 2015).

Sanders, S., C. Castiglione, and M. 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. 1995. *Aquarien Atlas*, volume 4. Mergus Verlag GmbH, Verlag für Natur-und Heimtierkunde, Melle, Germany.

Stiassny, M. L. J., A. Lamboj, D. De Weirtdt, and G. G. Teugels. 2008. Cichlidae. Pages 269-403 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 2. Coll. faune et flore tropicales 42. Institut de recherche de développement, Paris, France, Muséum national d'histoire naturelle, Paris, France and Musée royal de l'Afrique Central, Tervuren, Belgium.

Teugels, G. G., and D. F. E. Thys van den Audenaerde. 1991. *Tilapia*. Pages 482-508 in J. Daget, J.-P. Gosse, G. G. Teugels, and D. F. E. Thys van den Audenaerde, editors. *Check-list of*

the freshwater fishes of Africa (CLOFFA), volume 4. ISNB, Brussels; MRAC, Tervuren, Belgium; and ORSTOM, Paris.