Nautla Cichlid (*Herichthys deppii*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, August 2011
Revised, October 2012, September 2018
Web Version, 12/14/2018

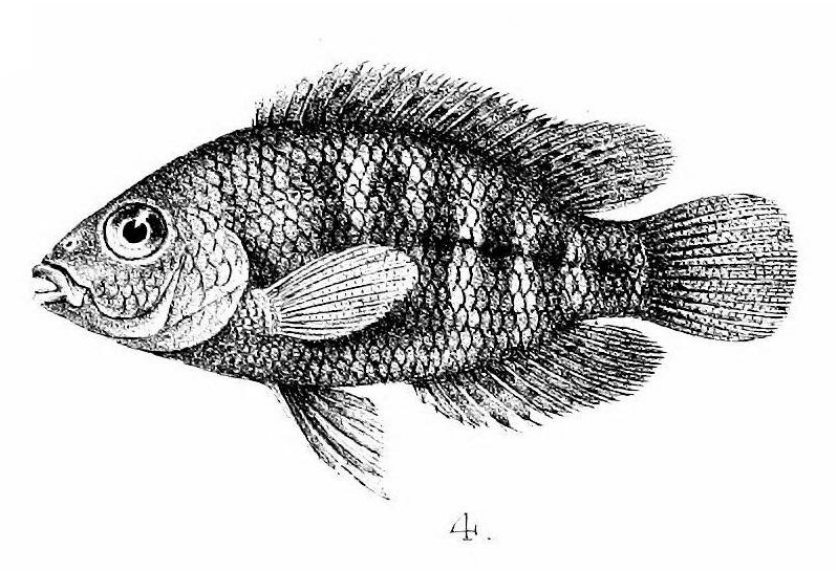

Image: C. T. Regan. Public domain. Available: https://archive.org/stream/cu31924002863227/#page/n252/mode/1up. (September 2018).

1 Native Range and Status in the United States

Native Range

From Eschmeyer et al. (2018):

"Nautla and Misantla rivers, Veracruz, Atlantic Slope of southern Mexico."

Status in the United States

This species has not been reported as introduced or established in the United States. There is no indication that this species is in trade in the United States.

Means of Introductions in the United States

This species has not been reported as introduced or established in the United States.

Remarks
Species information for this report was collected by searching on both the accepted scientific name, *Herichthys deppii*, and the synonym, *Cichlasoma geddesi*.

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 Acanthopterygii
Order Perciformes
Suborder Labroidei
Family Cichlidae
Genus *Herichthys*
Species *Herichthys deppii* (Heckel, 1840)"

From Eschmeyer et al. (2018):

"Current status: Valid as *Herichthys deppii* (Heckel 1840). Cichlidae: Cichlinae."

Size, Weight, and Age Range
From Froese and Pauly (2018):

"Max length : 12.0 cm TL male/unsexed; [Kullander 2003]"

Environment
From Froese and Pauly (2018):

"Freshwater; benthopelagic; pH range: ? - 7.4. […] ? - 26°C"

Climate/Range
From Froese and Pauly (2018):

"Subtropical;"

Distribution Outside the United States

Native

From Eschmeyer et al. (2018):

"Nautla and Misantla rivers, Veracruz, Atlantic Slope of southern Mexico."

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 Hanneman and Lampert (2002):

"Mary [Bailey] translated Heckel's original 1840 description, the most relevant part being: "The present colour in alcohol is light rust-brown, whitish on breast and belly; on the posterior half of the body, specifically between the anus and the caudal fin, there are 6 darker vertical stripes with even intervals of the same width; there is an even darker spot on the centre of the last stripe. Each scale on the lower half of the body bears a longitudinal streak at its centre, all running in the same direction, so that there appear to be as many horizontal lines as rows of scales. The fins are the colour of the body, except that the base of the soft dorsal and anal is whitish and speckled with black between the last rays."."

Biology

From Froese and Pauly (2018):

"Fast-flowing river over stony bottom, or slower stream, with pH 7.4, dGH 5, KH 6, 26C."

Human Uses

From Hanneman and Lampert (2002):

"It never attained commercial demand from the aquarium trade, and perhaps for this reason has also been largely ignored until recently in current Central American cichlid literature."

Diseases

No information available. 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 *Herichthys deppii*, reported from southern Mexico. Map from GBIF Secretariat (2018). A point along the southern coast of Mexico was excluded from climate matching as an outlier because it does not occur in the documented range of *H. deppii*.

5 Distribution Within the United States

This species has not been reported as introduced or established in the United States.

6 Climate Matching

Summary of Climate Matching Analysis

The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous United States was 0.013, which is a medium climate match. The range for a medium climate score is between 0.005 and 0.103. Florida had a high climate score and Texas had a medium climate score. The climate score in all other contiguous United States was low. Locally, high matches occurred in peninsular Florida and medium matches occurred along the United

States coastline from Georgia to Texas and along the U.S.-Mexico border. Medium matches also occurred in scattered locations along the Pacific coastline and around Puget Sound in Washington. Low matches covered the interior of the contiguous United States.

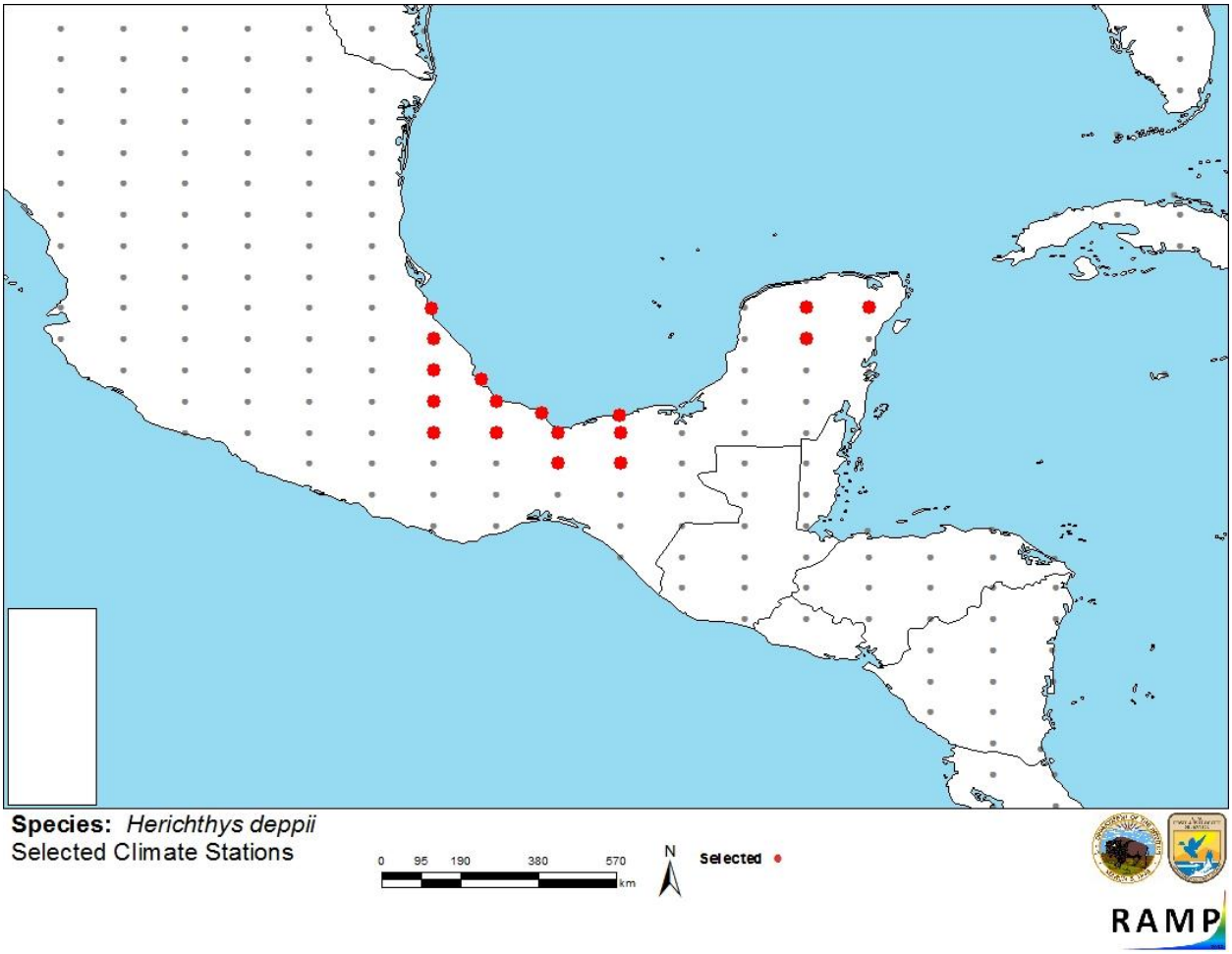

Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red; Mexico) and non-source locations (gray) for *Herichthys deppii* climate matching. Source locations from GBIF Secretariat (2018).

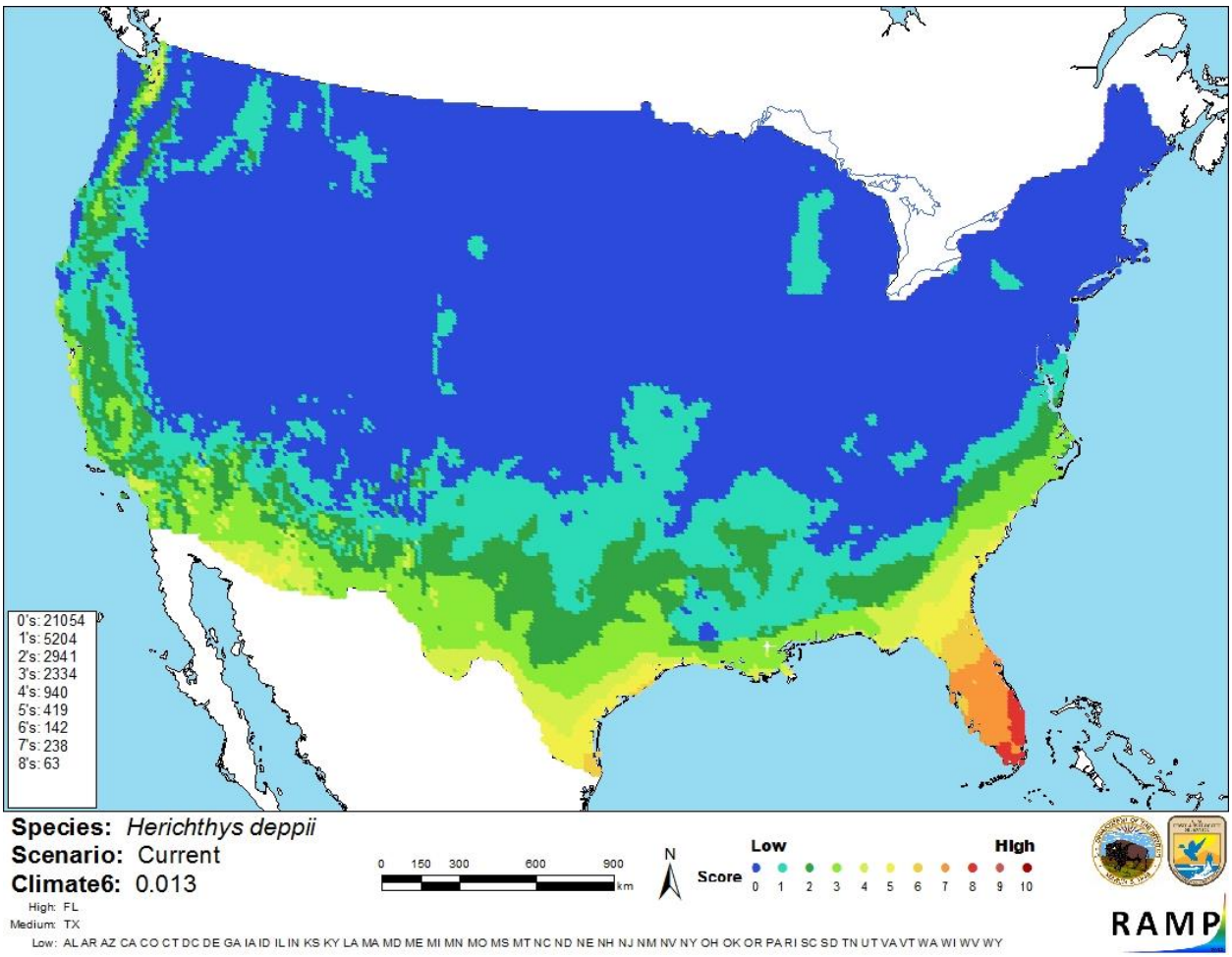

Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Herichthys deppii* in the contiguous United States based on source locations reported by GBIF Secretariat (2018). 0= Lowest match, 10=Highest match.

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≤0.005	Low
0.005<X<0.103	Medium
≥0.103	High

7 Certainty of Assessment

There is very little information available about *Herichthys deppii*. Little information is available about the biology of this species. It has never been reported as introduced outside of its native range, so no information is available to determine the invasive potential of this species. Certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Herichthys deppii, the Nautla Cichlid, is a cichlid species native to southern Mexico. It is not currently used in the aquarium trade and has never been documented as introduced or established outside of its native range. This species has a medium climate match with the contiguous United States. The climate match was high in southern Florida and medium along most of the southern border of the United States, around Puget Sound in Washington and in patches along the California coast. Because there is so little information available about this species, the 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.

Fricke, R., W. N. Eschmeyer, and R. van der Laan, editors. 2018. Catalog of fishes: genera, species, references. Available: http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp. (September 2018).

Froese, R., and D. Pauly, editors. 2018. *Herichthys deppii* (Heckel, 1840). FishBase. Available: https://www.fishbase.de/summary/Herichthys-deppii.html. (September 2018).

GBIF Secretariat. 2018. GBIF backbone taxonomy: *Herichthys deppii*, Heckel, 1840. Global Biodiversity Information Facility, Copenhagen. Available: https://www.gbif.org/species/2373147. (September 2018).

Hanneman, E., and L. Lampert. 2002. *Herichthys deppii* (Heckel, 1840) - Rediscovering a lost species. Cichlid Room Companion. Available: https://www.cichlidae.com/article.php?id=173. (September 2018).

ITIS (Integrated Taxonomic Information System). 2018. *Herichthys deppii* (Heckel, 1840). Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=648686#null. (September 2018).

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

Kullander, S. O. 2003. Cichlidae (Cichlids). Pages 605-654 *in* R. E. Reis, S. O. Kullander and C. J. Ferraris, Jr., editors. Checklist of the freshwater fishes of South and Central America. EDIPUCRS, Porto Alegre, Brazil.