

## ***Hoplias brasiliensis* (a fish, no common name)**

### **Ecological Risk Screening Summary**

U.S. Fish and Wildlife Service, August 2011

Revised, September 2018

Web Version, 1/28/2019



Photo: Oyakawa and Mattox (2009). Licensed under Creative Commons CC-BY.

## **1 Native Range and Status in the United States**

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### **Native Range**

From Oyakawa and Mattox (2009):

“Coastal rivers of northeastern Brazil, from the rio Paraguaçu in Bahia State to rio Jequitinhonha in Minas Gerais and Espírito Santo States, including rio de Contas and rio Pardo [...]”

“The region of occurrence of this species lies south and east of the rio São Francisco and north of the rio Doce [Brazil].”

### **Status in the United States**

This species has not been reported as introduced or established in the United States. A search of online aquarium retailers did not find evidence that *Hoplias brasiliensis* is in trade in the United States.

The Florida Fish and Wildlife Conservation Commission has listed *H. brasiliensis* as a prohibited species. Prohibited nonnative species “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” (FFWCC 2018).

## Means of Introduction into the United States

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

## 2 Biology and Ecology

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### 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 Characiformes  
Family Erythrinidae  
Genus *Hoplias*  
Species *Hoplias brasiliensis* (Spix and Agassiz, 1829)”

“Current Standing: valid”

From Fricke et al. (2019):

“**Current status:** Valid as *Hoplias brasiliensis* (Spix & Agassiz 1829). Erythrinidae.”

### Size, Weight, and Age Range

From Froese and Pauly (2018):

“Max length: 20.3 cm SL male/unsexed; [Oyakawa 2003]”

### Environment

From Froese and Pauly (2018):

“Freshwater; benthopelagic.”

## **Climate/Range**

From Froese and Pauly (2018):

“Tropical”

## **Distribution Outside the United States**

Native

From Oyakawa and Mattox (2009):

“Coastal rivers of northeastern Brazil, from the rio Paraguaçu in Bahia State to rio Jequitinhonha in Minas Gerais and Espírito Santo States, including rio de Contas and rio Pardo [...]”

“The region of occurrence of this species lies south and east of the rio São Francisco and north of the rio Doce.”

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 (2018):

“This species is distinguished by the following characters: 4-6 pores of the laterosensory canal along the ventral surface of the dentary (vs. 6-8 in *Hoplias lacerdae*); 38-43 scales along the lateral line (vs. 42-46 in *H. intermedius*); anterior profile of head that is angular in lateral view (vs. rounded in *H. australis*, *H. curupira* and *H. lacerdae*); ground coloration of head and body [Oyakawa and Mattox 2009].”

## **Biology**

From Oyakawa and Mattox (2009):

“In all habitats they [species in the genus *Hoplias*] are predators of other fish (Taphorn, 1992; Planquette et al., 1996).”

## **Human Uses**

From Gurgel-Lourenço et al. (2013):

“Five of these [native fish species in the Brazilian Caatinga region] are medium or large-size (*H. brasiliensis*, *H. malabaricus*, *P. brevis*, *Leporinus* sp. and *L. cf. piau*) and constitute an important food source for the local communities.”

## 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

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No information available. No introductions of this species have been reported.

The Florida Fish and Wildlife Conservation Commission (2018) has listed *H. brasiliensis* as a prohibited species.

## 4 Global Distribution

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**Figure 1.** Known global distribution of *Hoplias brasiliensis*, reported from eastern Brazil. Map from GBIF Secretariat (2017). The northernmost occurrence was excluded from the climate matching analysis because it lies east of the São Francisco River, outside the known established range of the species (Oyakawa and Mattox 2009).

## 5 Distribution within the United States

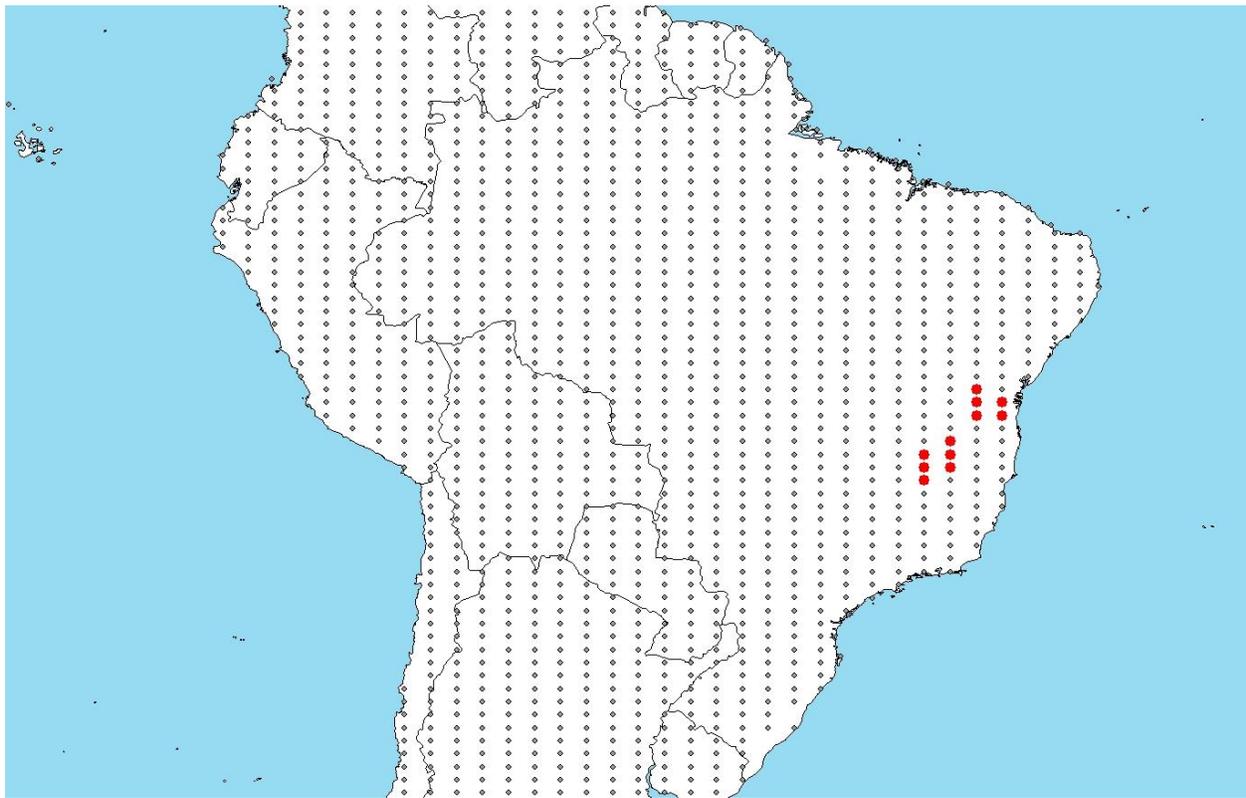
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This species has not been reported as introduced or established in the United States.

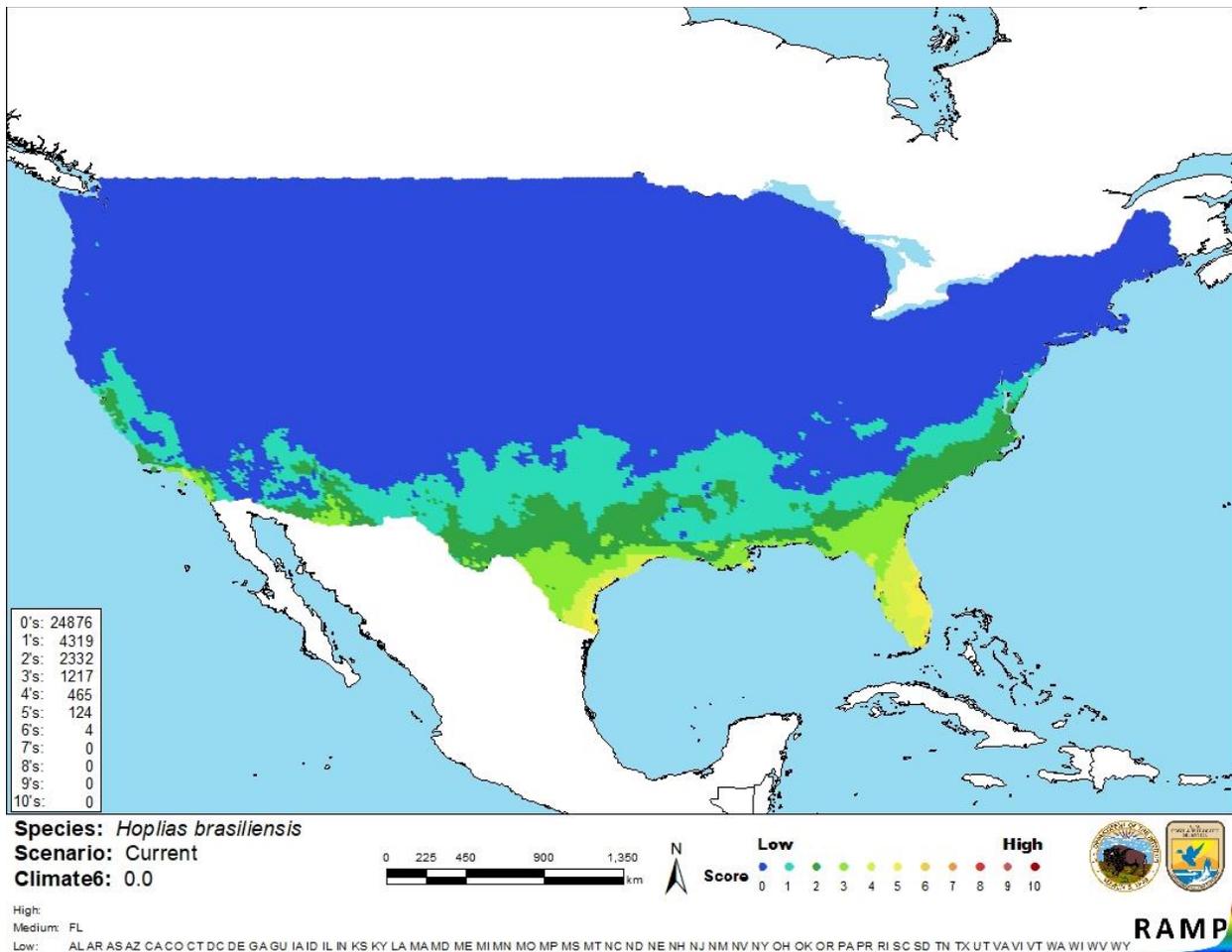
## 6 Climate Matching

### Summary of Climate Matching Analysis

The climate match (Sanders et al. 2018; 16 climate variables; Euclidean Distance) was medium in most of peninsular Florida, in coastal Texas, and in small areas of coastal Louisiana and coastal southern California. The climate match was low throughout the remainder of the contiguous United States. Climate 6 score indicated that the contiguous United States has a low climate match overall. Scores of 0.005 and below are classified as low match; Climate 6 score for *H. brasiliensis* was 0.000. All states had a low climate score except Florida, where the score was medium.



**Figure 2.** RAMP (Sanders et al. 2018) source map showing weather stations selected as source locations (red; Brazil) and non-source locations (gray) for *Hoplais brasiliensis* climate matching. Source locations from GBIF Secretariat (2017).



**Figure 3.** Map of RAMP (Sanders et al. 2018) climate matches for *Hoplias brasiliensis* 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
$0.000 \leq X < 0.005$	Low
$0.005 < X < 0.103$	Medium
$\geq 0.103$	High

## 7 Certainty of Assessment

Limited information is available on the biology and ecology of *H. brasiliensis*. Its distribution appears to be well defined at present, although few occurrence records were available for the climate matching analysis. No introductions of *H. brasiliensis* have been reported, so any impacts of introduction remain unknown. For these reasons, the certainty of this assessment is low.

## 8 Risk Assessment

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### Summary of Risk to the Contiguous United States

*Hoplias brasiliensis* is a species of characiform fish native to coastal rivers in eastern Brazil. It has not been reported as introduced in the United States or elsewhere outside its native range, but is listed as a prohibited species in the State of Florida. Within its native range, *H. brasiliensis* is harvested for human consumption. The climate match with the contiguous United States was low overall, with medium matches occurring in parts of Florida, Louisiana, Texas, and California. Because of the lack of introduction history, the certainty of assessment is low and history of invasiveness is uncertain. The overall risk posed by *H. brasiliensis* is classified as “Uncertain.”

### Assessment Elements

- **History of Invasiveness: Uncertain**
- **Climate Match: Low**
- **Certainty of Assessment: Low**
- **Overall Risk Assessment Category: Uncertain**

## 9 References

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**Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 10.**

- FFWCC (Florida Fish and Wildlife Conservation Commission). 2018. Prohibited species list. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida. Available: <http://myfwc.com/wildlifehabitats/nonnatives/regulations/prohibited/>. (September 2018).
- Fricke, R., W. N. Eschmeyer, and R. van der Laan, editors. 2019. Catalog of fishes: genera, species, references. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (January 2019).
- Froese, R., and D. Pauly, editors. 2018. *Hoplias brasiliensis* (Spix & Agassiz, 1829). FishBase. Available: <https://www.fishbase.de/summary/Hoplias-brasiliensis.html>. (September 2018).
- GBIF Secretariat. 2017. GBIF backbone taxonomy: *Hoplias brasiliensis* (Spix & Agassiz, 1829). Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/2352228>. (September 2018).
- Gurgel-Lourenço, R. C., W. A. Sousa, J. I. Sánchez-Botero, and D. S. Garcez. 2013. Ichthyofauna of two reservoirs in the middle Acaraú river basin, Ceará, northeastern Brazil. *Check List* 9(6):1391-1395.
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Oyakawa, O. T., and G. M. T. Mattox. 2009. Revision of the Neotropical trahiras of the *Hoplias lacerdae* species-group (Ostariophysi: Characiformes: Erythrinidae) with descriptions of two new species. *Neotropical Ichthyology* 7(2):117-140.

Sanders, S., C. Castiglione, and M. Hoff. 2018. Risk Assessment Mapping Program: RAMP, version 3.1. U.S. Fish and Wildlife Service.

## 10 References Quoted But Not Accessed

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**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.**

Oyakawa, O. T. 2003. Erythrinidae (Trahiras). Pages 238-240 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.

Planquette, P., P. Keith, and P.-Y. Le Bail. 1996. Atlas des poissons d'eau douce de Guyane, volume I. Muséum Nationale d'Histoire Naturelle, Paris.

Taphorn, D. C. 1992. The characiform fishes of the Apure River drainage, Venezuela. *Biollania* special edition 4. Monografías Científicas del Museo de Ciencias Naturales, UNELLEZ, Guanare, Venezuela.