

Leopard Catfish (*Leiarius perruno*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, February 2011

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Photo: Guérin Nicolas. Licensed under Creative Commons Attribution-Share Alike 3.0 Unported. Available: [https://commons.wikimedia.org/wiki/File:Perrunichthys_perruno_\(zoo_Zurich\).jpeg](https://commons.wikimedia.org/wiki/File:Perrunichthys_perruno_(zoo_Zurich).jpeg). (July 2019).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2019):

“South America: Lake Maracaibo basin [Columbia and Venezuela].

Status in the United States

From Froese and Pauly (2019):

“A single specimen (about 1.4 kg, greater than 50 cm SL) was taken from Cedar Bayou near Galveston Bay, Texas, by an angler in March 1992 (R. G. Howells, personal communication).”

From Nico (2019):

“**Status:** Failed in Texas.”

“**Remarks:** The Texas record is supported by a photograph of rather poor quality (on file at the USGS Biological Resources Division center in Gainesville). The angler kept the specimen to make it into a trophy mount (Howells, personal communication). Some question still remains as to correct identity of the Texas specimen [*Leiarius perruno* versus a related species]. According to J. G. Lundberg (personal communication), the dorsal ray count of 10, if correctly reported, makes the case good for *Leiarius marmoratus* [a separate species that is visually similar to *L. perruno*] even though the color of the fish in the photograph is not exactly correct (*Leiarius* and *Perrunichthys* can be distinguished easily by superficial skull characteristics). Although neither species is apparently common in the aquarium trade, Ferraris (1991) reported that both species have become more popular in recent years. Commercial airline flights from Maracaibo, Venezuela, to the Houston area have been common during the recent past and indicate that *P. perruno* could be easily brought into Texas along with other ornamental fishes.”

Means of Introductions in the United States

From Nico (2019):

“**Means of Introduction:** Probable aquarium release (Howells 2001).”

Remarks

Leiarius perruno is formerly known as *Perrunichthys perruno*; both scientific names were used to conduct research for this screening.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From Fricke et al (2019):

“**Current status:** Valid as *Leiarius perruno* (Schultz 1944).”

From ITIS (2019):

Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata

Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii
Class Teleostei
Superorder Ostariophysi
Order Siluriformes
Family Pimelodidae
Genus *Perrunichthys*
Species *Perrunichthys perruno* Schultz, 1944

Size, Weight, and Age Range

From Froese and Pauly (2019):

“Max length : 60.0 cm TL male/unsexed; [Axelrod et al. 1991]”

From Nico (2019):

“**Size:** To over 62 cm SL.”

Environment

From Froese and Pauly (2019):

“Freshwater; demersal.”

Climate/Range

From Froese and Pauly (2019):

“Tropical”

Distribution Outside the United States

Native

From Froese and Pauly (2019):

“South America: Lake Maracaibo basin [Columbia and Venezuela].

Introduced

Leiarius perruno has not been reported as introduced outside of the United States.

Means of Introduction Outside the United States

Leiarius perruno has not been introduced outside of the United States.

Short Description

From Nico (2019):

“Adults are large and colorful, with a color pattern similar to that of another large pimelodid catfish, *Leiarius marmoratus*.”

Biology

From Froese and Pauly (2019):

“Feeds on fishes [Galvis et al. 1997].”

Human Uses

From Froese and Pauly (2019):

“Fisheries: of no interest; aquarium: commercial”

From López-Rojas and Bonilla-Rivero (2007):

“*Perrunichthys perruno* (endemic to the Lake Maracaibo basin) and *Leiarius marmoratus* (endemic to the Orinoco River basin), two pimelodid catfishes native to Venezuela but from very different drainage systems, have been hybridized and transplanted for open-water aquaculture.”

Diseases

No OIE-reportable diseases (OIE 2019) were found to be associated with *Leiarius perruno*.

According to Moravec et al. (2006), *Leiarius perruno* is a host of *Alinema amazaonicum*.

Threat to Humans

From Froese and Pauly (2019):

“Harmless”

3 Impacts of Introductions

There are no known invaded ranges for this species; therefore, there is no information on impacts of introduction.

4 Global Distribution



Figure 1. Known global distribution of *Leiaris perruno*. Map from GBIF Secretariat (2019). The northern location is in Colombia near the border with Venezuela. Locations in Peru and southern Colombia do not represent established populations and were not used in the climate match.



Figure 2. Map of Lake Maracaibo basin; native range of *Leiarius perruno*. This image has been released into the public domain by its author Reisio [Wikimedia user name]. Available: https://commons.wikimedia.org/wiki/File:Maracaibo_Basin.png. (July 2019).

5 Distribution Within the United States

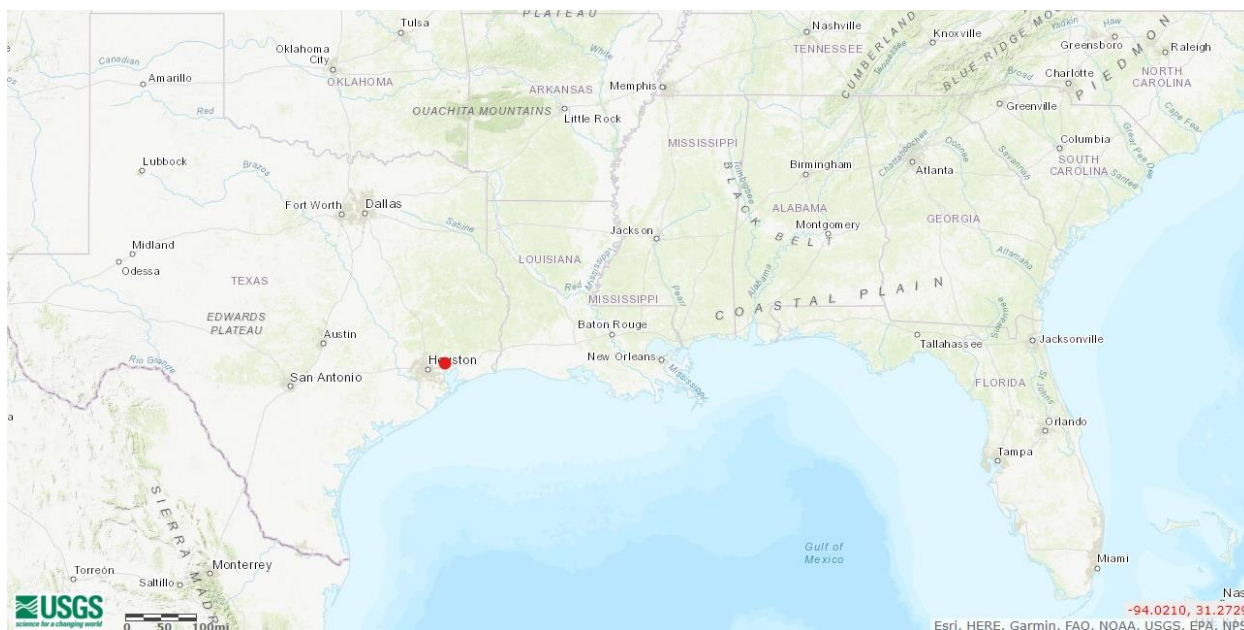


Figure 3. Location of a known report provisionally identified as *Leiarius perunno* in the United States. Map modified from Nico (2019). This location, near Houston, Texas, does not represent an established population and therefore will not be used in the climate match.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for the contiguous United States was generally very low. No areas of high climate match were found. A small patch of medium match was found in peninsular Florida. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for 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.

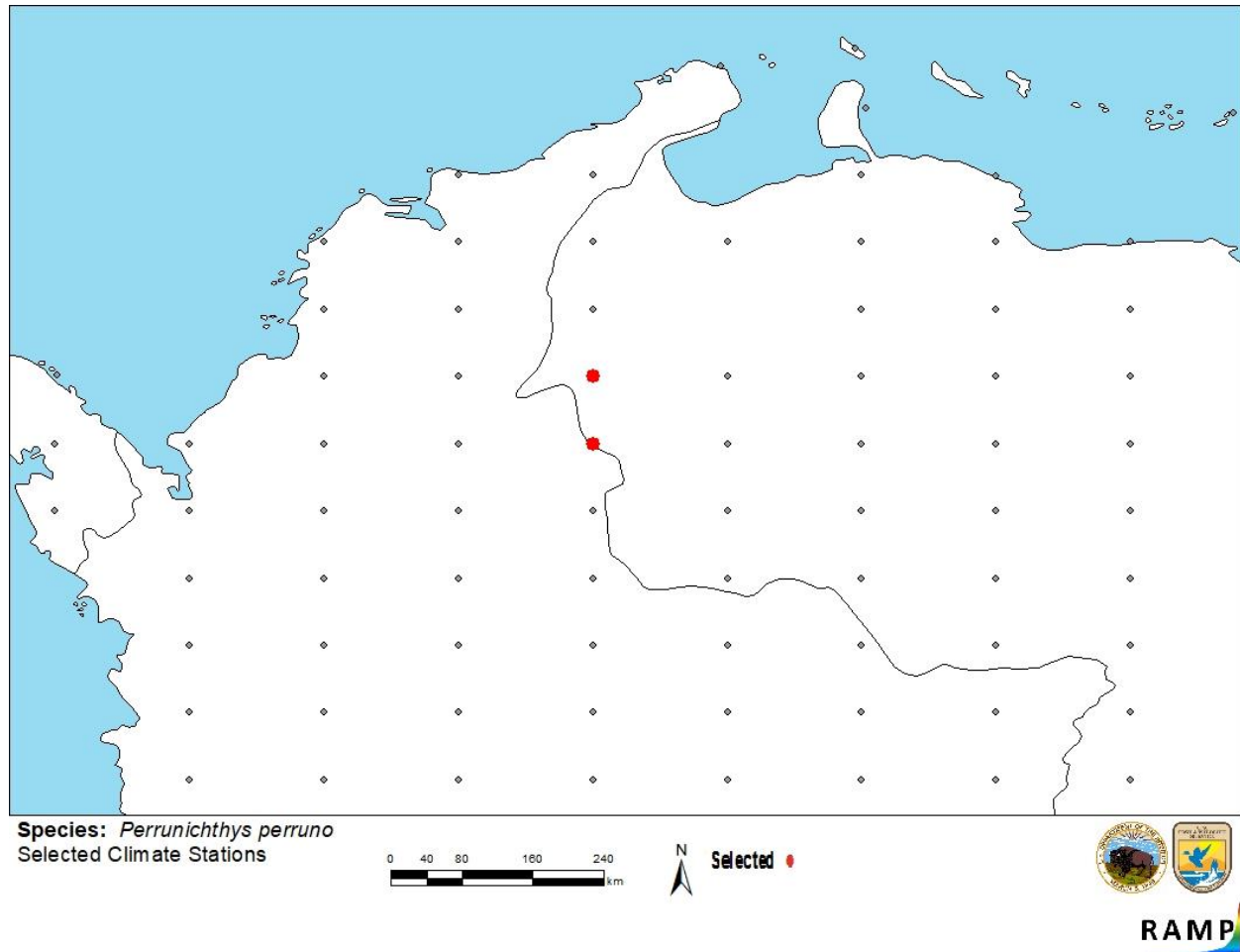


Figure 4. RAMP (Sanders et al. 2018) source map showing weather stations in Venezuela and Colombia selected as source locations (red) and non-source locations (gray) for *Leiaris perruno* climate matching. Source locations from GBIF Secretariat (2019). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

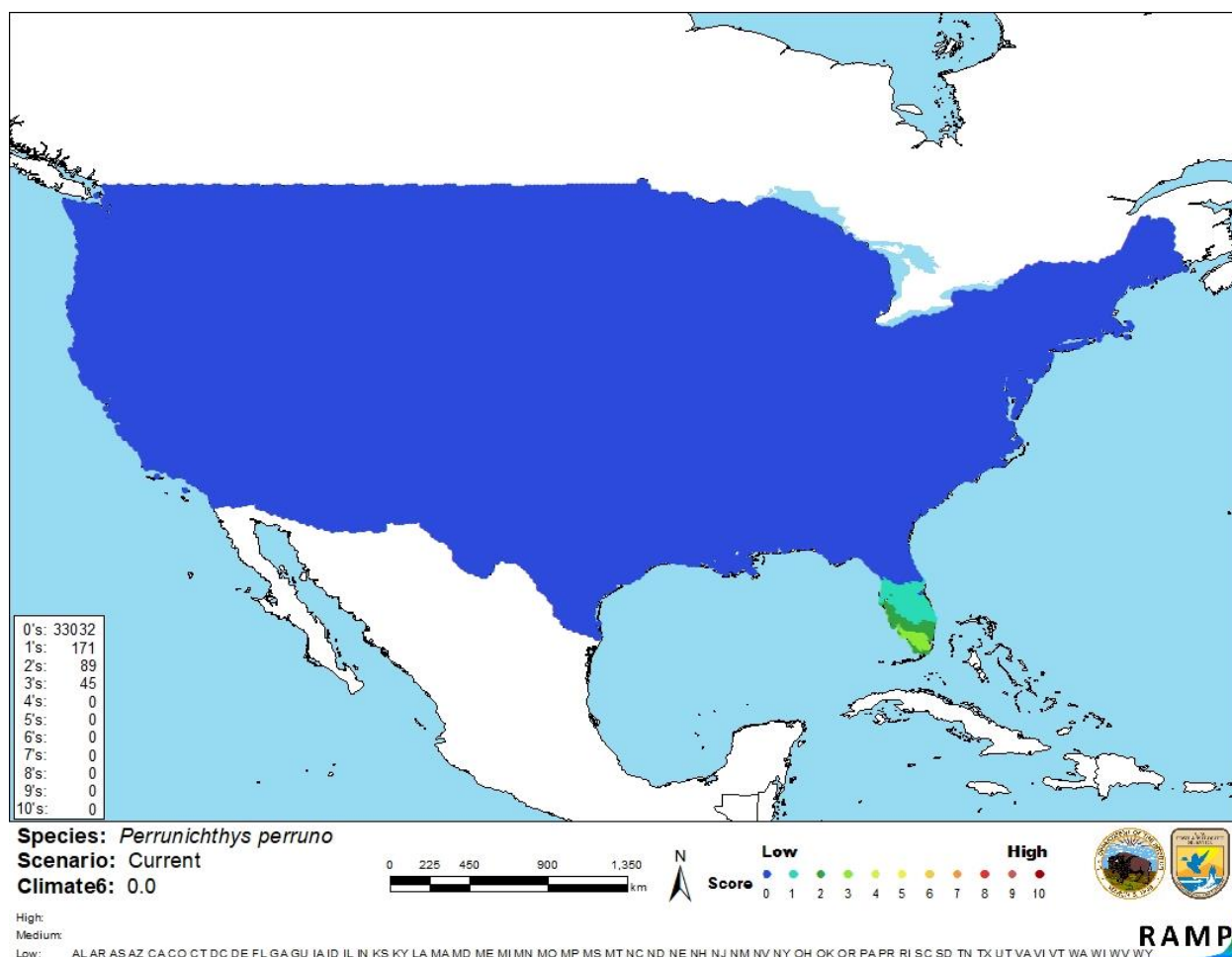


Figure 5. Map of RAMP (Sanders et al. 2018) climate matches for *Leirius perruno* in the contiguous United States based on source locations reported by GBIF Secretariat (2019). Counts of climate match scores are tabulated on the left. 0 = Lowest match, 10 = Highest match.

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

Limited information is available on *Leirius perruno*. This species has been reported as introduced in Texas but it did not establish. No impacts of introduction have been reported. The certainty of assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

The Leopard Catfish, *Leiarius perruno*, is a tropical freshwater fish endemic to the Lake Maracaibo basin in Colombia and Venezuela. A single specimen has been reported outside of its native range in Texas. The history of invasiveness is uncertain. The climate match for the contiguous United States is low, all individual States received low climate match scores and no areas of high match were found. The certainty of assessment is low. The overall risk assessment category for *Leiarius perruno* 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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Froese, R., and D. Pauly, editors. 2019. *Perrunichthys perruno* Schultz, 1944. FishBase. Available: <http://www.fishbase.org/summary/Perrunichthys-perruno.html>. (July 2019).

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López-Rojas, H., and A. Bonilla-Rivero. 2007. Introduction of exotic species and transplantation of native species across river basins in Venezuela. Pages 279–289 in T. M. Bert, editor. Ecological and Genetic Implications of Aquaculture Activities. Springer.

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- 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

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.

- Axelrod, H. R., W. E. Burgess, N. Pronek, and J. G. Walls. 1991. Dr. Axelrod's atlas of freshwater aquarium fishes. Tropical Fish Hobbyist Publications, New Jersey.
- Ferraris, C. J., Jr. 1991. Catfish in the aquarium. Tetra Press, New Jersey.
- Howells, R. G. 2001. Introduced non-native fishes and shellfishes in Texas waters: an updated list and discussion. Texas Parks and Wildlife Management Data Series 188.
- Galvis, G., J. I. Mojica, and M. Camargo. 1997. [No title given.] Page 188 in *Peces del Catatumbo*. Asociación Cravo Norte, Santafé de Bogotá, Colombia.