Pimelodus ornatus (a catfish, no common name)
Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, January 2022
Revised, March 2022
Web Version, 4/13/2023

Organism Type: Fish
Overall Risk Assessment Category: Uncertain

Photo: Petruss. Licensed under CC-BY-SA-4.0. Available: https://commons.wikimedia.org/wiki/File:Catfish_at_the_Cali_Zoo_Aquarium.jpg. (March 2022).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2022):

"South America: Amazon, Corantijn, Essequibo, Orinoco, and Paraná River basins; also in major rivers of the Guianas."

From Lima et al. (2021):

"*Pimelodus ornatus* is a Pimelodidae, popularly known as mandi-guaru, silver mandi, mandi-pinini or painted mandi. This Siluriformes can be found in the Amazon, Madeira, Parnaíba, Negro, Alto Paraná, Orinoco, which are large rivers in the Guianas, Paraguay, Bolivia, Peru and Venezuela (Nomura, 1984; Torrente et al., 2013; Froese & Pauly, 2021)."

Status in the United States

No records of *Pimelodus ornatus* in the wild in the United States were found.

Pimelodus ornatus has been found for sale in the United States.

From Aqua Imports (2022):

"Ornate Pimelodus Catfish (*Pimelodus ornatus*)
$44.99"

Means of Introductions in the United States

No records of *Pimelodus ornatus* in the wild in the United States were found.

Remarks

No additional remarks.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Fricke et al. (2022), *Pimelodus ornatus* Kner 1858 is the current valid and original name for this species. *Pimelodus ornatus* has the following synonym: *Megalonema rhabdostigma* Fowler 1914.

From ITIS (2022):

Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii
Class Teleostei
Superorder Ostariophysi
Order Siluriformes
Family Pimelodidae
Genus *Pimelodus*
Species *Pimelodus ornatus* Kner, 1858

Size, Weight, and Age Range

From Froese and Pauly (2022):

"Max length: 38.5 cm SL [standard length] male/unsexed; [Lundberg and Littmann 2003]"

From GBIF Secretariat (2022):

"Maximum standard length. 330.0 mm (Graça, Pavanelli, 2007)."

Environment

From Froese and Pauly (2022):

"Freshwater; benthopelagic; pH range: 6.5 - 7.2; dH range: ? - 18. […] 24°C - 25°C [Baensch and Riehl 1985; assumed to be recommended aquarium temperature]"

Climate

From Froese and Pauly (2022):

"Tropical; […]"

Distribution Outside the United States

Native

From Froese and Pauly (2022):

"South America: Amazon, Corantijn, Essequibo, Orinoco, and Paraná River basins; also in major rivers of the Guianas."

From Lima et al. (2021):

"*Pimelodus ornatus* is a Pimelodidae, popularly known as mandi-guaru, silver mandi, mandi-pinini or painted mandi. This Siluriformes can be found in the Amazon, Madeira, Parnaíba, Negro, Alto Paraná, Orinoco, which are large rivers in the Guianas, Paraguay, Bolivia, Peru and Venezuela (Nomura, 1984; Torrente et al., 2013; Froese & Pauly, 2021)."

Introduced

From GBIF Secretariat (2022):

"*Pimelodus ornatus* is a non-native species from the upper rio Paraná and its occurrence can be associated with the filling of the Itaipu Reservoir and the consequent inundation of the Sete Quedas Falls."

Means of Introduction Outside the United States

From GBIF Secretariat (2022):

"*Pimelodus ornatus* is a non-native species from the upper rio Paraná and its occurrence can be associated with the filling of the Itaipu Reservoir and the consequent inundation of the Sete Quedas Falls."

Short Description

From GBIF Secretariat (2022):

"Body deep; greatest depth contained 3.9 to 4.2 times in SL; head length 3.1 to 3.4, anal-fin base length 8.9 to 9.2, adipose-fin base length 4.9 to 6.0, maxillary-barbel length 1.6 to 1.8 in SL; snout length 2.1 to 2.3, horizontal orbital diameter 5.0 to 5.2, least interorbital width 3.1 to. 5 in HL [head length]; orbital diameter 1.5 to 1.7 in interorbital width. Mouth terminal; dentigerous tooth plates in both premaxilla and dentary. Dorsal fin with I,6, pectoral fin with I,13-15, pelvic fin with 6 and anal fin with 11-13 rays. Ground dark-brown; light-beige longitudinal band along lateral line; light-beige oblique bar from dorsal-fin origin to pelvic-fin origin. Hyaline fins; dorsal fin with dark-brown blotch; caudal fin with dark-brown longitudinal band on each lobe (Graça, Pavanelli, 2007).

Biology

From Froese and Pauly (2022):

"Occurs in principal river beds, in upstream parts of rivers, downstream rapids, in backwater zones or on stony bottoms of pools with dead tree trunks. Active at dusk. Piscivorous. Emits loud grumblings [Le Bail et al. 2000]. Secretes toxic mucus and the wounds caused by its pectoral spines are very painful. The female can preserve spermatozoids by coating them with original maternal secretions and inserting them in the epithelium of its genital tract [Boujard et al. 1997]. The presence of sperm in the mucus of the female's genital tract is indicative of internal fertilization [Le Bail et al. 2000]."

Human Uses

From Froese and Pauly (2022):

"Fisheries: commercial; aquarium: commercial"

Diseases

No records of OIE-reportable diseases (OIE 2022) were found for *Pimelodus ornatus*.

According to Poelen et al. (2014) the following can be parasites of *Pimelodus ornatus*: *Spasskyellina mandi*, *Monticellia* sp., *Nomimoscolex microacetabula*, *Mariauxiella pimelodid*, *Cucullanus pinnai*, *Pseudocladorchis* sp., *Genarchella parva*, *Genarchella genarchella*, *Dadaytrema oxycephalum*, and *Demidospermus peruvianus*.

In addition to the parasites listed above, Bailly (2017) lists the following as a parasite of *Pimelodus ornatus*: *Pseudocladorchis cylindricus*.

From Lima et al. (2021):

"The present study investigated the metazoan parasite community in *Pimelodus ornatus* from the Amazon River, in the state of Amapá (Brazil). Of 71 fish examined, 70.4% were parasitized by *Demidospermus* sp. (Monogenea), *Cucullanus pinnai*, *Procamallanus* (*Spirocamallanus*)

inopinatus and *Contracaecum* sp. (Nematoda) and plerocercoids from Proteocephalidae gen. sp. (Cestoda)."

From Matos et al. (2014):

"This article reports the first occurrence of *Myxobolus* sp. in the heart of *P. ornatus* Kner, 1858, […]"

Threat to Humans

From Froese and Pauly (2022):

"Traumatogenic [Boujard et al. 1997]"

"Secretes toxic mucus and the wounds caused by its pectoral spines are very painful."

3 Impacts of Introductions

Pimelodus ornatus has been reported outside its native range in the upper rio Paraná; however, impacts of introductions are unknown.

4 History of Invasiveness

The history of invasiveness for *Pimelodus ornatus* is classified as Data Deficient. *Pimelodus ornatus* has been introduced outside of its native range into the upper rio Paraná, but there was no information found regarding impacts of that introduction. *Pimelodus ornatus* is found in trade but the volume and trade history are unknown.

5 Global Distribution

Figure 1. Known global distribution of *Pimelodus ornatus*. Observations are reported from South America. Map from GBIF Secretariat (2022). The location in the Indian Ocean has incorrect coordinates and therefore was not included in the climate matching analysis.

6 Distribution Within the United States

No records of *Pimelodus ornatus* in the wild in the United States were found.

7 Climate Matching

Summary of Climate Matching Analysis

There were areas of both high and low climate match for *Pimelodus ornatus* found in the contiguous United States. High match was found along the coast in the Southeast, Gulf Coast, and in Florida. Small areas of high match were also found along the California coast and around Puget Sound. Low match was found in parts of the northern Northeast region, from the Rocky Mountains west to much of the Pacific Coast, and along the border between the United States and Canada from Minnesota to Montana. The overall Climate 6 score (Sanders et al. 2021; 16 climate variables; Euclidean distance) for the contiguous United States was 0.176, High (scores of 0.103 and greater are classified as High). More than half the States had a Low individual Climate 6 score. Alabama, Florida, Georgia, Kansas, Louisiana, Missouri, Mississippi, North Carolina, Oklahoma, South Carolina, Texas, Virginia, and West Virginia had a High individual Climate 6 score. Arkansas, Arizona, California, Kentucky, Maryland, New Mexico, Tennessee, and Washington had a Medium individual Climate 6 score.

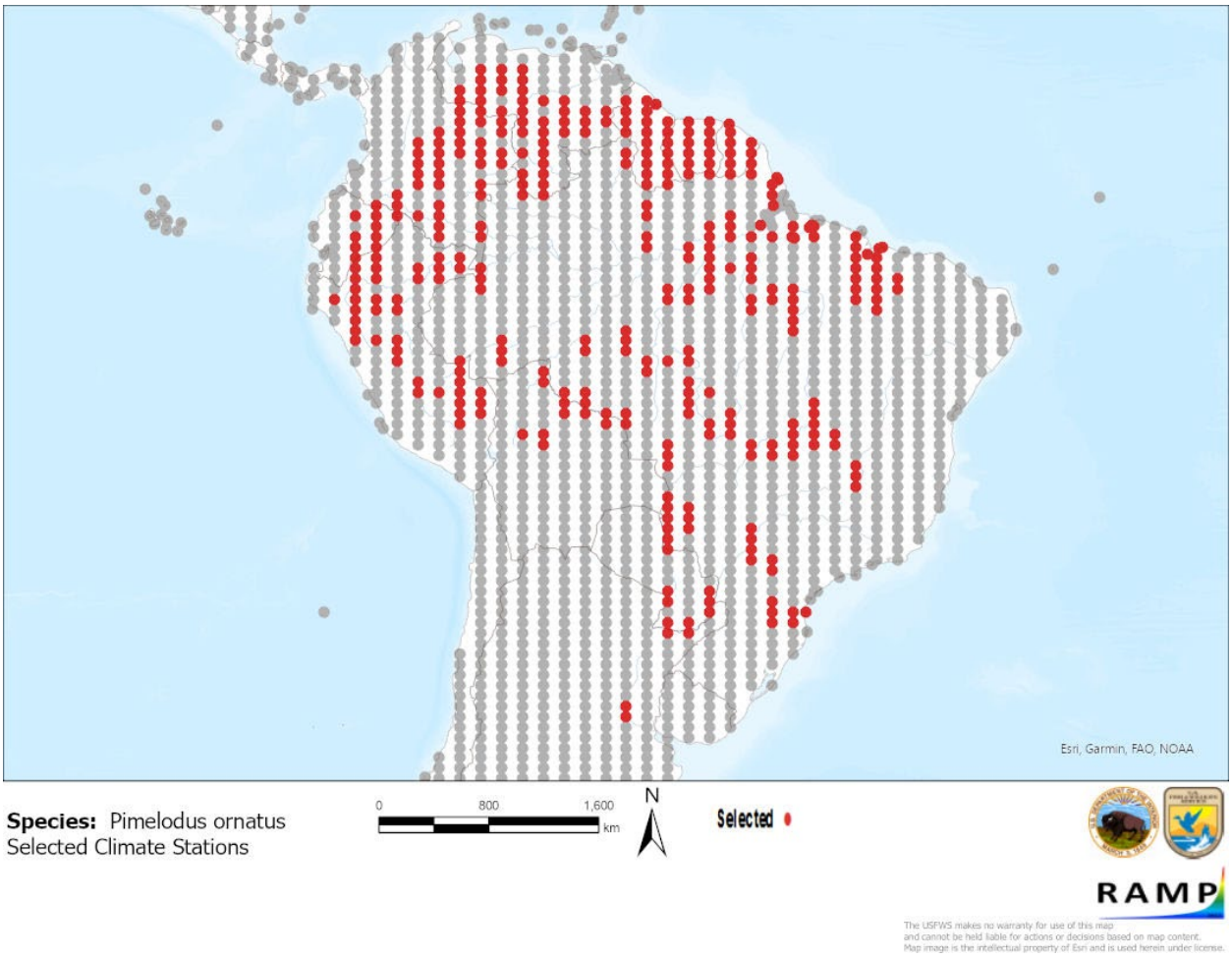

Figure 2. RAMP (Sanders et al. 2021) source map showing weather stations in South America selected as source locations (red; Argentina, Bolivia, Brazil, Ecuador, Colombia, Guyana, French Guyana, Paraguay, Peru, Surinam, and Venezuela) and non-source locations (gray) for *Pimelodus ornatus* climate matching. Source locations from GBIF Secretariat (2022). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

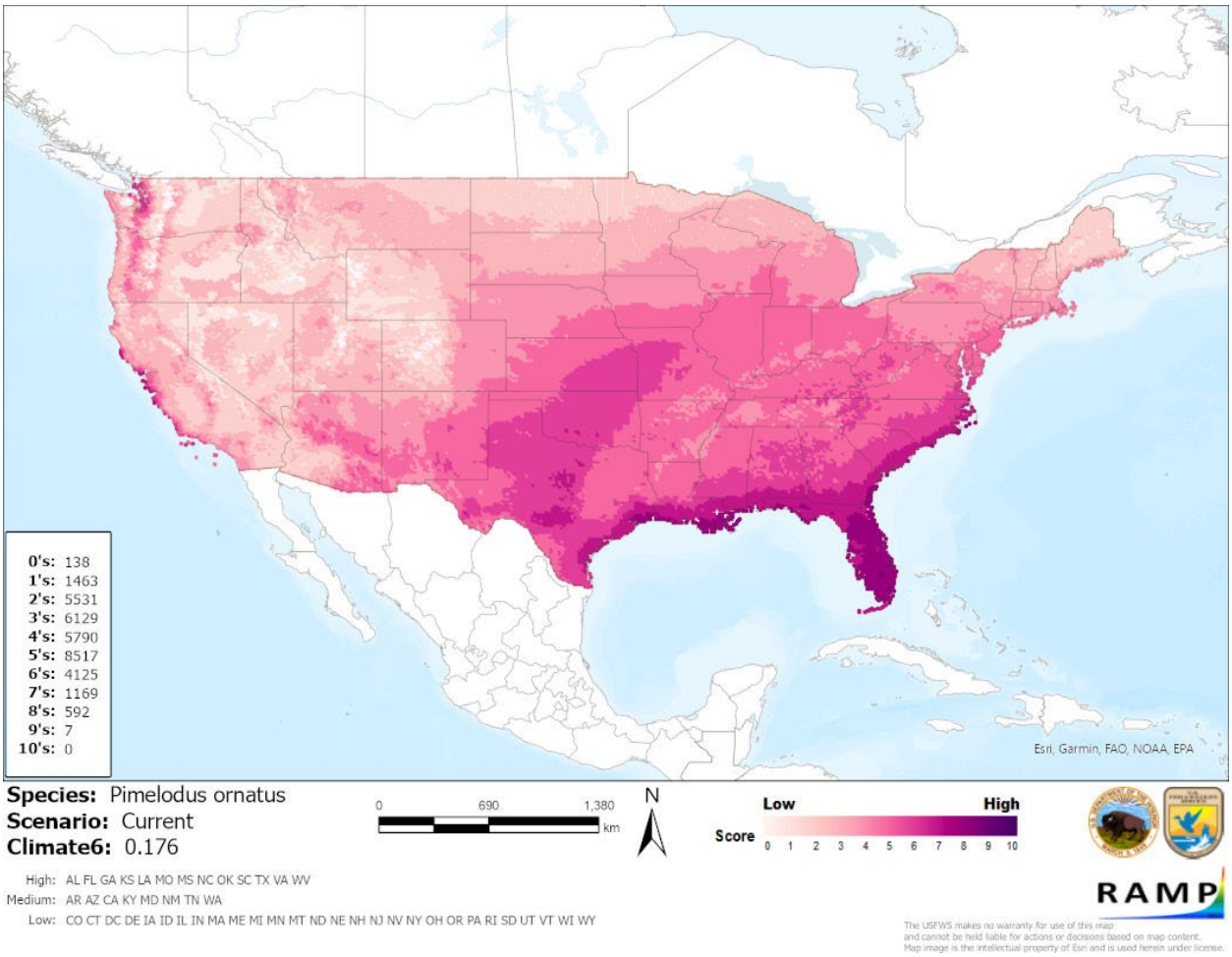

Figure 3. Map of RAMP (Sanders et al. 2021) climate matches for *Pimelodus ornatus* in the contiguous United States based on source locations reported by GBIF Secretariat (2022). Counts of climate match scores are tabulated on the left. 0/Light Pink = Lowest match, 10/Dark Purple = Highest match.

The High, Medium, and Low Climate match Categories are based on the following table:

Climate 6: (Count of target points with climate scores 6-10)/ (Count of all target points)	Overall Climate Match Category
0.000≤X≤0.005	Low
0.005<X<0.103	Medium
≥0.103	High

8 Certainty of Assessment

The certainty of assessment for *Pimelodus ornatus* is Low. There is information available on this species biology and native distribution in the scientific literature. Records of an introduction were found for *Pimelodus ornatus*; however, there was no information on impacts of introduction available.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Pimelodus ornatus is a freshwater catfish native to multiple major river systems in South America. It is present in trade, and it is consumed by humans, however specifics regarding quantity and trade history are unknown. This species has spines along its fins that can cause painful wounds to humans. There has been a single introduction outside of its native range due to the creation of a reservoir and removal of a waterfall that was a natural barrier, but the impacts of that introduction are unknown. The lack of impact information results in a history of invasiveness classification of Data Deficient. The overall Climate 6 score for the contiguous United States is High. Areas of high match were primarily found in the Southeast and Gulf coastal regions, including Florida. The certainty of this assessment is Low due to a lack of information regarding this species' history of invasiveness. The overall risk assessment category for *Pimelodus ornatus* is Uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 4): Data Deficient**
- **Overall Climate Match Category (Sec. 7): High**
- **Certainty of Assessment (Sec. 8): Low**
- **Remarks, Important additional information: Traumatogenic.**
- **Overall Risk Assessment Category: Uncertain**

10 Literature Cited

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 11.

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Matos E, Videira M, Velasco M, Sanches O, de São Clemente SC, Matos P. 2014. Infection of the heart of *Pimelodus ornatus* (Teleostei, Pimelodidae), by *Myxobolus* sp. (Myxozoa, Myxobolidae). Brazilian Journal of Veterinary Parasitology, Jaboticabal 23(4):543–546.

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Poelen JH, Simons JD, Mungall CJ. 2014. Global Biotic Interactions: an open infrastructure to share and analyze species-interaction datasets. Ecological Informatics 24:148–159.

Sanders S, Castiglione C, Hoff M. 2021. Risk Assessment Mapping Program: RAMP. Version 4.0. U.S. Fish and Wildlife Service.

11 Literature Cited in Quoted Material

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.

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Boujard T, Pascal M, Meunier FJ, Le Bail P-Y. 1997. Poissons de Guyane. Guide écologique de l'Approuague et de la réserve des Nouragues. Paris: Institut National de la Recherche Agronomique.

Froese R, Pauly D. 2021. FishBase. Version (2/2021) [online]. FishBase. Available: http://www.fishbase.org (February 2020).

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