

Heptapterus mustelinus

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, May 2017

Revised, August 2017

Web Version, 11/17/2017



Photo: M. Loureiro. Licensed under CC BY 3.0. Available:

<http://www.fishbase.org/photos/PicturesSummary.php?StartRow=0&ID=47802&what=species&TotRec=2>. (May 2017).

1 Native Range and Status in the United States

Native Range

From Eschmeyer et al. (2017):

“La Plata and Uruguay River basins and coastal drainages of southern Brazil: Argentina, Brazil, Paraguay, Bolivia and Uruguay.”

From Buckup (1988):

“According to the literature, *H. mustelinus* has a wide distribution in the Parana/Paraguay river system and adjacent coastal streams, reaching westward to the eastern slope of the Andes in Argentina (Ringuelet et al., 1967) and northward to the Pilcomayo River in Bolivia (Boulenger, 1897). However, in view of the large morphological variation found in the relatively limited area

covered by this study and the presence of still undescribed species [...], it seems that such a wide distribution should be accepted with great caution until a more extensive study of this species is made.”

“Along the Atlantic coast, the northernmost record of this species was made by Eigenmann (1917) for Cubatão near Santos, São Paulo. This record, however, needs confirmation because Eigenmann (1917) was misled by the reference of Steindachner (1907) to Cubatão River, located much further south, near Teresópolis, Santa Catarina.”

Status in the United States

This species has not been reported as introduced or established in the U.S.

Means of Introductions in the United States

This species has not been reported as introduced or established in the U.S.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2017):

“Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii
Class Teleostei
Superorder Ostariophysi
Order Siluriformes
Family Heptapteridae
Genus *Heptapterus*
Species *Heptapterus mustelinus* (Valenciennes, 1835)”

From Eschmeyer et al. (2017):

“Current status: Valid as *Heptapterus mustelinus* (Valenciennes 1835). Heptapteridae.”

Size, Weight, and Age Range

From Froese and Pauly (2017):

“Max length : 20.9 cm SL male/unsexed; [Bockmann and Guazzelli 2003]”

Environment

From Froese and Pauly (2017):

“Freshwater; demersal; pH range: 4.0 - 6.5; dH range: 6 - 10.”

From Hued and Bistoni (2006):

“For *H. mustelinus* [...] it presented an indifferent behavior to current velocity variation [...]”

From Fernández and Bechara (2010):

“Other species required high oxygen levels, but were also more tolerant to warmer temperatures or higher C.O.D. levels, such as *Heptapterus mustelinus* [...]”

Climate/Range

From Froese and Pauly (2017):

“Subtropical; 18°C - 24°C [Baensch and Riehl 1997], preferred ?”

Distribution Outside the United States

Native

From Eschmeyer et al. (2017):

“La Plata and Uruguay River basins and coastal drainages of southern Brazil: Argentina, Brazil, Paraguay, Bolivia and Uruguay.”

From Buckup (1988):

“According to the literature, *H. mustelinus* has a wide distribution in the Parana/Paraguay river system and adjacent coastal streams, reaching westward to the eastern slope of the Andes in Argentina (Ringuelet et al., 1967) and northward to the Pilcomayo River in Bolivia (Boulenger, 1897). However, in view of the large morphological variation found in the relatively limited area covered by this study and the presence of still undescribed species [...], it seems that such a wide distribution should be accepted with great caution until a more extensive study of this species is made.”

“Along the Atlantic coast, the northernmost record of this species was made by Eigenmann (1917) for Cubatão near Santos, São Paulo. This record, however, needs confirmation because Eigenmann (1917) was misled by the reference of Steindachner (1907) to Cubatão River, located much further south, near Teresópolis, Santa Catarina.”

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 Buckup (1988):

“Although an elongate body shape and a depressed head are generalized features for most catfishes, being thus a primitive feature for pimelodids, the eel-like body form of *H. mustelinus* and other highly elongate species of *Heptapterus* is probably a specialized trait.”

“In *H. mustelinus* the lateral line is well developed, reaching the region of the dorsal fin or even the adipose fin [...]”

“The population of *H. mustelinus* from Maldonado, Uruguay, has a higher average number of anal-fin rays than populations of southeastern Brazil [...] The number of anal-fin rays in the southeastern Brazilian sample ranges from 16-22, while the Maldonado specimens may have as many as 24, and none have fewer than 18 rays.”

Biology

From Fernández and Bechara (2010):

“Feeding group [...] Invertivore”

From Chalar et al. (2012):

“[...] *H. mustelinus* largely prefers coarse gravel and rocky bottom sediments (Gonzalez-Bergonzoni et al., 2009; Teixeira de Mello et al., 2011)”

From Buckup (1988):

“According to my field observations, *H. mustelinus* has a marked preference for swift flowing waters, especially small rocky streams where it is found under rocks and marginal vegetation.”

Human Uses

No information available.

Diseases

No information available. No OIE-reportable diseases have been documented for this species.

Threat to Humans

From Froese and Pauly (2017):

“Harmless”

3 Impacts of Introductions

This species has not been reported as introduced or established outside of its native range.

4 Global Distribution

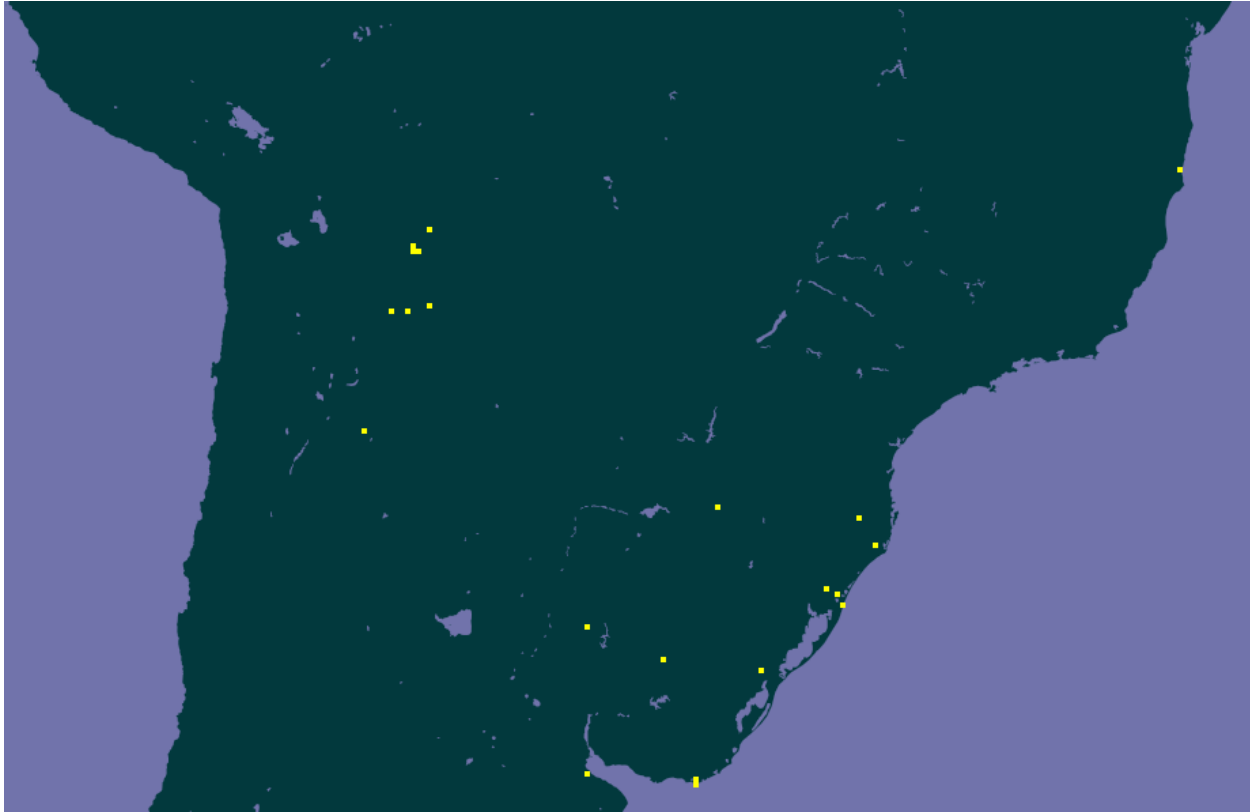


Figure 1. Known global established locations of *Heptapterus mustelinus*. Map from GBIF (2016).

5 Distribution Within the United States

This species has not been reported as introduced or established 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 medium from the Southeast to Texas, north to the Mid-Atlantic and southern Midwest states, and along the Pacific Coast of California. The climate match was low across the remainder of the northern and western contiguous U.S. The area of highest match occurred around Houston, Texas. Climate 6 score indicated a medium climate match for the contiguous U.S. overall. Scores between 0.005 and 0.103 are classified as medium match; the Climate 6 score for *H. mustelinus* was 0.099.

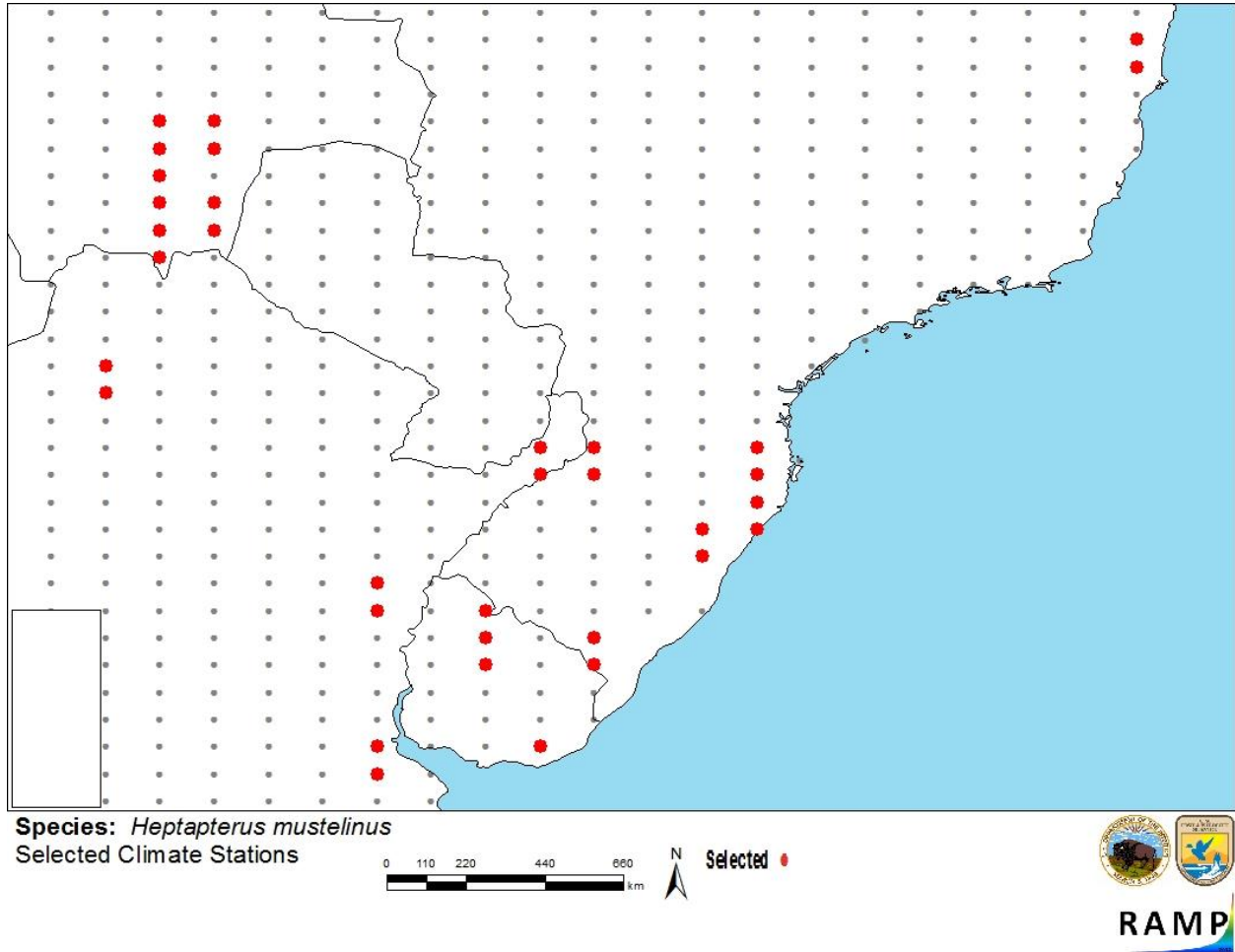


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red) and non-source locations (gray) for *Heptapterus mustelinus* climate matching. Source locations from GBIF (2016).

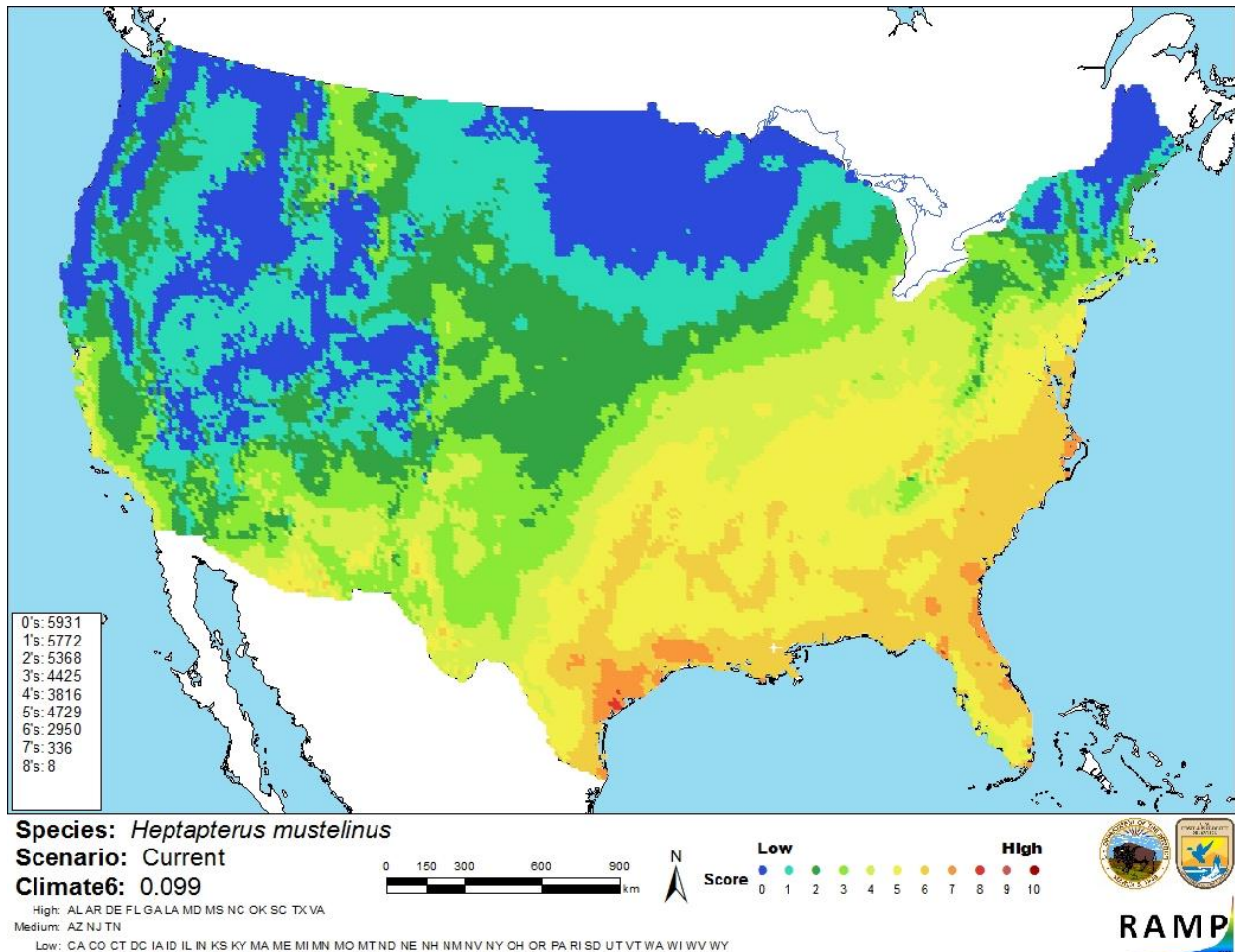


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Heptapterus mustelinus* in the contiguous United States based on source locations reported by GBIF (2016). 0=Lowest match, 10=Highest match.

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

There is some information available on *Heptapterus mustelinus*, specifically on its habitat preferences. This species is widely distributed across South America; however, there is some uncertainty on the exact extent of its range. This species has never been documented as introduced outside of its native range, so there is no information available on impacts of introductions of *H. mustelinus*. Certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Heptapterus mustelinus is a species of catfish native to South America. It has no documented history of invasiveness, and has never been reported as introduced outside of its native range. *H. mustelinus* has a medium climate match with the United States, with the areas of highest match located in the southern and eastern U.S. Overall risk assessment category for this species is uncertain due to a lack of history of invasiveness and a low certainty of assessment.

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.

Buckup, P. A. 1988. The genus *Heptapterus* (Teleostei, Pimelodidae) in southern Brazil and Uruguay, with the description of a new species. *Copeia* 1988:641-653.

Chalar, G., L. Delbene, I. González-Bergonzoni, and R. Arocena. 2013. Fish assemblage changes along a trophic gradient induced by agricultural activities (Santa Lucía, Uruguay). *Ecological Indicators* 24:582-588.

Eschmeyer, W. N., R. Fricke, and R. van der Laan, editors. 2017. Catalog of fishes: genera, species, references. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (May 2017).

Fernández, L., and J. A. Bechara. 2010. An assessment of fish communities along a Piedmont river receiving organic pollution (Aconquija mountains, Argentina). *Acta Biológica Colombiana* 15(2):79-100.

Froese, R., and D. Pauly, editors. 2017. *Heptapterus mustelinus* (Valenciennes, 1835). FishBase. Available: <http://www.fishbase.org/summary/47802>. (May 2017, August 2017).

GBIF (Global Biodiversity Information Facility). 2016. GBIF backbone taxonomy: *Heptapterus mustelinus* (Valenciennes, 1835). Global Biodiversity Information Facility, Copenhagen. Available: <http://www.gbif.org/species/2343816>. (May 2017, July 2017).

Hued, A. C., and M. de los A. Bistoni. 2006. Microhabitat use by two silurid species in the Anizacate river (central Argentina). *Folia Zoologica* 55(2):175-182.

ITIS (Integrated Taxonomic Information System). 2017. *Heptapterus mustelinus* (Valenciennes, 1835). Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=681332#null. (May 2017).

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.

Baensch, H. A., and R. Riehl. 1997. *Aquarien atlas*, volume 5. Mergus Verlag, Melle, Germany.

Bockmann, F. A., and G. M. Guazzelli. 2003. Heptapteridae (Heptapterids). Pages 406-431 *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.

Boulenger, G. A. 1897. Viaggio del dott. Alfredo Borelli nel chaco boliviano e nella Republica Argentina. III. Poisons. *Bollettino dei musei di zoologia ed anatomia comparata della R. Università di Torino* 12(279):1-4.

Eigenmann, C. H. 1917. New and rare species of South American Siluridae in the Carnegie Museum. *Annals of the Carnegie Museum* 11(3-4):398-404.

Gonzalez-Bergonzoni, I., M. Loureiro, and S. Oviedo. 2009. A new species of *Gymnogeophagus* from the río Negro and río Tacuarí basins, Uruguay (Teleostei: Perciformes). *Neotropical Ichthyology* 7:19-24.

Ringuelet, R. A., R. H. Aramburu, and A. A. Aramburu. 1967. Los peces argentinos de agua dulce. Comision de Investigacion Cientifica, La Plata, Buenos Aires, Argentina.

Steindachner, F. 1907. Ueber einige Fischarten aus dem Flusse Cubatao im Staate Santa Catharina bei Theresopolis (Brasilien). *Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften in Wien* 116(1):475-49.

Teixeira de Mello, F., I. González-Bergonzoni, and M. Loureiro. 2011. Peces de agua dulce del Uruguay. PPR-MGAP, Montevideo, Uruguay.