

# Banded Leporinus (*Leporinus fasciatus*)

## Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, February 2011  
Revised, March 2019  
Web Version, 3/4/2020



Photo: Gabriel Lelis Togni. License under CC BY 3.0 Unported. Available: <https://www.fishbase.se/photos/ThumbnailsSummary.php?ID=5352#>. (March 2019).

## 1 Native Range and Status in the United States

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### Native Range

From Froese and Pauly (2019):

“South America: Amazon River basin.”

From Fricke et al. (2019):

“Distribution: Amazon and Orinoco river basins: Venezuela, Brazil, Ecuador, Colombia, Peru, Guyana, French Guiana, Suriname and Uruguay.”

### Status in the United States

From Nico and Schofield (2019):

“Single record from an unspecified location in **Florida** between 1984 and 1991, based on the fact that it was not on a 1984 list but was on a 1991 list (Courtenay et al. 1984, 1991). Reported from

reservoir on Oahu, Hawaii, in 1984 (Devick 1991a, 1991b) and again by Mundy (2005) (possibly the Wahiawa Reservoir)..”

“Status: Failed in Florida. Population in Hawaii probably extirpated (Mundy 2005).”

“*Leporinus fasciatus* was listed as having been reported from Colorado by Courtenay and Stauffer (1990); however, that record was the result of a publishing error and thus not valid (W. Courtenay, personal communication). There are no known voucher specimens.”

*Leporinus fasciatus* is found in the aquarium trade in the United States.

From Live Aquaria (2019):

“Banded Leporinus (*Leporinus fasciatus*) Item: CN-89859  
\$ 16.99”

## Means of Introductions in the United States

From Froese and Pauly (2019):

“ornamental”

From Nico and Schofield (2019):

“Probable aquarium releases.”

## Remarks

*Leporinus fasciatus* was used for information searches for this screening.

## 2 Biology and Ecology

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### Taxonomic Hierarchy and Taxonomic Standing

According to Fricke et al. (2019), *Leporinus fasciatus* (Bloch 1794) is the current and valid name of the species; it was originally named *Salmo fasciatus*.

From ITIS (2018):

Kingdom Animalia  
Subkingdom Bilateria  
Infrakingdom Deuterostomia  
Phylum Chordata  
Subphylum Vertebrata  
Infraphylum Gnathostomata  
Superclass Actinopterygii  
Class Teleostei  
Superorder Ostariophysii

Order Characiformes  
Superfamily Anostomidae  
Family Anostominae  
Genus *Leporinus*  
Species *Leporinus fasciatus* (Bloch, 1829)

## Size, Weight, and Age Range

From Froese and Pauly (2019):

“Maturity: L<sub>m</sub> 2, range 15 - ? cm

Max length : 37.0 cm TL male/unsexed; [Giarrizzo et al. 2015]”

## Environment

From Froese and Pauly (2019):

“Freshwater; benthopelagic; pH range: 5.5 - 7.5; dH range: 2 - 20. [...] 22°C - 26°C [Riehl and Baensch 1991; assumed to be recommended aquarium temperature]”

## Climate/Range

From Froese and Pauly (2019):

“Tropical; [...]”

## Distribution Outside the United States

Native

From Froese and Pauly (2019):

“South America: Amazon River basin.”

From Fricke et al. (2019):

“Distribution: Amazon and Orinoco river basins: Venezuela, Brazil, Ecuador, Colombia, Peru, Guyana, French Guiana, Suriname and Uruguay.”

Introduced

*Leporinus fasciatus* has not been reported as introduced anywhere outside of the United States.

## Means of Introduction Outside the United States

*Leporinus fasciatus* has not been reported as introduced anywhere outside of the United States.

## Short Description

No information on a short description for *Leporinus fasciatus* was found.

## Biology

From Froese and Pauly (2019):

“Adults occur in rocky areas of rapidly flowing waters. Feed on worms, crustaceans, insects and plant matter [Mills and Vevers 1989], and fish. Oviparous [Breder 1966]. Distinct pairs breed on densely grown weedy places [Mills and Vevers 1989]. Breeding takes place from December to May. Sexually mature at 15 cm [Planquette et al. 1996]

“Males tend to stay where the nests are located [Mills and Vevers 1989].”

## Human Uses

From Froese and Pauly (2019):

“Fisheries: minor commercial; aquarium: commercial”

From Live Aquaria (2019):

“Banded Leporinus (*Leporinus fasciatus*) Item: CN-89859  
\$ 16.99”

## Diseases

**No records of OIE-reportable diseases (OIE 2020) were found for *Leporinus fasciatus*.**

According to Poelen et al. (2014), *Leporinus fasciatus* is known to have the following parasites: *Rhinoxenus arientinus*, *Tereancistrum parvum*, *Spirocamallanus iheringi*, *Spirocamallanus inopinatus*, and *Klossinemella iheringi*.

## Threat to Humans

From Froese and Pauly (2019):

“Harmless”

## 3 Impacts of Introductions

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While records of a previously established (now extirpated) nonnative population in Hawaii were found (Nico and Schofield 2019), no information on impacts from the introduction was found.

## 4 Global Distribution

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**Figure 1.** Known global distribution of *Leporinus fasciatus*. Map from GBIF Secretariat (2019). Locations in Florida and Hawaii were not used to select source location due to information indicating there are not currently established populations in those locations (Nico and Schofield 2019). The location in the southern tip of Brazil was not used to select source points for the climate match. The coordinates listed do not match the collection location which was recorded as the state of Rondonia in western Brazil (GBIF Secretariat 2019).

## 5 Distribution Within the United States

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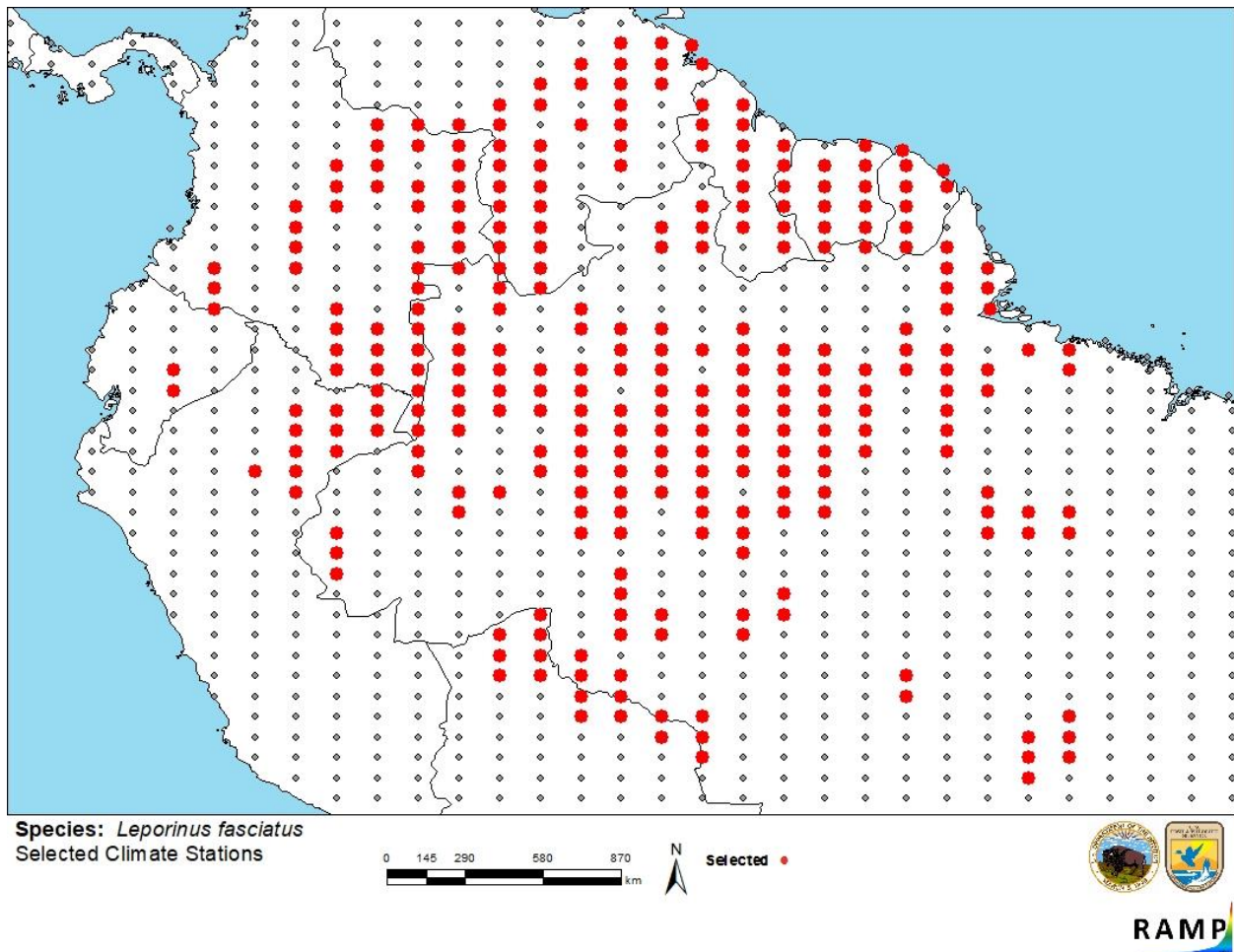


**Figure 2.** Known location of a previously established (currently extirpated) population of *Leporinus fasciatus* in Hawaii, United States. Map from Nico and Schofield (2019). This location was not used to select source points for the climate match as it is not currently established.

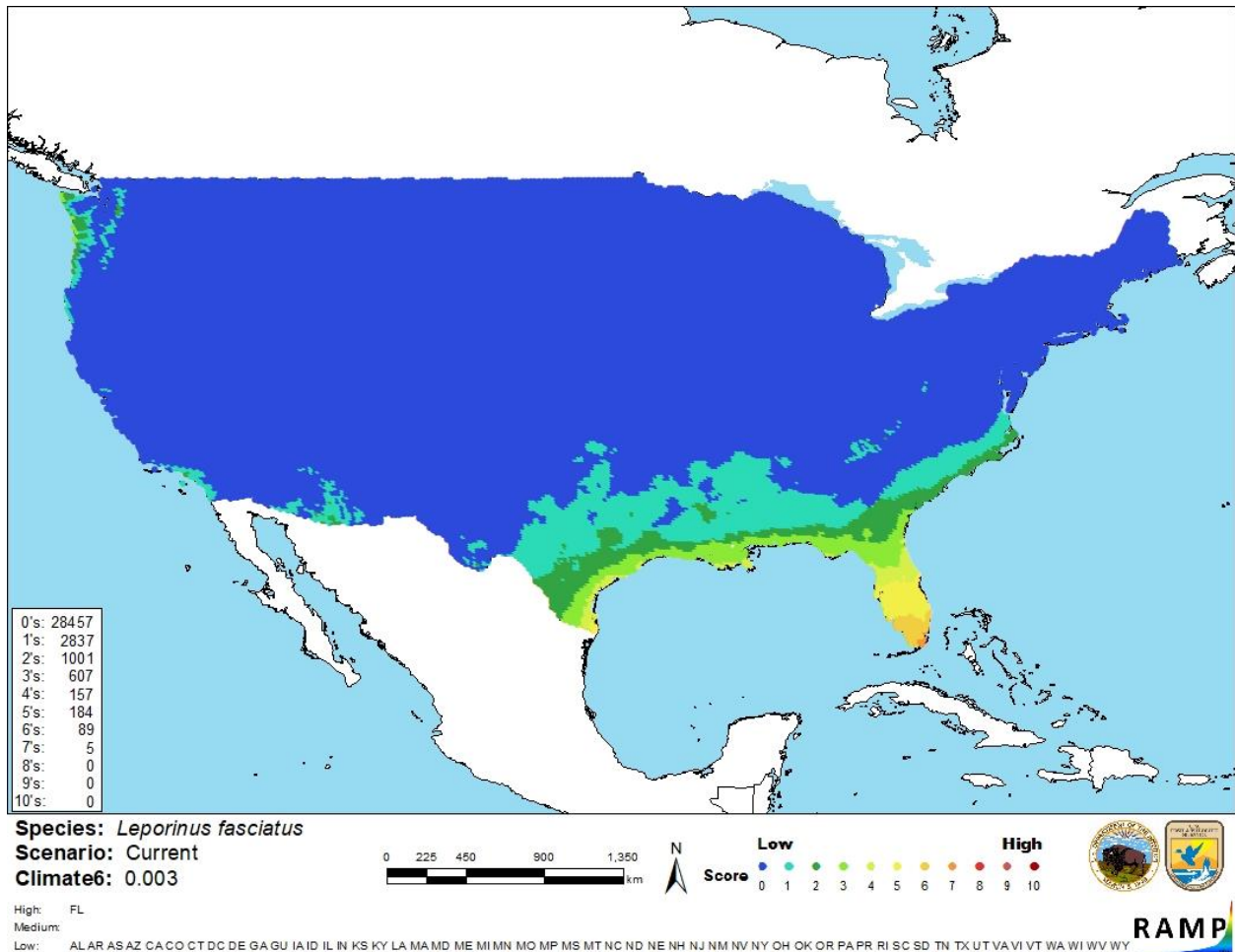
# 6 Climate Matching

## Summary of Climate Matching Analysis

The climate match for the contiguous United States was generally low. Coastal areas along the Gulf of Mexico had mostly medium to medium-low matches. The only area of high match is found in the southern end of peninsular Florida. Everywhere else had a low match. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.003, low (scores between 0.000 and 0.005, inclusive, are classified as low). All States received low individual climate scores except Florida, which had a high individual climate score.



**Figure 3.** RAMP (Sanders et al. 2018) source map showing weather stations in northern South America selected as source locations (red; Colombia, Venezuela, Ecuador, Peru, Guyana, French Guiana, Suriname, Brazil, Bolivia) and non-source locations (gray) for *Leporinus fasciatus* 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 4.** Map of RAMP (Sanders et al. 2018) climate matches for *Leporinus fasciatus* 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
$\geq 0.103$	High

## 7 Certainty of Assessment

There is limited information available on the biology and environment of *Leporinus fasciatus*. There are two records of introduction from several decades ago, an individual in Florida that did not result in an established population and an unknown number in Hawaii that was apparently extirpated, but there is no information available on the impacts of introduction. The certainty of assessment is low.



## 8 Risk Assessment

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### Summary of Risk to the Contiguous United States

The Banded Lepornis (*Lepornius fasciatus*) is a fish native to the Amazon and Orinoco river basins. This species is popular in the aquarium trade. An introduction was reported in Hawaii in 1984 and one individual fish was reported in Florida between 1984 and 1981, but neither resulted in currently established populations. No information on impacts of introduction was found. The history of invasiveness is none documented. The climate match for the contiguous United States was low, the only area of high match was in southern peninsular Florida. The certainty of assessment is low. The overall risk assessment category for *Lepornis fasciatus* is uncertain.

### Assessment Elements

- **History of Invasiveness (Sec. 3): None Documented**
- **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

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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.**

Fricke, R., W. N. Eschmeyer, and R. van der Laan, editors. 2019. Eschmeyer's catalog of fishes: genera, species, references. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (February 2019).

Froese, R., and D. Pauly, editors. 2018a. *Leporinus fasciatus* (Bloch, 1794). FishBase. Available: <https://www.fishbase.de/summary/Leporinus-fasciatus.html>. (March 2019).

GBIF Secretariat. 2019. GBIF backbone taxonomy: *Leporinus fasciatus* (Bloch, 1794). Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/2355387>. (March 2019).

ITIS (Integrated Taxonomic Information System). 2019. *Leporinus fasciatus* (Bloch, 1794). Integrated Taxonomic Information System, Reston, Virginia. Available: [https://www.itis.gov/servlet/SingleRpt/SingleRpt?search\\_topic=TSN&search\\_value=163162#null](https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=163162#null). (March 2019).

Live Aquaria. 2019. Banded Leporinus (*Leporinus fasciatus*). Available: <https://www.liveaquaria.com/product/982/banded-leporinus?pcatid=982&c=830+1984+982>. (March 2019).

Nico, L., and P. J. Schofield. 2019. *Leporinus fasciatus* (Bloch, 1794). U. S. Geological Survey, Nonindigenous Aquatic Species Database, Gainesville, Florida. Available: <https://nas.er.usgs.gov/queries/FactSheet.aspx?speciesID=312>. (March 2019).

OIE (World Organisation for Animal Health). 2020. OIE-listed diseases, infections and infestations in force in 2020. Available: <http://www.oie.int/animal-health-in-the-world/oie-listed-diseases-2020/>. (March 2020).

Poelen, J. H., J. D. Simons, and C. J. Mungall. 2014. Global Biotic Interactions: an open infrastructure to share and analyze species-interaction datasets. *Ecological Informatics* 24:148–159.

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.**

Breder, C. M., and D. E. Rosen. 1966. Modes of reproduction in fishes. T. F. H. Publications, Neptune City, New Jersey.

Courtenay, W. R., Jr., D. A. Hensley, J. N. Taylor, and J. A. McCann. 1984. Distribution of exotic fishes in the continental United States. Pages 41–77 in W. R. Courtenay, Jr. and J. R. Stauffer, Jr., editors. *Distribution, biology, and management of exotic fishes*. John Hopkins University Press, Baltimore, Maryland.

Courtenay, W. R., Jr., D. P. Jennings, and J. D. Williams. 1991. Appendix 2: exotic fishes. Pages 97–107 in C. R. Robins, R. M. Bailey, C. E. Bond, J. R. Brooker, E. A. Lachner, R. N. Lea, and W. B. Scott. *Common and scientific names of fishes from the United States and Canada*, 5th edition. American Fisheries Society, Special Publication 20, Bethesda, Maryland.

Courtenay, W. R., Jr., and J. R. Stauffer, Jr. 1990. The introduced fish problem and the aquarium fish industry. *Journal of the World Aquaculture Society* 21(3):145–159.

Devick, W. S. 1991a. Disturbances and fluctuations in the Wahiawa Reservoir ecosystem. Division of Aquatic Resources, Project F-14-R-15, Job 4, Study I, Hawaii Department of Land and Natural Resources.

- Devick, W. S. 1991b. Patterns of introductions of aquatic organisms to Hawaiian freshwater habitats. Pages 189–213 *in* New directions in research, management and conservation of Hawaiian freshwater stream ecosystems. Proceedings of the 1990 symposium on freshwater stream biology and fisheries management. Division of Aquatic Resources, Hawaii Department of Land and Natural Resources.
- Giarrizzo, T., R. R. de Sena Oliveira, M. C. Andrade, A. P. Gonçalves, T. A. P. Barbosa, A. R. Martins, D. K. Marques, J. L. B. dos Santos, R. de P., da S. Frois, T. P. O. de Albuquerque, L. F. de A. Montag, M. Camargo, and L. M. de Sousa. 2015. Length-weight and length-length relationships for 135 fish species from the Xingu River (Amazon basin, Brazil). *Journal of Applied Ichthyology* 31:514–424.
- Mills, D., and G. Vevers, 1989. *The Tetra encyclopedia of freshwater tropical aquarium fishes*. Tetra Press, New Jersey.
- Mundy, B. C. 2005. Checklist of fishes of the Hawaiian Archipelago. *Bishop Museum Bulletins in Zoology* 6.
- Planquette, P., P. Keith, and P.-Y. Le Bail. 1996. *Atlas des poissons d'eau douce de Guyane*. Tome 1. Collection du Patrimoine Naturel volume 22. MNHN and INRA, Paris.
- Riehl, R., and H. A. Baensch. 1991. *Aquarien atlas, band. 1*. Melle: Mergus, Verlag für Natur- und Heimtierkunde, Germany.