

Blind Cave Fish (*Astyanax jordani*)

Ecological Risk Screening Summary

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1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2016):

“North America: Mexico.”

Status in the United States

No records of *Astyanax jordani* in the United States were found.

Means of Introductions in the United States

No records of *Astyanax jordani* in the United States were found.

Remarks

No additional remarks.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From Eschmeyer et al. (2016):

“**jordani**, *Anoptichthys* Hubbs [C. L.] & Innes [W. T.] 1936:5, Pl. 1 [Occasional Papers of the Museum of Zoology University of Michigan No. 342; [...]] Subterranean stream in forested mountain region of southeastern San Luis Potosí, Mexico. Holotype: UMMZ 113514. Paratypes: (2) ?UMMZ 114486 (4). •Synonym of *Astyanax fasciatus* [complex] (Cuvier 1819) -- (Romero & Paulson 2001:23 [...]). •Valid as *Astyanax jordani* (Hubbs & Innes 1936) -- (Espinosa Pérez et al. 1993:24 [...], Buckup in Reis et al. 2003:110 [...], Proudlove 2006:52 [...]). •Mention -- (Miller 2006:156 [...]). **Current status:** Valid as *Astyanax jordani* (Hubbs & Innes 1936). Characidae: No subfamily.”

From ITIS (2016):

“Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Osteichthyes
Class Actinopterygii
Subclass Neopterygii
Infraclass Teleostei
Superorder Ostariophysi
Order Characiformes
Family Characidae
Genus *Astyanax*
Species *Astyanax jordani* (Hubbs and Innes, 1936)”

Size, Weight, and Age Range

From Froese and Pauly (2016):

“A length estimate for this species is 10 cm (Glenn Owens, pers.comm. 2009).”

Environment

From Froese and Pauly (2016):

“Freshwater; benthopelagic; pH range: 6.0 - 7.8; dH range: ? - 30; non-migratory. [...]; 20°C - 25°C [assumed to be recommended aquarium temperature range] [Riehl and Baensch 1991]; [...].”

Climate/Range

From Froese and Pauly (2016):

“Tropical; [...]; 25°N - 21°N”

Distribution Outside the United States

Native

From Froese and Pauly (2016):

“North America: Mexico.”

Introduced

From Froese and Pauly (2016):

“From Unknown to Philippines, Established: unknown”

Means of Introduction Outside the United States

From FAO (2016):

“Reasons of Introduction: 1) ornamental”

Short Description

A short description of *Astyanax jordani* could not be found.

Biology

From Froese and Pauly (2016):

“A blind cave fish that recently evolved from the surface form *Astyanax mexicanus*.”

“Expels eggs in a more or less haphazard fashion, the substrate on which the species spawns must have crevices and pores into which the adhesive eggs can roll and be hidden so to prevent predation by its parents or other cave inhabitants.”

Human Uses

From Froese and Pauly (2016):

“Fisheries: of no interest; aquarium: commercial”

Diseases

Information on diseases of *Astyanax jordani* could not be found.

Threat to Humans

From Froese and Pauly (2016):

“Harmless”

3 Impacts of Introductions

No information on impacts of introduction of *Astyanax jordani* was found.

4 Global Distribution



Figure 1. Known global distribution of *Astyanax jordani*. Locations are in Mexico. Map from GBIF Secretariat (2016).

The location on the Yucatán Peninsula had discrepancies in the data record. That observation was not used as a source point for the climate match. There was a reported introduction in the Philippines, but no location data was given for the record and it is unknown if the introduction resulted in an established population. No source points in the Philippines were used for the climate match.

5 Distribution Within the United States

No records of *Astyanax jordani* in the United States were found.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Astyanax jordani* was medium for the southwest and northern Florida. Southern Florida had a high match and the rest of the country had a low match. The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous U.S. was 0.030, medium, and high in Arizona, Florida, and Texas.

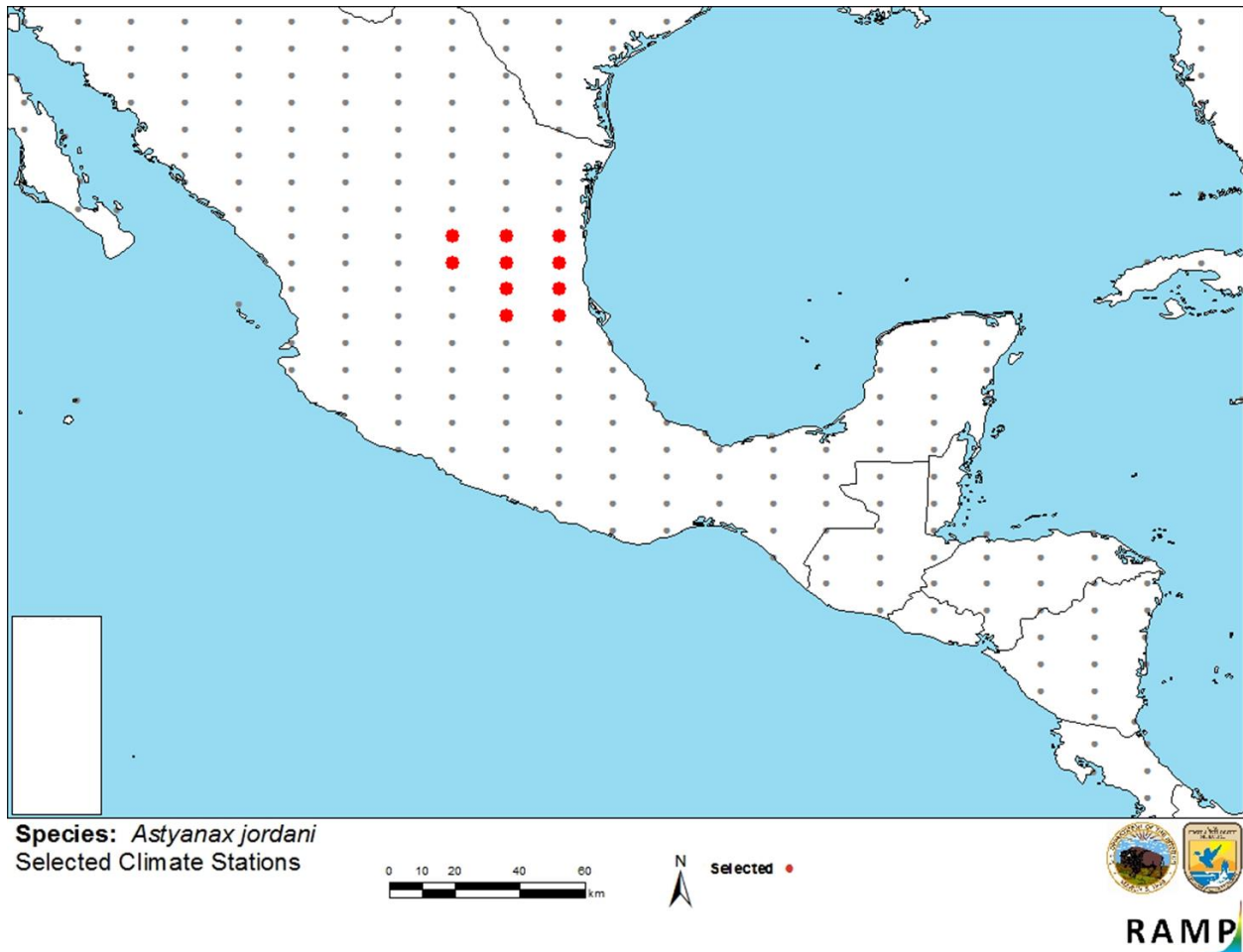


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations in Mexico selected as source locations (red) and non-source locations (gray) for *Astyanax jordani* climate matching. Source locations from GBIF Secretariat (2016).

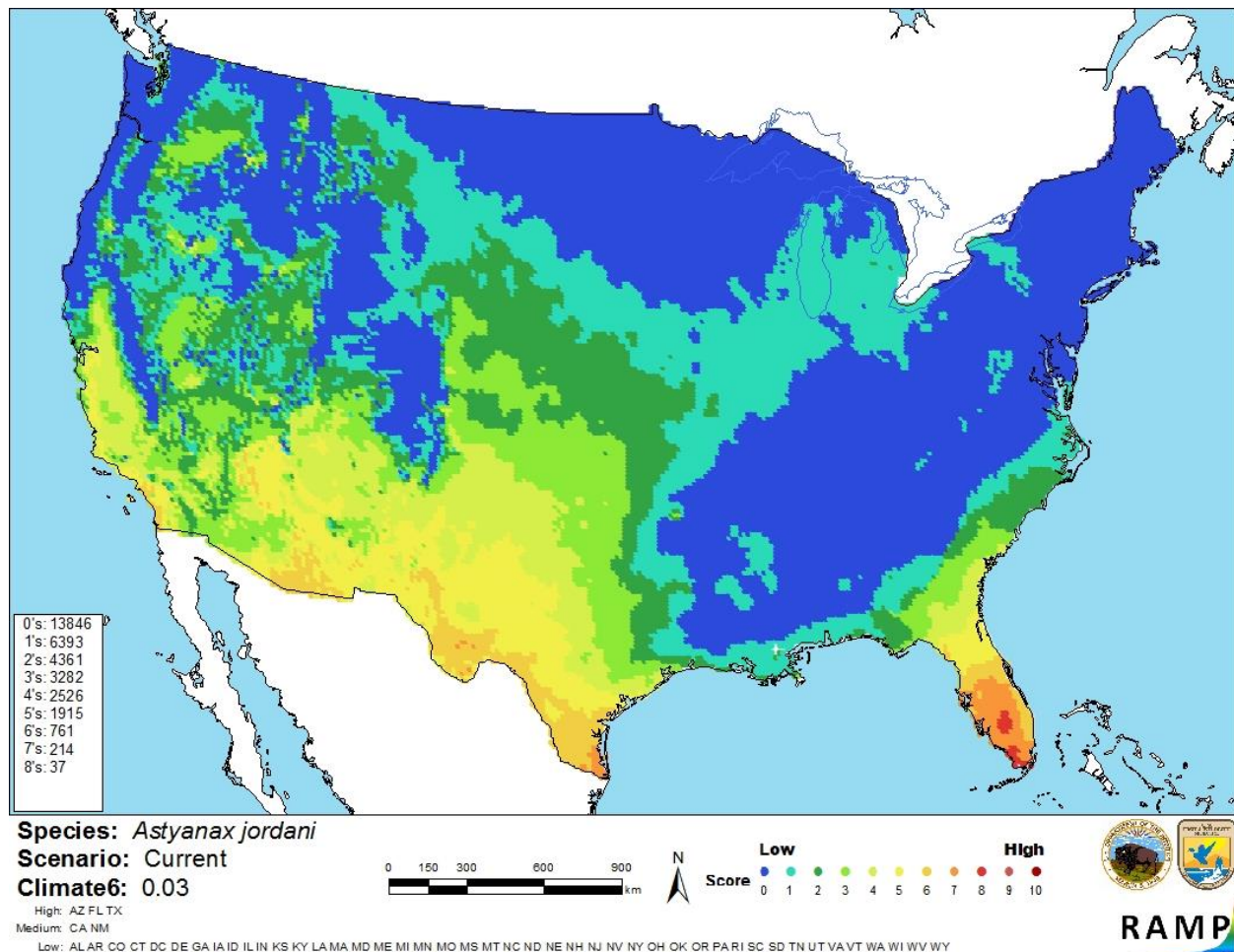


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Astyanax jordani* in the contiguous United States based on source locations reported by GBIF Secretariat (2016). 0 = Lowest match, 10 = Highest match.

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

The certainty of assessment is low. There was minimal biological and ecological information available for *Astyanax jordani*. There was one generalized record of introduction but no information on the status of that introduction.

8 Risk Assessment

Summary of Risk to the Contiguous United States

The history of invasiveness for *Astyanax jordani* is uncertain. There was one record of introduction found for the Philippines but it could not be verified or determined if the introduction resulted in an established population. No information on any impacts of that introduction was found. The climate match was medium, particularly in the southwest and Florida. This area shares much in common with the species' native range just south in Mexico. The certainty of assessment is low. The overall risk assessment category is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): Medium**
- **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.

Eschmeyer, W. N., R. Fricke, and R. van der Laan, editors. 2016. Catalog of fishes: genera, species, references. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (March 2016).

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Sanders, S., C. Castiglione, and M. 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.

Espinosa Pérez, H., M. T. Gaspar Dillanes, and P. Fuentes Mata. 1993. Listados faunísticos de México. III. Los peces dulceacuícolas Mexicanos. Universidad Nacional Autónoma de México.

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Romero, A., and K. M. Paulson. 2001. It's a wonderful hypogean life: a guide to the troglomorphic fishes of the world. Environmental Biology of Fishes 62:13–41.