

Dwarf Corydoras (*Corydoras hastatus*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, July 2017

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<https://commons.wikimedia.org/w/index.php?curid=8099374>. (September 2017).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2017):

“South America: Amazon and Paraguay River basins [Reis 2003]. Reported from the upper Paraña [López et al. 2005].”

From Seriously Fish (2017):

“While the type locality (see below) is located on the Amazon main channel, between Sanatrem and Manaus in Amazonas state, Brazil, records also exist from elsewhere in Amazonas state (rio Urubu and floodplain lakes in the vicinity of Manaus), plus Par  state further downstream, Pando, Beni, and Santa Cruz departments in northern and eastern Bolivia (r os It nez/Guapor , Yacuma, Itonomas, Pira , and Orthon watersheds within the larger Madeira river basin), throughout the R o Paraguay system in southern Brazil (Mato Grosso do Sul state), Paraguay and northeastern Argentina (including r os Pilcomayo, Confuso, Jeju  Guaz , Manduvir , and Tebicuary), at least as far south as the confluence of the R o Paraguay with the R o Paran . Type locality is ‘Villa Bella [= Parintins, 2 38’S, 56 45’W], Amazonas, Brazil’.”

Status in the United States

This species has not been reported as introduced or established in the United States. This species is in trade in the United States.

From Aquaticclarity (2017):

“In Stock Fish [...] updated 9-16-2017 [...] *Corydoras hastatus* wild caught 3/4”+ \$7 each 6+ \$6 each 12+ \$5 each 24+ \$4.50 each”

Aquaticclarity is located in Richfield, Wisconsin.

From Chapman et al. (1994):

“List of freshwater species declared as imported into the U.S.A. during October 1992 [includes] *Corydoras hastatus*”

Means of Introductions in the United States

This species has not been reported as introduced or established in the United States.

Remarks

From ITIS (2017):

“Synonym(s): *Microcorydoras hastatus* (Eigenmann and Eigenmann, 1888)”

Other common names for this species include dwarf catfish, micro catfish, pygmy cory, pygmy corydoras, and tail spot pigmy cory (Froese and Pauly 2017).

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 Ostariophysii
Order Siluriformes
Family Callichthyidae
Subfamily Corydoradinae
Genus *Corydoras*
Species *Corydoras hastatus* Eigenmann and Eigenmann, 1888”

“Current Status: valid”

Size, Weight, and Age Range

From Froese and Pauly (2017):

“Max length : 2.4 cm SL male/unsexed; [Reis 2003]”

From Ralph (2016):

“Males 25mm & females 32mm”

Environment

From Froese and Pauly (2017):

“Freshwater; demersal; pH range: 6.0 - 8.0; dH range: 5 - 19.”

Climate/Range

From Froese and Pauly (2017):

“Subtropical; 25°C - 28°C [Schliewen 1992]”

Distribution Outside the United States

Native

From Froese and Pauly (2017):

“South America: Amazon and Paraguay River basins [Reis 2003]. Reported from the upper Paraña [López et al. 2005].”

From Seriously Fish (2017):

“While the type locality (see below) is located on the Amazon main channel, between Sanatrem and Manaus in Amazonas state, Brazil, records also exist from elsewhere in Amazonas state (rio Urubu and floodplain lakes in the vicinity of Manaus), plus Par  state further downstream, Pando, Beni, and Santa Cruz departments in northern and eastern Bolivia (r os It nez/Guapor , Yacuma, Itonomas, Pira , and Orthon watersheds within the larger Madeira river basin), throughout the R o Paraguay system in southern Brazil (Mato Grosso do Sul state), Paraguay and northeastern Argentina (including r os Pilcomayo, Confuso, Jeju  Guaz , Manduvir , and Tobicuary), at least as far south as the confluence of the R o Paraguay with the R o Paran . Type locality is ‘Villa Bella [= Parintins, 2 38’S, 56 45’W], Amazonas, Brazil’.”

Introduced

No introductions of this species have been reported.

Means of Introduction Outside the United States

No introductions of this species have been reported.

Short Description

From Ralph (2016):

“Typical triangular body shape with the head being short and compact. The dorsal fin has 1 hard ray and 7 soft rays. The anal fin has 2 hard rays and 5-6 soft rays. There are 22 bony scutes in the upper lateral series and 20 in the lower lateral series.”

“The base colour of the body and head is grey-green to golden yellow. The back is olive green; the flanks are yellowish with a whitish coloured belly. The head, body and fins are sprinkled with small dark spots. A black longitudinal band runs from behind the gill cover to a lozenge-shaped blotch at the root of the tail; the latter blotch having a white to yellowish coloured margin above and below. A second broader streak runs along the lower edge of the caudal peduncle. The fins are dull grey. The base of the caudal fin is blackish in colour.”

Biology

From Froese and Pauly (2017):

“Lives among plants. Forms small schools [Burgess 1992]. Found in ponds [Cordiviola de Yuan and Pignalberi de Hassan 1985].”

“The female holds 2-4 eggs between her pelvic fins, where the male fertilizes them for about 30 seconds. Only then the female swims to a suitable spot, where she attaches the very sticky eggs. The pair repeats this process until about 100 eggs have been fertilized and attached [Riehl and Baensch 1991]. However, it is also believed that this species only lays a single egg [Riehl and Baensch 1991].”

From Seriously Fish (2017):

“*C. hastatus* exhibits slightly different behaviour to the majority of congeners in that it tends to swim in midwater and spends a large proportion of its time away from the substrate. Its morphology exhibits corresponding adaptations towards a pelagic existence with a relatively large eye, a more terminal mouth position, more strongly-forked caudal-fin, and more symmetrical body shape than most other *Corydoras* species.”

“This [midwater-swimming] behaviour allows it to form large, mixed-species aggregations with similarly-patterned small characids such as *Serrapinnus kriegi*, *Aphyocharax nattereri*, and *Hyphessobrycon elachys*. The phenomenon of multiple, similarly-coloured species which coexist and school together is relatively common in the genus, although it is typically displayed by sympatric *Corydoras* species with only a few examples in which such patterns have evolved in other taxa. The reason is thought to be protection from predators in that they feature cryptic or otherwise disruptive details such as stripes, spots, reticulations, or strongly-coloured fin spines. Similarly-patterned species may therefore have evolved to take advantage of foraging in a larger group while simultaneously adapting to exploit contrasting ecological niches. In *Corydoras*, this is typically expressed via differences in snout length or mouth position, for example.”

“They are facultative air breathers and possess a modified, highly vascularised intestine which has evolved to facilitate uptake of atmospheric oxygen and aid survival in oxygen-deprived environments. In the aquarium you’ll occasionally see them rising to the surface to take in gulps of air.”

Human Uses

From Froese and Pauly (2017):

“Fisheries: of no interest; aquarium: commercial”

From Seriously Fish (2017):

“In the aquarium trade, *C. hastatus* is available less frequently than *C. pygmaeus* and *C. habrosus*, the other species most commonly referred to as ‘dwarf cory’ or ‘pygmy cory’.”

Diseases

From Ferraz and Sommerville (1998):

“In a study conducted on samples of shipments of tropical ornamental fish imported into Britain from South America and at the exporters’ holding facilities in Brazil (Ferraz 1995), a related protozoan identified as *Piscinoodinium* sp. was found on routine smears of *Brochis splendens* (Castelnau, 1855) and different species of *Corydoras*. This protozoan appears to be responsible for severe losses prior to export.”

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

Threat to Humans

From Froese and Pauly (2017):

“Harmless”

From Seriously Fish (2017):

“The stiffened pectoral-fin spines are capable of piercing human skin and a ‘sting’ can be very painful indeed, so care should be exercised when handling them. It is thought that secretions from the axillary glands at the base of each spine may even be mildly toxic or venomous.”

3 Impacts of Introductions

No introductions of this species have been reported.

4 Global Distribution



Figure 1. Known global distribution of *C. hastatus*. Map from GBIF (2017).

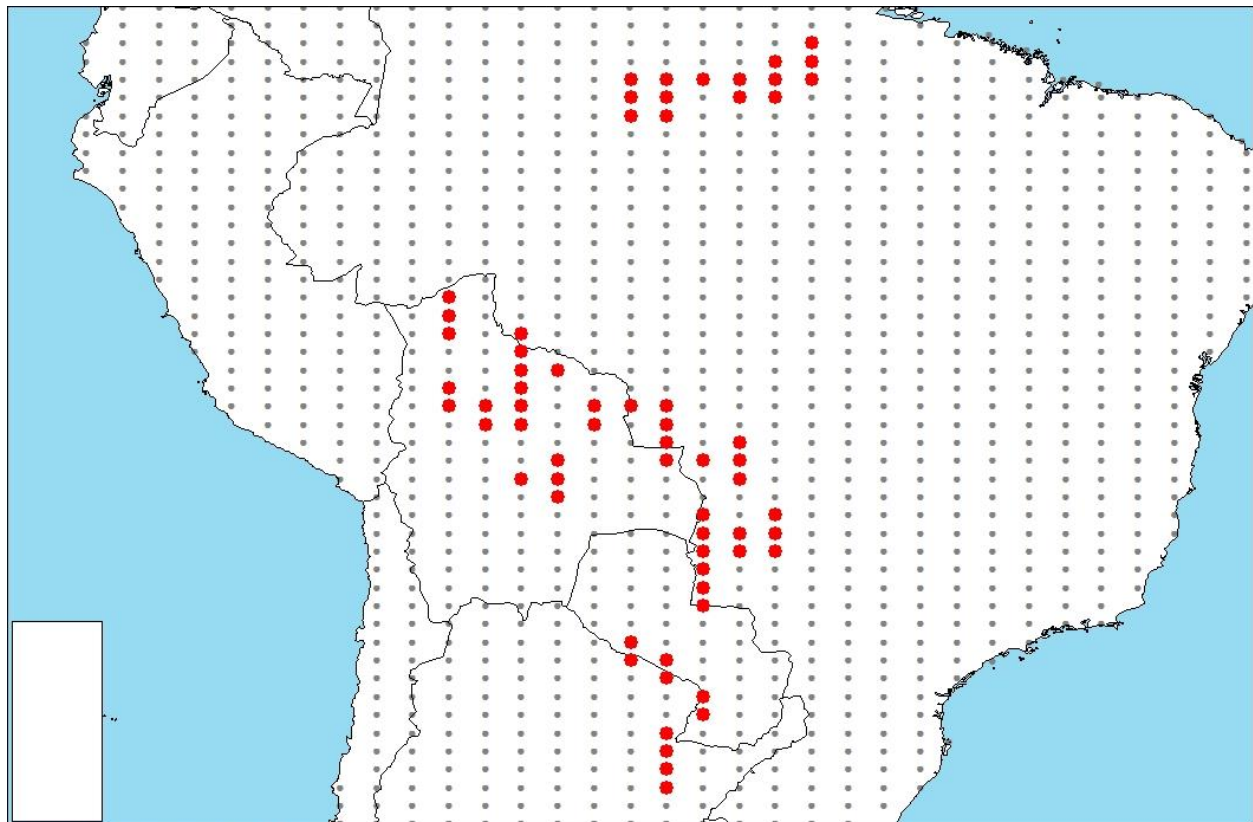
5 Distribution Within the United States

This species has not been reported as introduced or established in the United States.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean distance) for *C. hastatus* was high in parts of peninsular Florida and coastal Texas. Areas of medium match followed the U.S. coastline from Maryland to Texas. The U.S.-Mexico border in the Southwest also showed medium match. The remainder of the contiguous U.S. showed low climate match. Climate 6 score for *C. hastatus* was 0.044, indicating a medium match overall for the contiguous U.S.



Species: *Corydoras hastatus*
Selected Climate Stations



RAMP

Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red) and non-source locations (gray) for *C. hastatus* climate matching. Source locations from GBIF (2017).

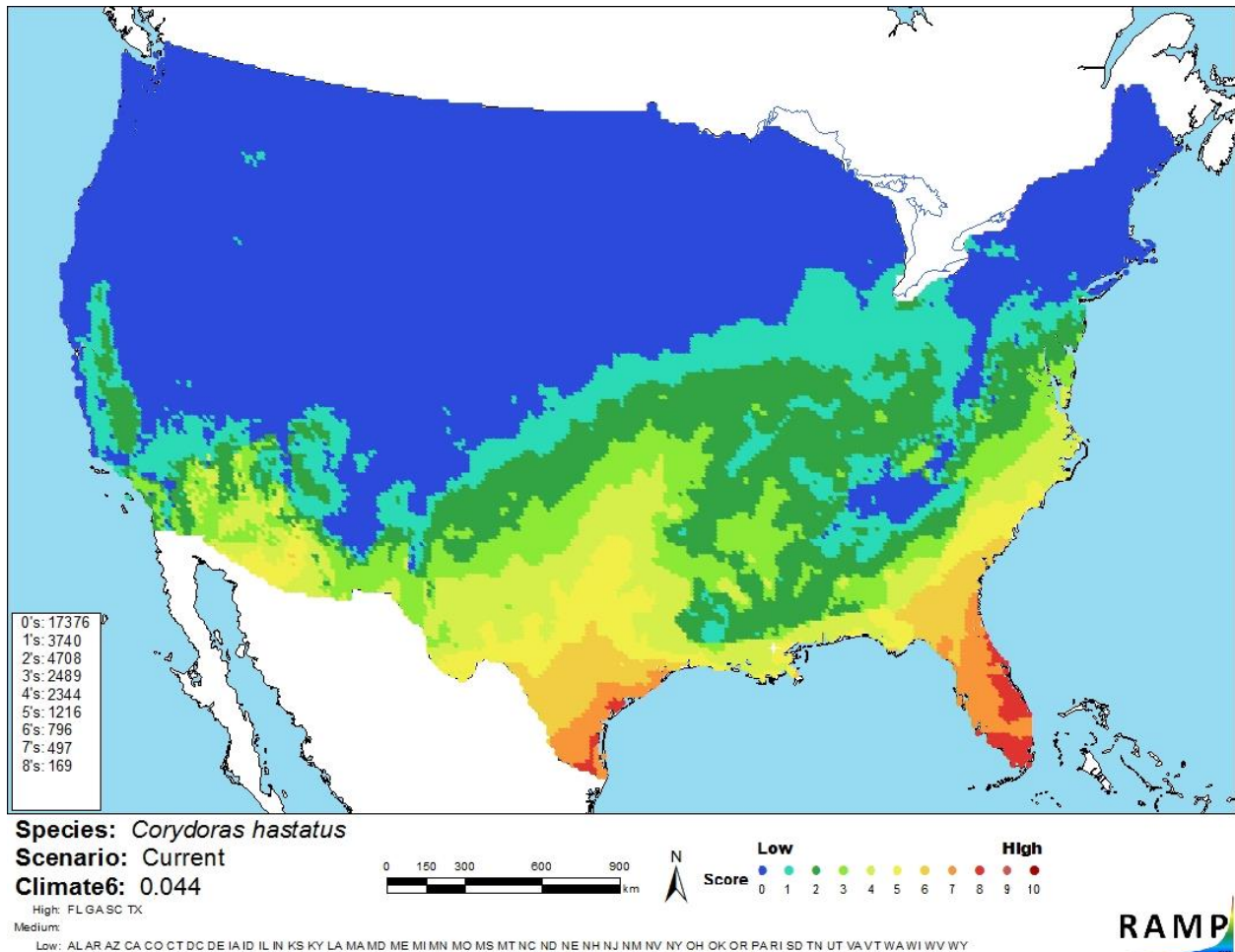


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *C. hastatus* in the contiguous United States based on source locations reported by GBIF (2017). 0=Lowest match, 10=Highest match.

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

Information on the biology and distribution of *Corydoras hastatus* is available, particularly in the aquarium hobbyist literature. However, information regarding impacts of invasiveness was lacking because no introductions of this species have been reported yet. The certainty of assessment for this species is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Corydoras hastatus is a small catfish with a broad native distribution in South America. *C. hastatus* has a medium climate match overall with the contiguous United States, with the areas of highest match occurring in Florida and Texas. While *C. hastatus* is present in the aquarium trade, including within the U.S., no introductions have been reported in the U.S. or elsewhere. Given the existing information on *C. hastatus* and no known introductions beyond their native range, it is difficult to predict the potential impact if introduced to U.S. waterways. Therefore, the overall risk posed by this species is uncertain.

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.

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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.

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