

Doublespot Acara (*Aequidens pallidus*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, web version – 03/29/2018



Photo: Frank M Greco. Licensed under Creative Commons BY 3.0 Unported. Available: https://commons.wikimedia.org/wiki/File:Aequidens_pallidus.jpg. (August 2017).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2015):

“South America: Amazon River basin, in the middle and lower Negro River, Uatumã, Preto da Eva, and Puraquequara rivers.”

Status in the United States

No records of *Aequidens pallidus* in the United States found.

Means of Introductions in the United States

No records of *Aequidens pallidus* in the United States found.

Remarks

No additional remarks.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2015):

“Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Osteichthyes
Class Actinopterygii
Subclass Neopterygii
Infraclass Teleostei
Superorder Acanthopterygii
Order Perciformes
Suborder Labroidei
Family Cichlidae
Genus *Aequidens*
Species *Aequidens pallidus* (Heckel, 1840)”

From Eschmeyer et al. (2017):

“*pallidus*, *Acara* Heckel [J. J.] 1840:347 [...] [Annalen des Wiener Museums der Naturgeschichte v. 2] Rio Negro of Rio Amazonas, South America. Holotype (unique): NMW 33678. •Valid as *Aequidens pallidus* (Heckel 1840) -- (Kullander in Reis et al. 2003:608 [...]).
Current status: Valid as *Aequidens pallidus* (Heckel 1840). Cichlidae: Cichlinae.”

Size, Weight, and Age Range

From Froese and Pauly (2015):

“Max length: 14.3 cm SL male/unsexed; [Kullander 2003]”

“Maximum length 20.0 cm TL [Stawikowski and Werner 1998].”

Environment

From Froese and Pauly (2015):

“Freshwater; benthopelagic; pH range: 6.5 - 7.5; dH range: ? - 10. [...]; 22°C - 30°C [assumed to be recommended aquarium temperature range] [Stawikowski and Werner 1998]”

Climate/Range

From Froese and Pauly (2015):

“Tropical; [...]”

Distribution Outside the United States

Native

From Froese and Pauly (2015):

“South America: Amazon River basin, in the middle and lower Negro River, Uatumã, Preto da Eva, and Puraquequara rivers.”

Introduced

No records of *Aequidens pallidus* introductions were found.

Means of Introduction Outside the United States

No records of *Aequidens pallidus* introductions were found.

Short Description

From Froese and Pauly (2015):

“This species is moderately large (to c. 14.0 cm) with triserial predorsal scale pattern, relatively long pectoral fin (36.6-44.6% of SL) and 25-26 scales in the E1 row. It is most similar to *A. tubicen*, both of which have an enhanced, wide light spot anterior to the caudal spot, lateral band high on side, posteriorly positioned midlateral spot, and high vertebral count (14 + 13 = 27). *A. pallidus* differs from *A. tubicen* in the colour pattern, having a supraorbital spot, (vs. none in *A. tubicen*) and a normal cheek spot (*A. tubicen* has a preopercular spot). In this species the posterior part of the lateral band is uninterrupted at all sizes (vs. divided into blotches in *A. tubicen*). *Aequidens pallidus*, though resembling *A. diadema*, can be distinguished from the latter by having higher E1 scale row count 25-26 (vs. 24); much narrower dark margins on dorsal flank scales; and, more posteriorly positioned midlateral spot (through E3 scales 12-15 instead of c. 10-13) [Kullander and Ferreria 1990].”

Biology

From Froese and Pauly (2015):

“Collected from lotic black to clear water: in Rio Uatumá, this species was collected from marginal pools in rapids after the Balbina dam was closed and the river level dropped

considerably below normal low water level; R o Preto da Eva site was a relatively slow flowing small forest stream, while the Igarape Tarum zinho site was a swift flowing forest stream. Although collections indicate swamps and lakes, this species has been collected mostly in running water. Reported food items of specimens from R o Negro were chiefly fish and detritus [Kullander and Ferreria 1990].”

“Not a larvophil mouthbrooder [Stawikowski and Werner 1998].”

From Mendonca et al. (2005):

“Several species, such as *Aequidens pallidus* and *Pyrrhulina cf. brevis*, were found only or mainly in sites with low discharge.”

“Some species, such as *Microharacidium eleotrioides*, *Aequidens pallidus*, and *Pyrrhulina cf. brevis*, occurred predominantly in small streams. [...] *Aequidens pallidus* and *P. cf. brevis* occurred mainly in sections with slow-flowing pools [...]”

From Pazin et al. (2006):

“*Aequidens pallidus*, *H. melazonatus* and the rare species were recorded only from heavily shaded ponds.”

From Esp rito-Santo et al. (2013):

“The cichlid *Aequidens pallidus* show reproductive characteristics typical of equilibrium species (multiple spawning and well developed parental care of eggs, larvae and young), but it is among the largest species in the study streams.”

“*Aequidens pallidus* and *C. spilurus* are small-to-medium-sized fish that have low fecundity and variable forms of parental care; moreover, they seem to prefer highly structured habitats and display territorial or philopatric behaviour (*A. pallidus*: Buhrnheim & Cox-Fernandes, 2004; *C. spilurus*: J. Zuanon, pers. obs.).”

Human Uses

From Froese and Pauly (2015):

“Aquarium: commercial”

Diseases

No information on diseases of *Aequidens pallidus* was found.

Threat to Humans

From Froese and Pauly (2015):

“Harmless”

3 Impacts of Introductions

No records of *Aequidens pallidus* introductions were found.

4 Global Distribution



Figure 1. Known global distribution of *Aequidens pallidus*. Locations are in Brazil. Map from GBIF Secretariat (2017).

5 Distribution Within the United States

No records of *Aequidens pallidus* in the United States found.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Aequidens pallidus* was low across the entire contiguous United States. The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous U.S. was 0.000, low, and no states had individually high climate matches.

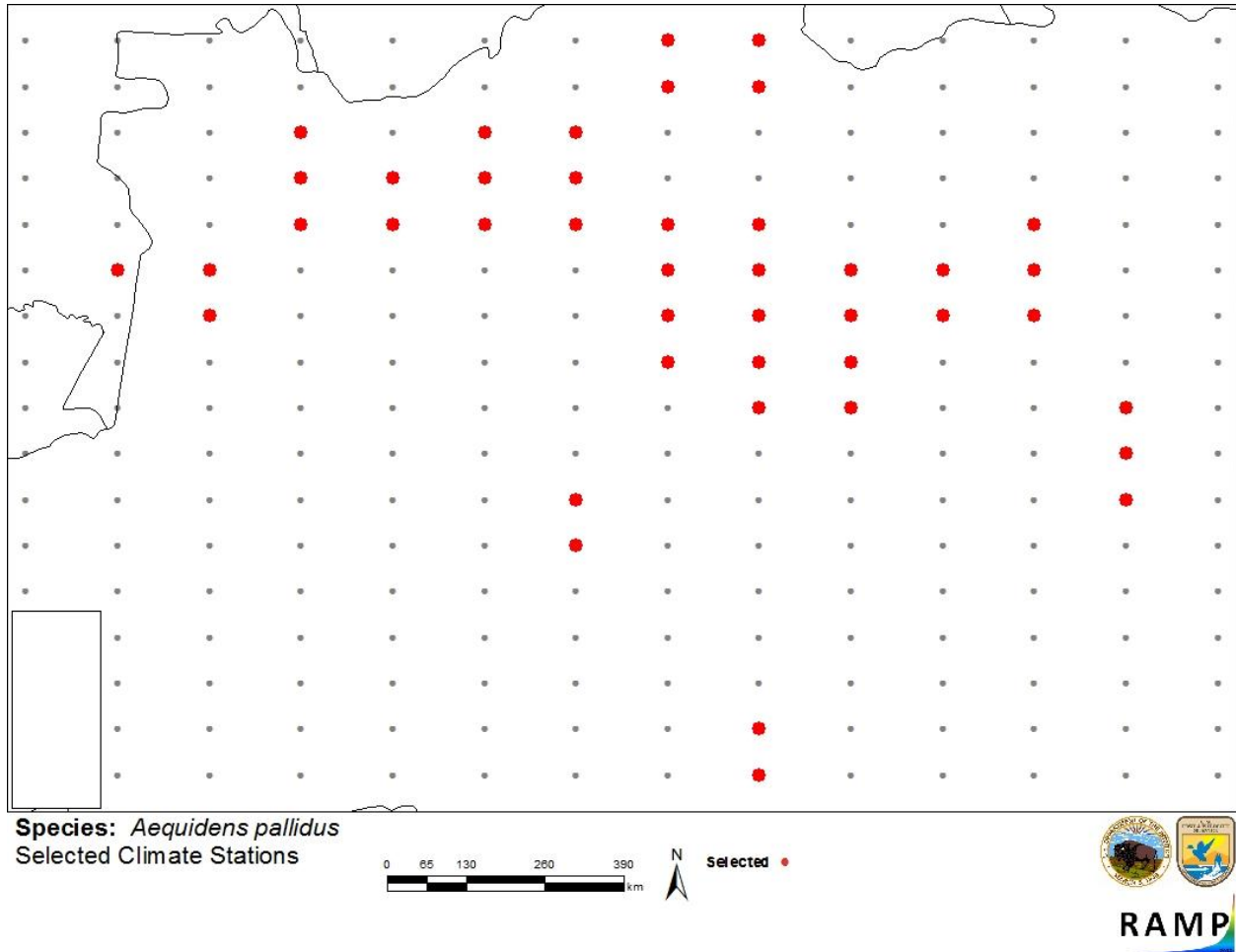


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations in Colombia and Brazil selected as source locations (red) and non-source locations (gray) for *Aequidens pallidus* climate matching. Source locations from GBIF Secretariat (2017).

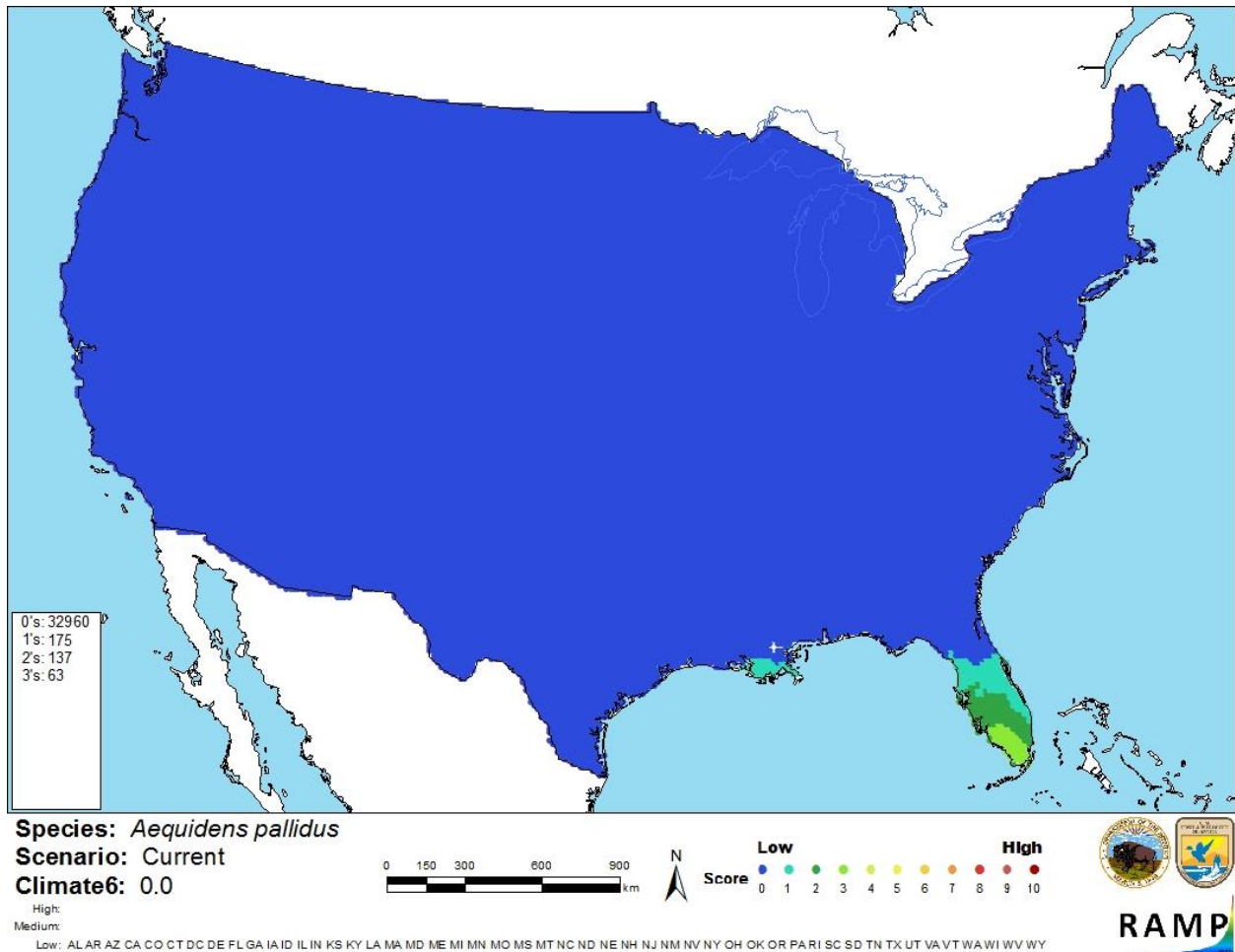


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Aequidens pallidus* in the contiguous United States based on source locations reported by GBIF Secretariat (2017). 0 = Lowest match, 10 = Highest match. Counts of climate match scores are tabulated on the left.

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
$0.000 \leq X < 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

7 Certainty of Assessment

The certainty of assessment is medium. Location information was detailed but no records of introductions were found. There was adequate information available about the biology and ecology of the species.

8 Risk Assessment

Summary of Risk to the Contiguous United States

The history of invasiveness is uncertain. There were no records of introductions found. The climate match is low. The climate 6 score was 0.000, low. The certainty of assessment is medium. Detailed distribution information was available for the climate match but no information was available regarding the history of invasiveness. The overall risk assessment is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): Low**
- **Certainty of Assessment (Sec. 7): Medium**
- **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. 2017. Catalog of fishes: genera, species, references. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmaintest.asp>. (August 2017).

Espírito-Santo, H. M. V., M. A. Rodríguez, and J. Zuanon. 2013. Reproductive strategies of Amazonian stream fishes and their fine-scale use of habitat are ordered along a hydrological gradient. *Freshwater Biology* 58(12):2494–2504.

Froese, R., and D. Pauly, editors. 2015. *Aequidens pallidus* (Heckel, 1840). FishBase. Available: <http://www.fishbase.org/summary/Aequidens-pallidus.html>. (February 2015).

GBIF Secretariat. 2017. GBIF backbone taxonomy: *Aequidens pallidus* (Heckel, 1840). Global Biodiversity Information Facility, Copenhagen. Available: <http://www.gbif.org/species/5208303>. (August 2017).

ITIS (Integrated Taxonomic Information System). 2015. *Aequidens pallidus* (Heckel, 1840). Integrated Taxonomic Information System, Reston, Virginia. Available: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=169830. (February 2015).

Mendonça, F. P., W. E. Magnusson, and J. Zuanon. 2005. Relationships between habitat characteristics and fish assemblages in small streams of Central Amazonia. *Copeia* 2005(4):751–764.

Pazin, V. F. V., W. E. Magnusson, J. Zuanon, and F. P. Mendonça. 2005. Fish assemblages in temporary ponds adjacent to 'terra-firme' streams in Central Amazonia. *Freshwater Biology* 51:1025–1037.

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.

Buhrnheim C. M., and C. Cox-Fernandes. 2004 História natural e comportamento reprodutivo de *Aequidens pallidus* e *Crenicichla inpa* (Perciformes: Cichlidae). Pages 157–166 in R. Cintra, editor. História Natural, Ecologia e Conservação de Algumas Espécies de Plantas e Animais da Amazônia. EDUA-INPA-FAPEAM, Manaus, Brazil. (In Portuguese.)

Heckel, J. J. 1840. Johann Natterer's neue Flussfische Brasilien's nach den Beobachtungen und Mittheilungen des Entdeckers beschrieben (Erste Abtheilung, Die Labroiden). *Annalen des Wiener Museums der Naturgeschichte* 2:325–471.

Kullander, S. O. 2003. Cichlidae (Cichlids). Pages 605–654 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.

Kullander, S. O., and E. J. G. Ferreira. 1990. A new *Aequidens* species from the Rio Trombetas, Brasil, and redescription of *Aequidens pallidus* (Teleostei, Cichlid ae). *Zoologica Scripta* 19(4):425–433.

Reis, R. E., S. O. Kullander, and C. J. Ferraris, Jr., editors. 2003. Check list of the freshwater fishes of South and Central America. CLOFFSCA. EDIPUCRS, Porto Alegre, Brazil.

Stawikowski, R., and U. Werner. 1998. Die Buntbarsche Amerikas, Band 1. Verlag Eugen Ulmer, Stuttgart, Germany.