

# Cockatoo Cichlid (*Apistogramma cacatuoides*)

## Ecological Risk Screening Summary

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## 1 Native Range and Status in the United States

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### Native Range

From Froese and Pauly (2013):

“South America: Amazon River basin, in tributaries of the Ucayali, Amazon and Solimões rivers from the Pachitea River to Tabatinga.”

### Status in the United States

No records of *Apistogramma cacatuoides* in the United States were found.

### Means of Introductions in the United States

No records of *Apistogramma cacatuoides* in the United States were found.

## Remarks

No additional remarks.

## 2 Biology and Ecology

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### Taxonomic Hierarchy and Taxonomic Standing

From Eschmeyer (2017):

“*cacatuoides*, *Apistogramma* Hoedeman 1951 [...] **Current status:** Valid as *Apistogramma cacatuoides* Hoedeman 1951.”

From ITIS (2013):

“Kingdom Animalia  
Phylum Chordata  
Subphylum Vertebrata  
Superclass Osteichthyes  
Class Actinopterygii  
Subclass Neopterygii  
Infraclass Teleostei  
Superorder Acanthopterygii  
Order Perciformes  
Suborder Labroidei  
Family Cichlidae  
Genus *Apistogramma*  
Species *Apistogramma cacatuoides* Hoedeman, 1951”

“Taxonomic Status:

Current Standing: valid”

### Size, Weight, and Age Range

From Froese and Pauly (2013):

“Max length: 5.0 cm SL male/unsexed; [Kullander 2003]”

### Environment

From Froese and Pauly (2013):

“Freshwater; benthopelagic; pH range: 6.0 - 8.0; dH range: 5 - 19. [...]; 24°C - 25°C [assumed to be recommended aquarium temperature range] [Riehl and Baensch 1991]”

## **Climate/Range**

From Froese and Pauly (2013):

“Tropical; [...]”

## **Distribution Outside the United States**

Native

From Froese and Pauly (2013):

“South America: Amazon River basin, in tributaries of the Ucayali, Amazon and Solimões rivers from the Pachitea River to Tabatinga.”

Introduced

No records of *Apistogramma cacatuoides* introductions have been found.

## **Means of Introduction Outside the United States**

No records of *Apistogramma cacatuoides* introductions have been found.

## **Short Description**

From Hoedeman (1951):

“Body elongate, deeper anteriorly; greatest depth 2.96 (2.8 in female) at ventral origin; least depth of caudal peduncle 9.4 (9.25) in length, or 3.02 (2.88) in head: greatest depth of caudal peduncle 7.5 (7.2) in length, or 2.52 (2.4) in head; anus slightly more than a scale length in advance of first anal ray.”

“Head 3.09 (3.1) in length; snout rather short. 3.4 (3.37) in head; none of the lips projecting; nostril just half way between orbit and posterior border of maxillary; interorbital width 3.3 (3.51) in head; preorbital width 2.6 (2.41) in eye. Maxillary 2.8 (3.1) in head, extending to beyond eye. Teeth small and slender, brown tipped, in 3 rows in each jaw, outer series slightly larger. Gill-membranes joined, free from isthmus; gill-rakers very short, knoblike, 13 on lower branch of first arch: superior lobe distinct. Branchiostegals 5. No pseudobranchiae.”

“Scales feebly ctenoid, with 7 to 11 radials, and 1 to 5 radials in the cheek and opercular scales; circuli fine, coarser apically; about 25 very fine apical denticles. In a median lateral series 24-27, and up to 10 rows of very small scales on the basal half of the caudal fin; 9 scales between first dorsal spine obliquely downward and afterward to ventral; 7/} scales between first anal spine obliquely upward and forward to base of dorsal; 8-9 predorsal scales; 11 scales round caudal peduncle; scales rather regularly arranged, smaller on caudal peduncle, on head, and on cheeks and operculum. Cheek scales in 3 rows; interopercular naked; 4 rows of opercular scales, and 2 rows of subopercular scales. Lateral line scales in the upper section 10 to 13, grooved in the posterior exposed part, not perforated by a pore; scales in lower section 5-8, rudimentary, the anterior ones usually only partly grooved.”

“Dorsal fin XV/5 (XV/4), inserted slightly in advance of the base of the pectorals; spines increasing in length to the sixth, then decreasing in length for five spines, the last spines of about equal length. The longest spine 0.8 in head; last spines 3.2 in head. AU membranes behind the spines produced into elongate lappets; the lappets of the anterior six spines very long, from half the length of the spine in the sixth, to more than the length of the spine in the first. Spines, including membranes, free from each other to the base from first to fourth, for most of its length from fourth to seventh, and free for the lappets only in the other spines. Membranes not much produced in female. Last branched rays produced into a more or less distinct filament.”

“Anal fin III/7 (III/7), much as dorsal fin, except for the peculiar free anterior spiny rays in the latter. Sixth branched ray the longest, produced into a filament.”

“Caudal fin ii/9/ii (ii/7/ii), the outer principal rays prolonged in the male ; this fin, as well as the anal fin rounded in the female.”

“Ventral fins 1/5, very elongate in the male, reaching to the base of the first soft anal ray or the filament beyond it. Pectoral fins iii/5/ii, inserted low, a little in advance of ventral origin, rounded, middle rays longest, none filamentous.”

“COLOURATION. Ground-colour in live, olive brown, with reflecting metallic blue scales. A dark band from hind margin of eye to the caudal root, very distinct in both sexes. A blackish ocellus-like, rather irregular spot at the base of the last dorsal rays. First four dorsal rays very dark, scattered with melanophores, fins otherwise light blue, with darker blue dots on the posterior soft anal rays and near the base of the caudal fin. An irregular, rather broad black band extending from the outer margin of the eye obliquely downward to the angle of the operculum. There is a whitish streak at the upper side along the dark lateral band; back with dark brownish flecks. Belly lighter, above base of anal fin bright yellow ; a yellow to greenish spot posteriorly above the eye; operculum with orange and light green to blue flecks. Occasionally a narrow dark streak on the lower part of the body from pectoral base to lower part of caudal peduncle, and some transverse bands from the end of the dorsal fin, from the tenth to thirteenth dorsal spine, and from the sixth to ninth dorsal spine. Usually a dark spot in front of the first dorsal spine, at the posterior angle of the operculum, and at the corner of the mouth.”

“Preserved (alcohol) specimens are similarly coloured, but the bright blue, green and orange flecks are lost.”

## **Biology**

From Froese and Pauly (2013):

“Eggs are deposited on the ceiling of caves and are tendered by the female parent [Kosłowski 2002].”

“Produces up to 80 eggs. Eggs are attached to the ceiling of caves, female cares for eggs and larvae [Kosłowski 2002].”

## Human Uses

From Froese and Pauly (2013):

“Fisheries: of no interest; aquarium: commercial”

From Hoedeman (1951):

“The Dwarf-cichlid genus *Apistogramma*, very popular among aquarists and at present among students of animal behavior [...]”

According to Nolan et al. (2014), 14,223,855 *Apistogramma cacatioudes* were imported to Australia in 2009.

## Diseases

**No records of OIE reportable diseases were found.**

From Froese and Pauly (2013):

“White spot Disease, Parasitic infestations (protozoa, worms, etc.)  
Costia Disease, Parasitic infestations (protozoa, worms, etc.)  
Turbidity of the Skin (Freshwater fish), Parasitic infestations (protozoa, worms, etc.)  
Bacterial Infections (general), Bacterial diseases  
Hole-in-the-Head Disease, Parasitic infestations (protozoa, worms, etc.)  
Ichthyobodo Infection, Parasitic infestations (protozoa, worms, etc.)”

## Threat to Humans

From Froese and Pauly (2013):

“Harmless”

## 3 Impacts of Introductions

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No records of *Apistogramma cacatuoides* introductions were found.

## 4 Global Distribution

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**Figure 1.** Known global distribution of *Apistogramma cacatuoides* in South America. Map from GBIF Secretariat (2017).

The observation in Suriname was not used as a source point in the climate match. The observation is far outside any description of the species range or any other observations. The point is the result of a single record without any details.

## 5 Distribution Within the United States

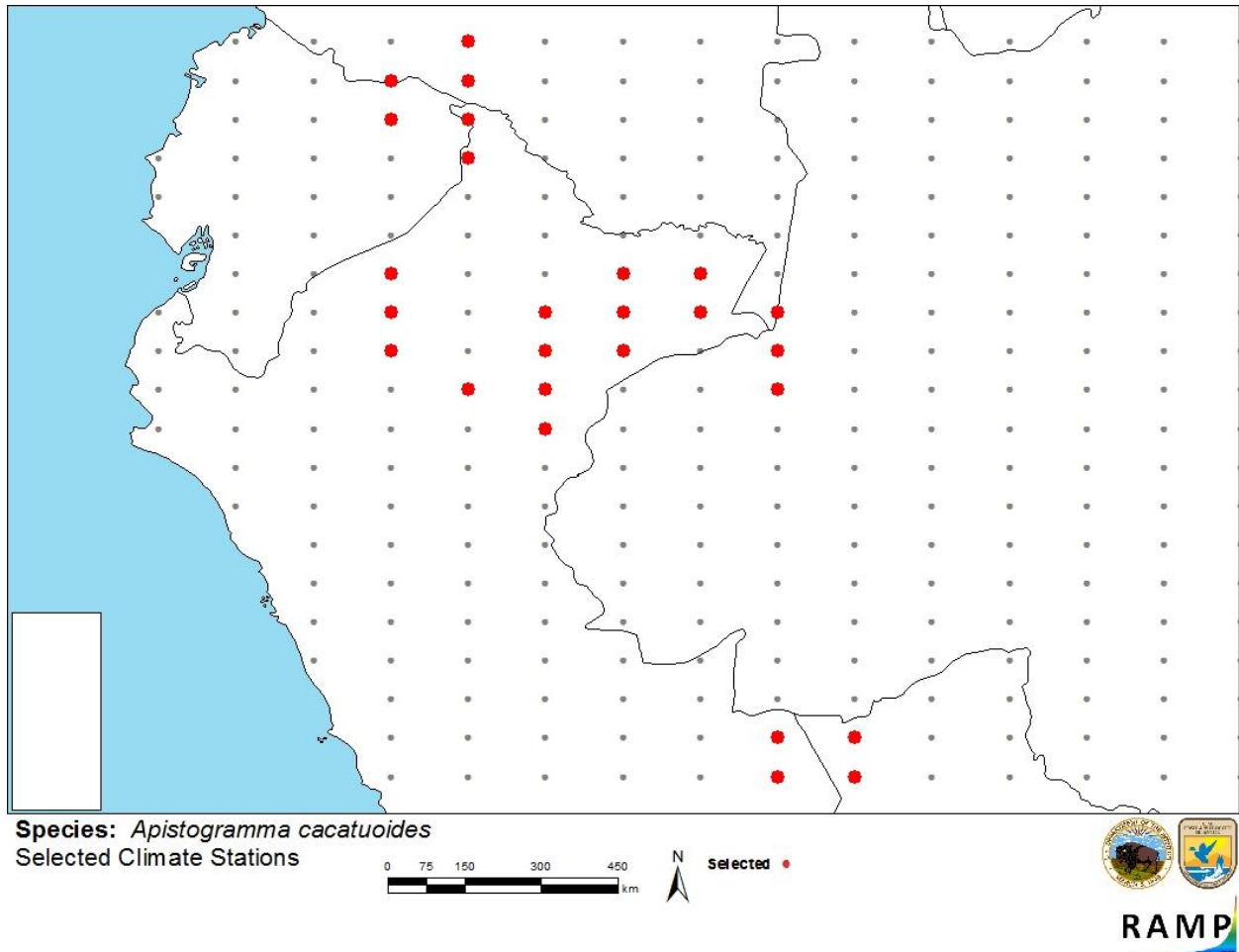
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No records of *Apistogramma cacatuoides* in the United States were found.

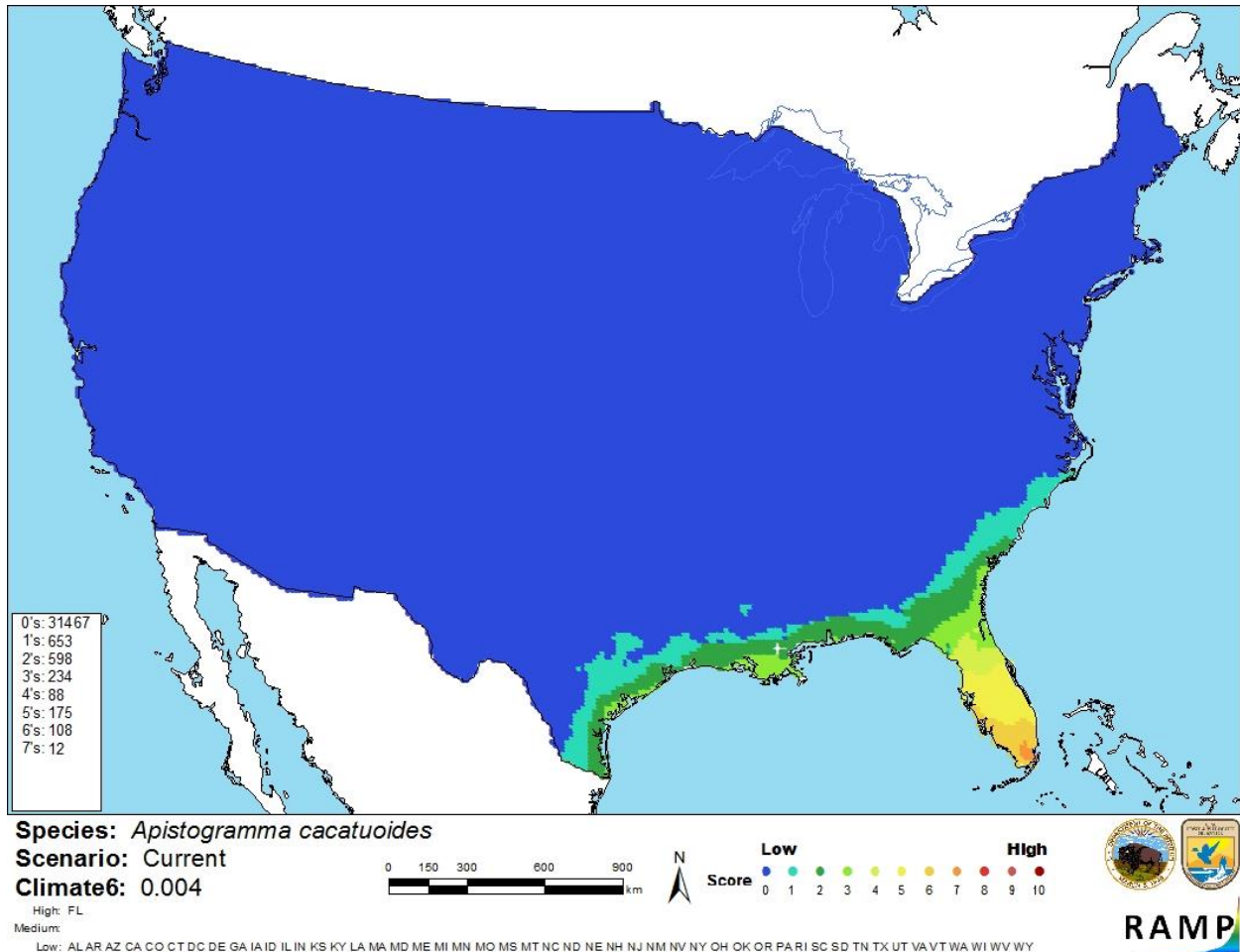
## 6 Climate Matching

### Summary of Climate Matching Analysis

The climate match for *Apistogramma cactuoides* was low for most of the contiguous United States. Florida had a medium climate match, with the highest match in the extreme south of the state. The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous U.S. was 0.004, low, and high in Florida.



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



**Figure 3.** Map of RAMP (Sanders et al. 2014) climate matches for *Apistogramma cacatuoides* in the contiguous United States based on source locations reported by GBIF Secretariat (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
$0.000 \leq X < 0.005$	Low
$0.005 < X < 0.103$	Medium
$\geq 0.103$	High

## 7 Certainty of Assessment

The certainty of this assessment is medium. There is an adequate amount of information available for *Apistogramma cacatuoides* but the accuracy of some of the specimen records is in question. A single record was available for this species in Suriname but no other collections from outside the western end of the Amazon basin, primarily in Peru, have been made.



## 8 Risk Assessment

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### Summary of Risk to the Contiguous United States

History of invasiveness of *Apistogramma cacatuoides* is low. This species has been popular in the aquarium trade since before 1951 (Hoedeman 1951) and is currently still in trade at high volumes (Nolan et al. 2014). There were no records of introductions for the entire time the species has been present in trade. Climate match is low; however Florida does have a high match. Certainty of assessment is medium. The overall risk assessment category is low.

### Assessment Elements

- **History of Invasiveness (Sec. 3): Low**
- **Climate Match (Sec. 6): Low**
- **Certainty of Assessment (Sec. 7): Medium**
- **Remarks/Important additional information No additional remarks.**
- **Overall Risk Assessment Category: Low**

## 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.**

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Froese, R., and D. Pauly, editors. 2013. *Apistogramma cacatuoides* Hoedeman, 1951. FishBase. Available: <http://www.fishbase.de/summary/Apistogramma-cacatuoides.html>. (August 2013).

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Hoedeman, J. J. 1951. Notes of the fishes of the Cichlid family I, *Apistogramma cacatuoides* sp. n. *Beaufortia*, Series of Miscellaneous Publications 4, Zoological Museum, Amsterdam.

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Nolan, D., F. Stephens, M. Crockford, J. B. Jones, and M. Snow. 2014. Detection and characterization of viruses of the genus *Megalocytivirus* in ornamental fish imported into an Australian border quarantine premises: an emerging risk to national biosecurity. *Journal of Fish Diseases* DOI:10.1111/jfd.12222.

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

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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.**

Koslowski, I. 2002. Die Buntbarsche Amerikas, Band 2, *Apistogramma* & Co. Verlag Eugen Ulmer GmbH und Co., Stuttgart, Germany.

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Riehl, R., and H. A. Baensch. 1991. Aquarien atlas. Band. 1. Melle: Mergus, Verlag für Natur- und Heimtierkunde, Germany.