

Chameleon Cichlid (*Australoheros facetus*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, April 2011

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1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2017):

“South America: Coastal drainages of Uruguay and Rio Grande do Sul, Brazil; Paraná River basin, lower part of Paraná River in Argentina.”

Status in the United States

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

From Dickinson (2006):

“Pioneer of the aquarium hobby, the beautiful and hardy Chanchito was able to stand the experiments early aquarists did in order to keep aquarium fish. Because of their attributes, this fish has been able to remain popular to our days’ [...] Reports in America's first 'real' aquarium magazine, "The Aquarium" (Klee, 2003), which was published by the "Father of the Aquarium Hobby," Hugo Mulertt (Klee, 2003), relayed spawning narratives of the 'Brazilian Zebra Fish,' or 'chanchito,' as it would come to be known, in Germany one year earlier, and of this fish now having been imported and bred in the United States. [...] The chanchito is made up of at least three South American species, *Cichlasoma facetum*, *C. autochthon* and *C. oblongum* (Leibel, 1996; 2004).”

Means of Introductions into the United States

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

Remarks

From GBIF (2016):

“Synonyms for ‘*Australoheros facetus*’
HETEROTYPIC_SYNONYM
Acara faceta (Jenyns, 1842) species
HETEROTYPIC_SYNONYM
Chromis facetus Jenyns, 1842 species
SYNONYM
Chromys oblonga Castelnau, 1855 species
PROPARTE_SYNONYM
Cichlasoma facetum (Jenyns, 1842) species
SYNONYM
Herichthys facetum (Jenyns, 1842) species
SYNONYM
Heros autochthon Günther, 1862 species
SYNONYM
Heros jenynsii Steindachner, 1869 species”

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From GBIF (2016):

“KINGDOM Animalia
PHYLUM Chordata
CLASS Actinopterygii
ORDER Perciformes
FAMILY Cichlidae

GENUS *Australoheros*
SPECIES *Australoheros facetus*”

From Eschmeyer et al. (2017):

“**Current status:** Valid as *Australoheros facetus* (Jenyns 1842). Cichlidae: Cichlinae.”

Size, Weight, and Age Range

From Froese and Pauly (2017):

“Max length : 19.3 cm SL male/unsexed; [Andrade and Braga 2005]; common length : 18.0 cm TL male/unsexed; [Kullander 2003]; max. reported age: 10 years [Stawikowski and Werner 1998]”

Environment

From Froese and Pauly (2017):

“Freshwater; benthopelagic; pH range: 6.5 - 7.0; dH range: 5 - 12.”

Climate/Range

From Froese and Pauly (2017):

“Subtropical; 25°C - 30°C [Riehl and Baensch 1991]”

“Very resistant to low temperatures. [Kottelat and Freyhof 1972]”

Distribution Outside the United States

Native

From Froese and Pauly (2017):

“South America: Coastal drainages of Uruguay and Rio Grande do Sul, Brazil; Paraná River basin, lower part of Paraná River in Argentina.”

Introduced

From Froese and Pauly (2017):

Year/Period	From	To	Established
unknown	Argentina	Chile	established
unknown	Unknown	Germany	not established
unknown	Unknown	Philippines	unknown
1980-1986	Portugal	Spain	established
1943	Argentina	Portugal	established

From Ribeiro et al. (2007):

“The chameleon fish *Australoheros* (= *Cichlasoma*) *facetus* (Jenyns 1842) is a South American cichlid, native to Paraguay, Uruguay, Argentina and Brazil (Řičan & Kullander 2006), that has been introduced into the Iberian Peninsula since 1940 (Almaça 1995; Doadrio 2001). [...] Presently, the species is established in several mediterranean-type (sensu Elron et al. 2006) drainages in both southern Portugal and Spain (Sado, Arade, Guadiana, Guadalquivir and possibly the Segura; Doadrio 2001; Collares-Pereira et al. 2000 and M.J. Collares-Pereira, J.A. Rodrigues, L. Rogado, & I.G. Cowx, unpublished data; C. Fernández-Delgado, personal communication), being particularly widespread and abundant in the lower Guadiana drainage (Collares-Pereira et al. 2000).”

Means of Introduction Outside the United States

From Ribeiro et al. (2007):

“No exact reason is known for this introduction, although *A. facetus* is commonly used as an ornamental species (Lever 1996; Řičan & Kullander 2006).”

From Froese and Pauly (2017):

“ornamental”

Short Description

From Froese and Pauly (2017):

“Dorsal spines (total): 15 - 17; Dorsal soft rays (total): 9-11; Anal spines: 5 - 7; Anal soft rays: 7 - 9. This species differs from its congeners in having a lower jaw longer than upper and mouth pointing upwards; has the shortest dorsal scale cover and the least scaled dorsal and anal fins among (together with *A. tembe*); with four abdominal bars (present in more than 80% of individuals as compared to 50% or less in all other species [Řičan and Kullander 2008]).

Biology

From Froese and Pauly (2017):

“An opportunistic diurnal feeder, eating detritus and plant material, preying on small aquatic animals, including small fish. [...] Common in creeks, rivers, swamps and lakes [Řičan and Kullander 2008]. This species is an easy open spawner that lays its eggs on a stone or piece of wood [Axelrod 1993]. Both parents care for the eggs and fry [Axelrod 1993]. [...] In Europe where it has invaded native drainages, spawns when temperature rises above 28-30°C. Forms pairs during spawning and both sexes are territorial. Females deposits [*sic*] eggs on exposed hard surfaces such as stones or wood. Both parent guard larvae and juveniles for 1-3 weeks [Kottelat and Freyhof 1972].”

Human Uses

From Froese and Pauly (2017):

“Fisheries: of no interest; aquarium: commercial”

“Consumed locally.”

Diseases

From Froese and Pauly (2017):

“Procamallanus Infection 17, Parasitic infestations (protozoa, worms, etc.)”

From Ostrowski de Núñez et al. (2017):

“List of the Argentinean fish hosts and their adult trematodes [...]

Perciformes

Fam. Cichlidae

Australoheros facetus

Lobatostoma jungwirthi

Thometrema bonariensis

Saccocoelioides carolae”

From Pinto and de Melo (2012):

“Heterophyid metacercariae were found in the gills of *Australoheros facetus* (Jenyns, 1842) collected from the Pampulha reservoir, Belo Horizonte, Minas Gerais, Brazil, between February and April 2010. The cysts were counted and used to perform experimental studies (artificial excystment and infection of mice). Fifty specimens of *A. facetus* were analyzed and it was found that the prevalence of infection was 100% and mean infection intensity was 134 metacercariae/fish (range: 4-2,510). Significant positive correlations were seen between total fish length and intensity of infection; between fish weight and intensity of infection, and between parasite density and fish length. Morphological analyses on metacercariae and adult parasites obtained from experimentally infected mice made it possible to identify *Centrocestus formosanus* (Nishigori, 1924). This is the first report of *C. formosanus* in *A. facetus* in Brazil. [...] *Centrocestus formosanus* (Nishigori, 1924) is a small intestinal trematode parasite of fish-eating birds and mammals, which has already been reported to infect human beings in Asia.”

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

Threat to Humans

From Froese and Pauly (2017):

“Harmless”

3 Impacts of Introductions

From Pérez et al. (2003):

“Unfortunately, several species that have been introduced have created an adverse situation for the native species *Cyprinus carpio*, *Carassius auratus*, *Gambusia affinis*, *Cnesterodon decemmaculatus*, *Salmo trutta fario*, *Salvelinus fontinalis*, *Tinca tinca*, *Odontesthes banariensis* [sic], *Cichlasoma facetum* [i.e., *Australoheros facetus*], *Ictalurus nebulosus* (Huaquín-Mora and Manríquez-Leiva, 1986).”

From Ribeiro et al. (2007):

“Despite some similarity in forage bases between *A. facetus* and native species may be perceived no evidence of dietary competition should be drawn from the current study. Likewise, present information is insufficient to evaluate predation risks for native species, although fish were seldom found in the diet. Indeed, further analyses on the patterns of habitat and food resource availability, use and partitioning are needed to clarify how the *A. facetus* interacts with both non-native (e.g., *L[epomis] gibbosus*) and highly endangered native species, and may thus impact local fish assemblage structure.”

From Leunda (2010):

“Several other studies have also reported predation on native Iberian species by non-native fishes not primarily piscivorous, e.g., [...] chameleon cichlid *Australoheros facetus* (Jenyns, 1842) on native Cyprinidae and Blenniidae (Ribeiro et al. [2007]).”

4 Global Distribution



Figure 1. Known global distribution of *Australoheros facetus*. Map from GBIF (2016).

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) was high in a small set of locations in southern California. The climate match was medium throughout the South, California, and the southern Midwestern and Mid-Atlantic states. The Northeast, North-Central region, Pacific Northwest, and much of the Rocky Mountain region showed low climate matches locally. Climate 6 proportion indicated that a high climate match for the contiguous U.S. overall. The range of proportions indicating a high climate match is 0.103 and greater; Climate 6 proportion for *A. facetus* was 0.153.

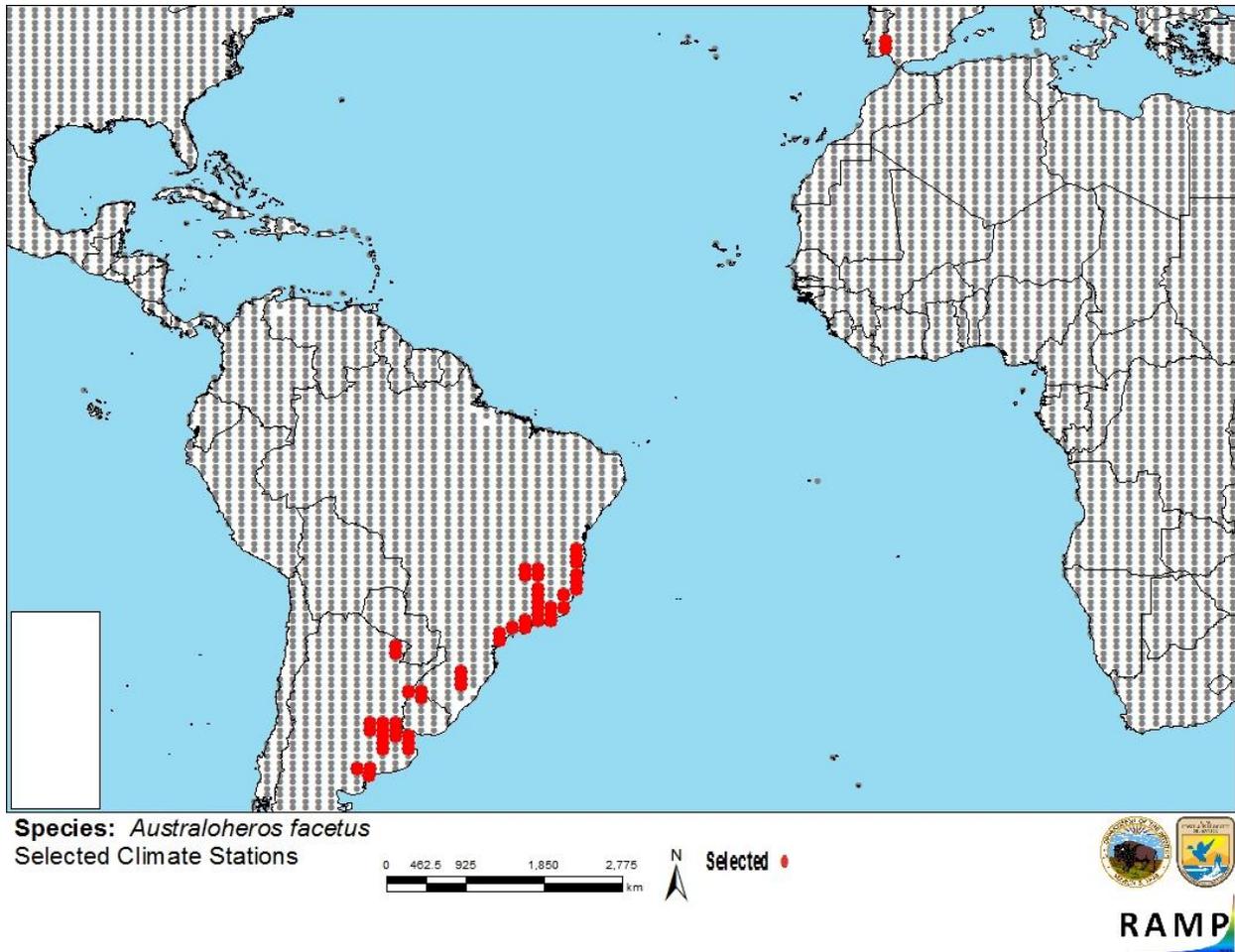


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red) and non-source locations (gray) for *A. facetus* climate matching. Source locations from GBIF (2016).

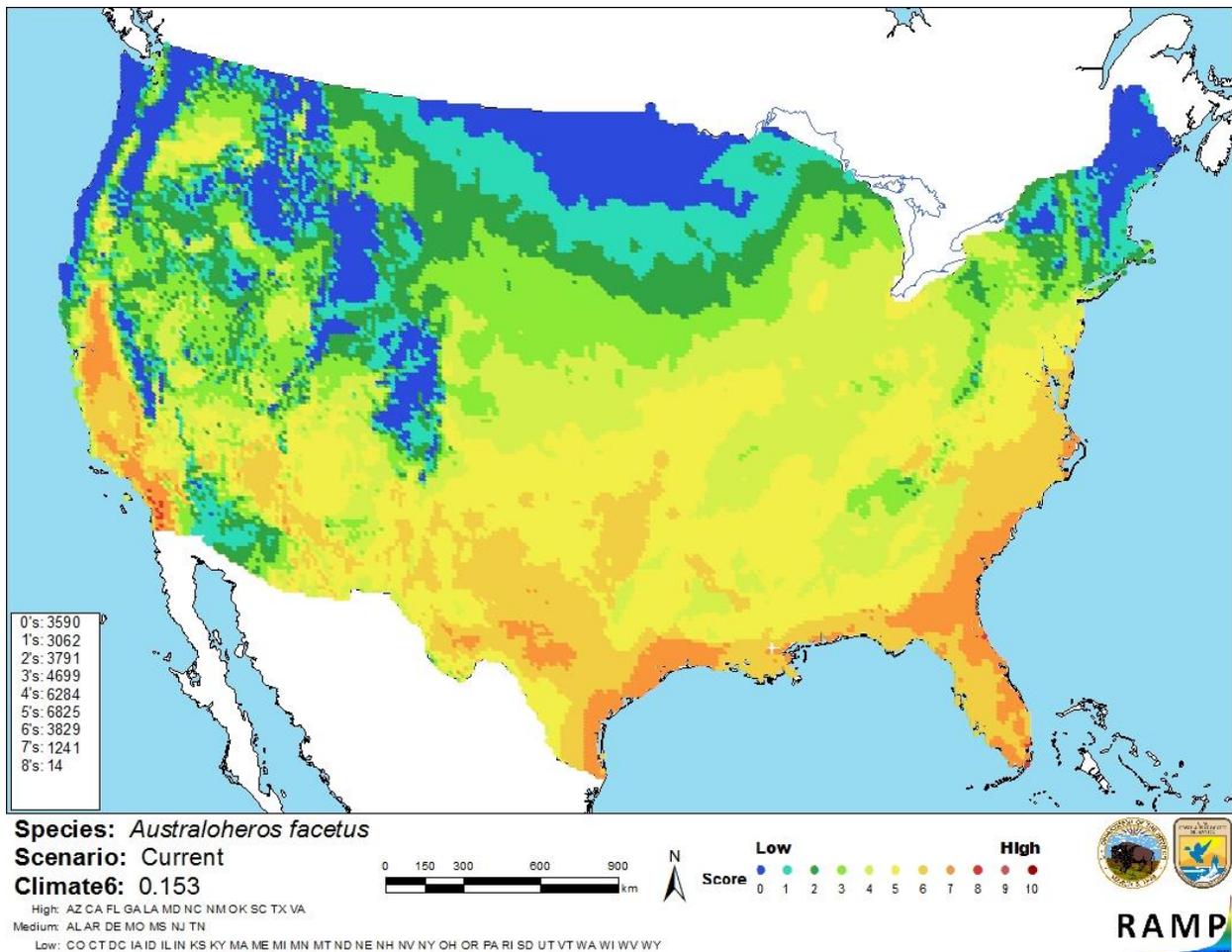


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *A. facetus* in the contiguous United States based on source locations reported by GBIF (2016). 0=Lowest match, 10=Highest match. Counts of climate match scores are tabulated on the left.

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

7 Certainty of Assessment

Information is available on the biology, ecology, and native distribution of *A. facetus*. However, the introduced range of the species is not well described except in the Iberian Peninsula, despite potentially two other established populations globally. Data on the impacts of *A. facetus* in its introduced range are minimal; further research is needed to document impacts of introduction or lack thereof. Certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Australoheros facetus is a South American cichlid that has been introduced outside of its native range multiple times, often as part of the ornamental trade. It has been studied frequently in its introduced range in Portugal and Spain, but no consensus has been reached on the impacts of *A. facetus* there or elsewhere outside the native range. More study is needed. Climate match for the U.S. is high overall, with southern regions most at risk. Overall risk assessment category is uncertain.

Assessment Elements

- **History of Invasiveness:** None Documented
- **Climate Match:** High
- **Certainty of Assessment:** 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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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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