Pinktail Chalceus (*Chalceus macrolepidotus*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, April 2014
Revised, January 2016, November 2017
Web Version, 9/10/2018

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1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2017):

"South America: Negro and Orinoco River basins and coastal rivers in Guyana, Suriname, and French Guiana."

"Found only in the Maroni River [in French Guiana] [Planquette et al. 1996]. Also [Lima et al. 2003]."

"Occurs in the Maroni River which forms the border between Suriname and French Guiana [Planquette et al. 1996]; also from the Coppename River and Adampada Creek [Alonso and Berrenstein 2006]. Also [Lima et al. 2003]."

"Occurs in Pacaya and Samiria Rivers and adjoining lagoons [in Peru]. […] Probably a misidentification (occurrence in this country not confirmed by F.C.T. Lima)."

From Eschmeyer et al. (2017):

"Distribution: Negro and Orinoco River basins, and coastal rivers of northern South America: Brazil, Bolivia, Colombia, French Guiana, Guyana, Suriname and Venezuela."

Chalceus macrolepidotus is present in Orinoco shield tributaries, rivers of Guyana, Suriname, French Guiana, and northern tributaries of the Amazon River (Lima and Ribeiro 2011).

Chalceus macrolepidotus is present in the Bolivian Amazon (Lauzanne et al. 1991 in Chernoff et al. 2000).

Status in the United States

No records of *Chalceus macrolepidotus* in the United States were found. *C. macrolepidotus* is in trade in the United States.

From Aqua Imports (2018):

"PINKTAIL CHALCEUS (CHALCEUS MACROLEPIDOTUS) […] $19.99"

Means of Introductions in the United States

No records of *Chalceus macrolepidotus* in the wild in the United States were found.

Remarks

No additional remarks.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Eschmeyer et al. (2017), *Chalceus macrolepidotus* Cuvier 1818 is the valid name for this species; it is also the original name.

From ITIS (2014):

"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 *Chalceus* Cuvier, 1818
Species *Chalceus macrolepidotus* Cuvier, 1818"

Size, Weight, and Age Range

From Froese and Pauly (2017):

"Max length : 24.5 cm SL male/unsexed; [Lima et al. 2003]"

Environment

From Froese and Pauly (2017):

"Freshwater; pelagic. […]; 23°C - 28°C [assumed to be recommended aquarium temperature] [Riehl and Baensch 1996]"

From Zanata and Toledo-Piza (2004):

"Puyo (1943: 130) and Planquette et al. (1996: 230) report *Chalceus macrolepidotus* from well oxygenated waters in regions of rapids; the latter authors mention that the species is uncommon in the lower portions of river drainages."

Climate/Range

From Froese and Pauly (2017):

"Tropical; […]"

Distribution Outside the United States

Native

From Froese and Pauly (2017):

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From Eschmeyer et al. (2017):

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Chalceus macrolepidotus is present in the Bolivian Amazon (Lauzanne et al. 1991 in Chernoff et al. 2000).

Introduced

No records of *Chalceus macrolepidotus* introductions in the wild were found.

Chalceus macrolepidotus is cultured for the ornamental trade in Taiwan (Liao 2000).

Chalceus macrolepidotus is present in China (Li et al. 2007 in Xiong et al. 2015). No indication was given if there were wild introductions in addition to importation for aquaculture.

Chalceus macrolepidotus is present in the ornamental trade in Singapore (Youguang 2014).

Means of Introduction Outside the United States

No records of *Chalceus macrolepidotus* introductions in the wild were found.

Short Description

From Zanata and Toledo-Piza (2004):

"Body robust, relatively elongate, greatest body depth slightly anterior to dorsal-fin origin. Dorsal profile of head distinctly convex anteriorly along snout region, nearly straight to posterodorsally inclined from anterior end of snout to tip of supraoccipital spine. Dorsal profile of head in large specimens (over 200 mm SL) slightly convex and continuous with dorsal body profile. Anterior margin of snout somewhat acute in dorsal view. Interorbital distance wide, proportionally wider relative to SL in large specimens. Dorsal body profile convex from tip of supraoccipital spine to dorsal-fin origin, posteroventrally inclined along dorsal-fin base, straight to relatively convex to adipose fin and concave along dorsal profile of caudal peduncle to origin of procurrent caudal-fin rays. Overall dorsal profile of head and body of juveniles up to 50 mm SL nearly straight to slightly convex. Ventral profile of head distinctly convex in region of lower jaw, resembling a chin. Ventral body profile gently convex from the posterior limit of isthmus to anal-fin origin. Body profile along anal-fin base posterodorsally inclined, slightly concave along ventral margin of caudal peduncle. Head robust in large specimens (over 180 mm SL). Smaller specimens with relatively longer heads and more acute snout. Dorsal surface of head with distinct medial fontanel restricted to small region anterior to epiphyseal bar between contralateral

frontals and completely separating parietals. Fontanel wide in small specimens and progressively narrower in larger individuals. Fontanel completely closed in 200 mm SL specimen. Mouth terminal, large, upper jaw slightly longer than lower jaw, tip of premaxillary teeth extending below margin of upper lip giving saw-like appearance to margin of premaxilla even in closed mouth. Maxilla extending approximately to vertical through anterior margin of orbit. Supramaxilla present.

Dorsal-fin rays ii,10 […]. Dorsal-fin origin posterior to vertical through insertion of innermost pelvic-fin rays. […] Distal margin of dorsal fin nearly straight to convex. Adipose fin present. Anal-fin rays iii,9 […]. […] Distal margin of anal fin straight to emarginate with anterior branched rays approximately 3 times length of ultimate ray. Pectoral-fin rays i,15 (range 14–18, […]), pointed distally, with unbranched- and first branched rays longest. Tip of pectoral fin not reaching pelvic-fin insertion. Pelvic-fin rays i,8 […]; fin pointed distally. Caudal fin forked, with lobes slender, especially in specimens up to 120 mm SL, lower fin lobe slightly more developed than upper lobe."

"Overall coloration of head and body bright silver. No conspicuous humeral spot. Dorsal portion of eye yellow. One specimen (Géry, 1977: 329) with dorsal profiles of head and body darker. Somewhat indistinct longitudinal stripe extending from rear of orbit through opercle to vertical through adipose fin and patch of dark pigmentation present on middle portion of opercle. Caudal fin bright red, adipose yellowish, all other fins hyaline. Other specimen (Planquette et al., 1996: 231) with dorsal portions of head and body darker. Margins of scales on dorsal portions of body with light concentration of chromatophores, forming fine reticulate pattern. All fins (except pectoral) bright red, more so on their proximal portions."

Biology

From Froese and Pauly (2017):

"Is very active and is always moving. Frequently found in well oxygenated waters [Planquette et al. 1996]. Occurs mainly near the surface and at times jumps out of the water. Feeds on worms, insect larvae and small fishes [Mills and Ververs 1989]; plants and terrestrial invertebrates [Mérona and Rakin-de-Mérona 2004]. Omnivore [Mérona and Rakin-de-Mérona 2004]."

From Schomburgk (1841:217):

"Feeds on fruit, insects, and small fish; […]"

Human Uses

From Froese and Pauly (2017):

"Fisheries: commercial; aquarium: public aquariums"

"Exported as an aquarium fish [Tello and Sánchez 1995]."

Chalceus macrolepidotus is used as a food source in the Amazonia state in Brazil (da Silva and Begossi 2009).

Chalceus macrolepidotus is cultured for the ornamental trade in Taiwan (Liao 2000).

Chalceus macrolepidotus is present in the ornamental trade in Singapore (Youguang 2014).

Chalceus macrolepidotus is approved for export for the ornamental trade in Brazil, Colombia (Prang 2008). *C. macrolepidotus* is exported for the ornamental trade from Peru (Campos 2005 in Prang 2008) and potentially from Guyana (Watson 2005 in Prang 2008).

Chalceus macrolepidotus was imported to China for aquaculture (Li et al. 2007 in Xiong et al. 2015).

Diseases

No records of OIE reportable diseases were found.

From Karling et al. (2011):

"Three species of *Jainus* were described from Characiformes of Southern America as follows: *J. jainus* from *Chalceus macrolepidotus* Cuvier, 1818; […]"

Threat to Humans

From Froese and Pauly (2017):

"Harmless"

3 Impacts of Introductions

No records of *Chalceus macrolepidotus* introductions in the wild were found.

4 Global Distribution

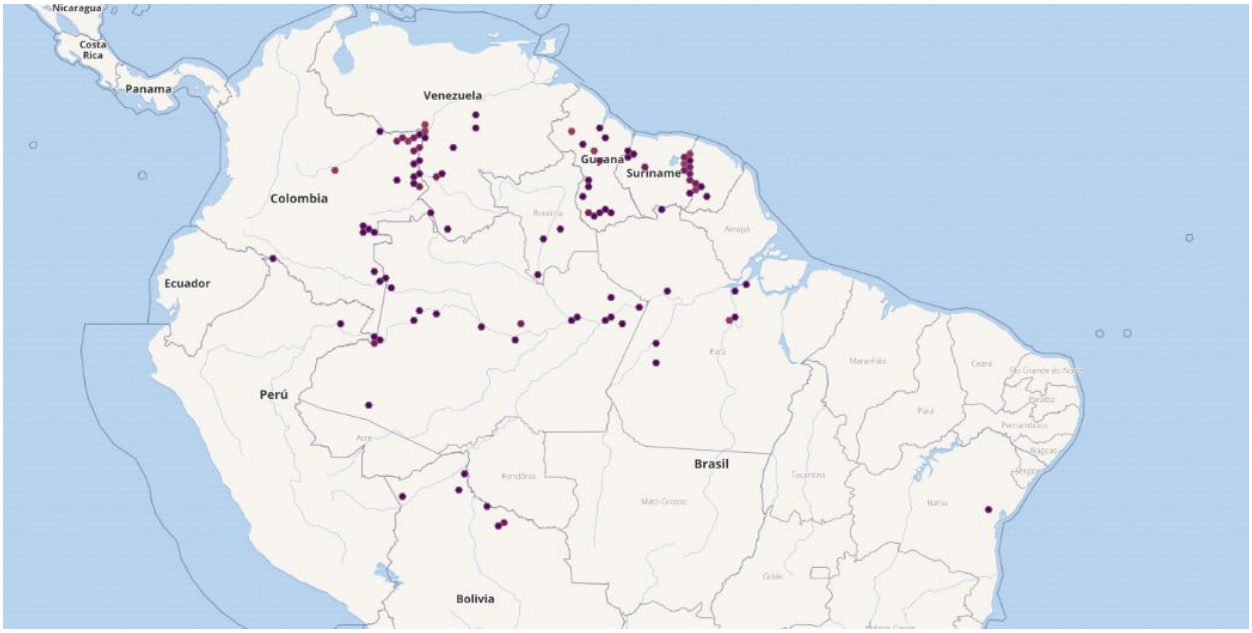

Figure 1. Known global distribution of *Chalceus macrolepidotus*. Locations are in Colombia, Venezuela, Guyana, Suriname, French Guiana, Brazil, Peru, and Bolivia. Map from GBIF Secretariat (2017).

The location on the southeastern coast in Brazil does not match the description of where the specimen was collected (GBIF Secretariat 2017). This location was not used as a source point in the climate match.

5 Distribution Within the United States

No records of *Chalceus macrolepidotus* in the United States were found.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Chalceus macrolepidotus* was medium in southern Florida and in small patches along the Gulf Coast. It was low everywhere else. The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous United States was 0.003, low, and Florida had an individually high climate match.

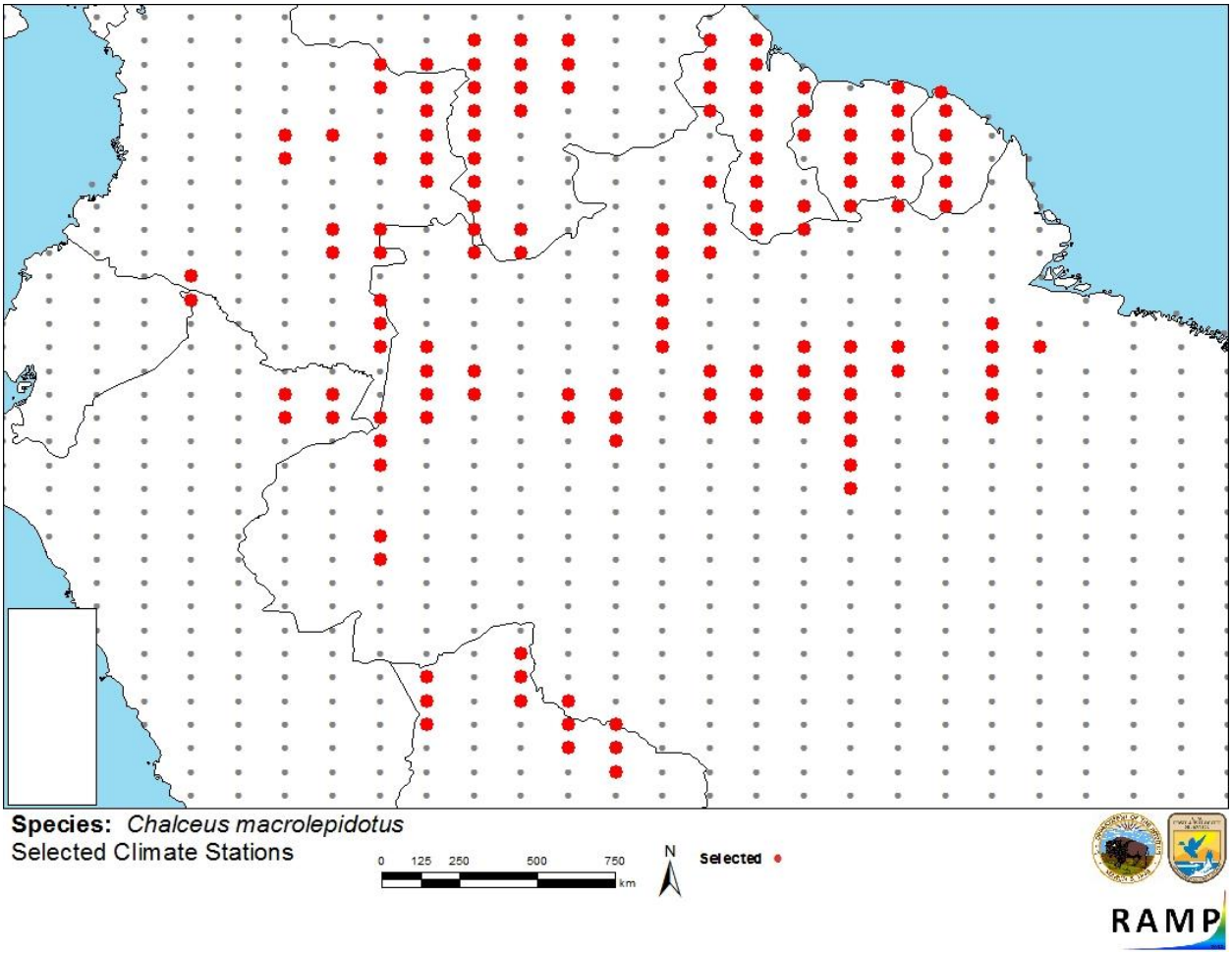

Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations in northern South America selected as source locations (red; Colombia, Venezuela, Guyana, Suriname, French Guiana, Brazil, Peru, Bolivia) and non-source locations (grey) for *Chalceus macrolepidotus* climate matching. Source locations from GBIF Secretariat (2017).

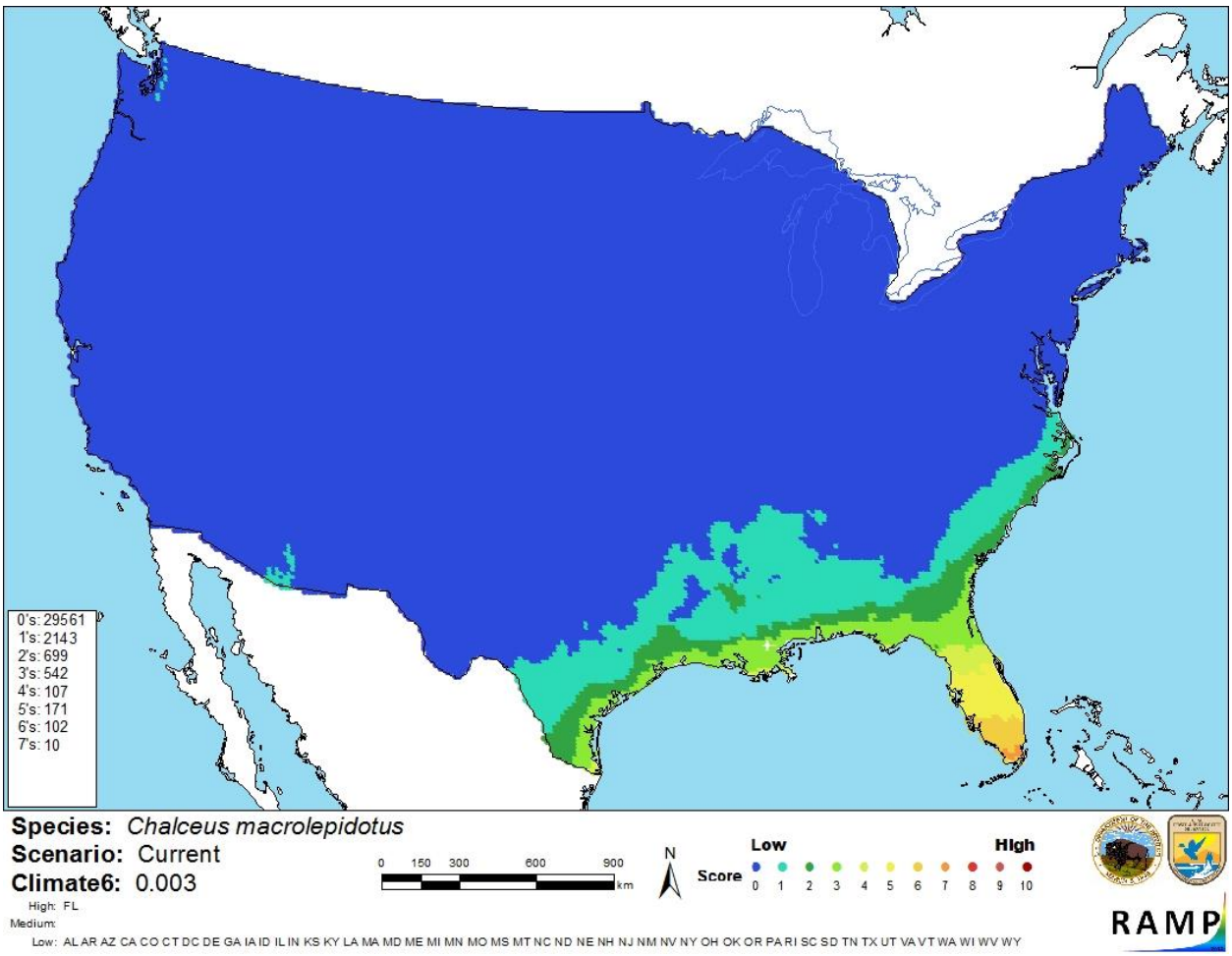

Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Chalceus macrolepidotus* in the contiguous United States based on source locations reported by GBIF Secretariat (2017). 0 = Lowest match, 10 = Highest match. Counts of climate match scores are tabulated on the left.

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≤X≤0.005	Low
0.005<X<0.103	Medium
≥0.103	High

7 Certainty of Assessment

The certainty of this assessment is medium. Adequate general information about *Chalceus macrolepidotus* was available. No records of introductions were found and therefore there is no information on impacts of introduction. This species is widely traded but no specific information on the length of time or volume in trade was available.

8 Risk Assessment

Summary of Risk to the Contiguous United States

The Pinktail Chalceus (*Chalceus macrolepidotus*) is a medium sized species of fish that is native to river basins in northern South America, including northern tributaries of the Amazon River. *C. macrolepidotus* is an omnivorous fish that includes plants, insects, and smaller fish in its diet. This species is also used as a food source in some parts of Brazil as well as used in the aquarium trade. The history of invasiveness of *C. macrolepidotus* is uncertain. There were no records of wild introductions found. This species is widely traded but no specific information on the length of time or volume in trade was available. The climate match is low; the Climate 6 was 0.003. The certainty of the assessment is medium. The overall risk assessment category 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.

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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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