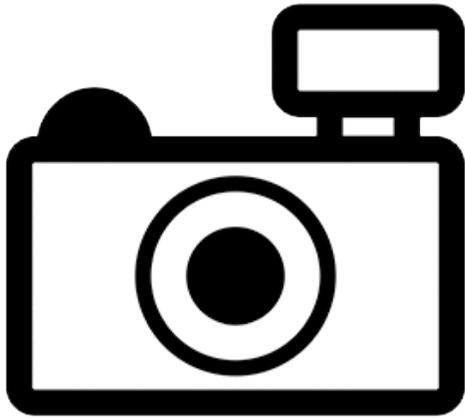


Serrasalmus auriventris (a piranha, no common name)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, May 2014
Revised, March 2018
Web Version, 7/2/2020

Organism Type: Fish
Overall Risk Assessment Category: Uncertain



No Photo Available

1 Native Range and Status in the United States

Native Range

From Eschmeyer et al. (2018):

“Distribution: Argentina.”

From Koerber and Litz (2008):

“In the Río Paraná, at the Quinta. [...] The type locality ‘Quinta’ refers to the small farm [Hermann] Burmeister possessed west of the city of Paraná right at the bank of the river Paraná [Burmeister 1861].”

Status in the United States

This species has not been reported as introduced or established in the United States. No documentation of trade in the United States was found. Possession or importation of fish of the

genus *Serrasalmus*, or fish known as “piranha” in general, is banned or regulated in many States. Every effort has been made to list all applicable State laws and regulations pertaining to this species, but this list may not be comprehensive.

From Alabama Department of Conservation and Natural Resources (2019):

“No person, firm, corporation, partnership, or association shall possess, sell, offer for sale, import, bring, release or cause to be brought or imported into the State of Alabama any of the following live fish or animals: [...] Any Piranha or any fish of the genera *Serrasalmus*, *Pristobrycon*, *Pygocentrus*, *Catorprion*, or *Pygopristus*; [...]”

From Alaska State Legislature (2019):

“Except as provided in (b) - (d) of this section, no person may import any live fish into the state for purposes of stocking or rearing in the waters of the state.

(b) Live oysters native to and originating from the Pacific Coast of North America may be imported [...]

(c) Ornamental fish not raised for human consumption or sport fishing purposes may be imported into the state, but may not be reared in or released into the waters of the state. Fish wastes and waste water from ornamental fish may not be released directly into the waters of the state.

(d) Weathervane scallops originating from wild stocks or cultured stocks in the Southeastern Alaska and Yakutat Areas may be imported for aquaculture purposes and may be released only into the waters of the Southeastern Alaska and Yakutat Areas under a stock transport permit required by this chapter [...]

From Arizona Office of the Secretary of State (2013):

““Restricted live wildlife” means wildlife that cannot be imported, exported, or possessed without a special license or lawful exemption.”

“Fish listed below are considered restricted live wildlife [...]

Piranha, all species of the genera *Serrasalmus*, *Serrasalmo*, *Phygocestrus*, *Teddyella*, *Rooseveltiella*, and *Pygopristis* [...]

From Arkansas Game and Fish Commission (2019):

“It is unlawful to import, transport, or possess any species commonly known as [...] piranha [...]

“EXCEPTION: These species may be possessed for display and educational purposes by written permit approved by the Commission.”

From California Department of Fish and Wildlife (2019):

“All species of piranha are on California’s list of restricted animals and cannot be imported, transported, or possessed without a permit.”

From Colorado Secretary of State (2019):

“For the following aquatic species or viable gametes thereof, because of the potential for a detrimental affect [sic] on existing fish and their habitat in Colorado, and except as enumerated in these regulations, or as authorized in writing by the Division of Wildlife for management purposes only; the release or the importation, transportation, stocking, sale, acquisition or possession for release is prohibited. Persons who have proof of possession issued prior to January 1,1978 or who obtain prior approval from the Division of Wildlife may possess the following species:

a. Piranha: including members of the genera *Serrasalmus*, *Roosevelthiella*, and *Pygocentrus*.”

From Connecticut Secretary of State (2016):

“The importation or possession of piranha of the subfamily: Serrasalminae, genera *Serrasalmus*, *Serrasalmo*, *Pygocentrus*, *Teddyella*, *Rooseveltiella* and *Pygopristus*, [...] is prohibited except that the Commissioner may at his discretion issue permits for the importation and possession, when it is in the public interest, for public display purposes, of specimens of piranha [...]

From Georgia Department of Natural Resources (2019):

“The animals listed below are examples of the exotic species regulated under Georgia Law. [...] The exotic species listed below, except where otherwise noted, may not be held as pets in Georgia. [...] Piranha; all species”

From Hawaii Department of Agriculture (2019):

“For example, the following are prohibited from entry or possession by private individuals in the State. [...] *Piranhas*”

From Idaho Office of the Administrative Rules Coordinator (2019):

“No person may possess, cultivate, import, ship, or transport any invasive species [...] into or through the state of Idaho following the effective date of this rule, unless the person possessing, importing, shipping or transporting has obtained a permit under Section 103, or unless otherwise exempt by this rule, as set forth in Section 104.”

“INVASIVE SPECIES – FISH. [...]

05. Piranhas, *Serrasalmus* spp., *Rosseveltiella* spp., *Pygocentrus* spp. [...]

From Illinois Department of Natural Resources (2015):

“For the purposes of Section 20-90 of the Fish and Aquatic Life Code [515 ILCS 5/20-90], the Aquatic Life Approved Species List is established. The following aquatic life categories will be considered approved for aquaculture, transportation, stocking, importation and/or possession in the State of Illinois.”

Serrasalmus auriventris does not appear on the Aquatic Life Approved Species List for Illinois.

From Kentucky General Assembly (2019):

“The live aquatic organisms established in subsections (1) through (7) of this section shall not be imported, bought, sold, or possessed in aquaria:

(1) Subfamily Serrasalminae - piranha, piraya, pirae, or tiger characins; [...]”

From Louisiana State Legislature (2019):

“No person shall have in possession or sell in this state [Louisiana] a piranha or Rio Grande Cichlid; except that, piranha may be possessed and displayed at the Aquarium of the Americas, Audubon Institute, New Orleans, as authorized by a special permit issued by the department, under conditions the department deems necessary to prevent their introduction into waters of the state.”

From Maine Department of Inland Fisheries and Wildlife (2019):

“Unrestricted List [...] (no permit needed): Maine law allows the Department to maintain a list of species of fish and wildlife, including tropical fish and invertebrates, which do not require an importation, exhibition, or possession permit, and may be traded by commercial pet shops.”

Serrasalmus auriventris does not appear on the Maine Department of Inland Fisheries and Wildlife’s Unrestricted List.

From Massachusetts Division of Fisheries and Wildlife (2014):

“All aquarium trade fish may be kept without a permit except species categorically non-exempt pursuant to 321 CMR 9.01(3), and except that the following species are prohibited without a permit: [...]

(b) Piranha (*Pygocentrus* spp. and *Serrasalmus* spp.)”

From Mississippi Secretary of State (2019):

“All species of the following animals and plants have been determined to be detrimental to the State's native resources and further sales or distribution are prohibited in Mississippi. No person shall import, sell, possess, transport, release or cause to be released into the waters of the state any of the following aquatic species or hybrids thereof. However, species listed as prohibited may be allowed under a permitting process where environmental impact has been assessed.”

“[The list includes all piranhas and all species of] Subfamily Serrasalminae”

From State of Nevada (2018):

“Except as otherwise provided in this section and NAC [Nevada Administrative Code] 504.486, the importation, transportation or possession of the following species of live wildlife or hybrids thereof, including viable embryos or gametes, is prohibited: [...]

Piranhas..... All species in the genera *Serrasalmus*, *Serrasalmo*, *Pygocentrus*, *Teddyella*, *Rooseveltiella* and *Pygopristis*”

From New Mexico Department of Game and Fish (2010):

“Species importation list group IV may be for live non-domesticated animals that are considered dangerous, invasive, undesirable, state or federal listed threatened, endangered, a furbearer or any other species of concern as identified by the director. The importation of these species are prohibited for the general public but may be allowed for, scientific study, department approved restoration and recovery plans, zoological display, temporary events/entertainment, use as service animal or by a qualified expert.”

All piranha and pacu (Family Characidae) are listed in Group IV of the Director’s Species Importation List for New Mexico.

From New York State Senate (2019):

“No person shall import, export, own, possess, acquire or dispose of live piranha fish (*Serrasalmus*, *Rooseveltiella* or *Pyrocentrus* [sic]), grass carp (*Ctenopharyngodon idella*) or hybrid grass carp within the state without a license or permit issued at the discretion of the department for scientific, biological or exhibition purposes.”

From North Carolina Office of Administrative Hearings (2019):

“It shall be unlawful to transport, purchase, possess, sell, or stock in the public or private waters of North Carolina any live individuals of [...] piranha; [...]

From Oklahoma Secretary of State (2019):

“Until such time as is necessary for the Department of Wildlife Conservation to obtain adequate information for the determination of other harmful or potentially harmful exotic species, the importation into the State and/or the possession of the following exotic fish or their eggs is prohibited: [...]

“Piranha group: *Serrasalmus* spp., *Pygocentrus* spp., *Rooseveltiella* spp., *Catoprion* spp., *Hydrocynus* spp., and *Salminus* spp.”

From South Carolina Legislature (2019):

“A person may not possess, sell, offer for sale, import, bring, cause to be brought or imported into this State [South Carolina], or release in this State the following species at any stage of its

life cycle: [...] piranha (all members of *Serrasalmus*, *Rooseveltiella*, and *Pygocentrus* genera [...])”

From Texas Parks and Wildlife (2019):

“The organisms listed here are legally classified as exotic, harmful, or potentially harmful. No person may possess or place them into water of this state except as authorized by the department.”

“Piranhas, Family Characidae

All species of genera *Catoprion*, *Pristobrycon*, *Pygocentrus*, *Pygopristis*, and *Serrasalmus*”

From Utah Office of Administrative Rules (2019):

“All species of fish listed in Subsections (2) through (30) are classified as prohibited for collection, importation and possession [...]

(22) Piranha, (*Serrasalmus*, All species) family Characidae.”

From Virginia Department of Game and Inland Fisheries (2019):

“A special permit is required, and may be is- sued [sic] by the Department, if consistent with the Department’s fish and wildlife management program, to import, possess, or sell the following non-native (exotic) amphibians, fish, mollusks, aquatic invertebrates, and reptiles: [...] piranhas [...])”

Means of Introductions in the United States

This species has not been reported in the United States.

Remarks

From Mirande and Koerber (2015):

“dubious taxon [...] This is a forgotten taxon and the identity is doubtful as no types have been found so far and the description does not allow a determination (see Koerber & Litz 2008).”

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From Froese and Pauly (2020):

“Animalia (Kingdom) > Chordata (Phylum) > Vertebrata (Subphylum) > Gnathostomata (Superclass) > Pisces (Superclass) > Actinopterygii (Class) > Characiformes (Order) > Serrasalminae (Family) > *Serrasalmus* (Genus)”

From Eschmeyer et al. (2018):

“**Current status:** Valid as *Serrasalmus auriventris* (Burmeister 1861).”

Size, Weight, and Age Range

From Koerber and Litz (2008):

“Handsized, 6 inches long, 4 inches high [...]”

Environment

From Froese and Pauly (2018):

“Freshwater; benthopelagic.”

Climate

From Froese and Pauly (2018):

“Subtropical”

Distribution Outside the United States

Introduced

This species has not been reported beyond its native range.

Native

From Eschmeyer et al. (2018):

“Distribution: Argentina.”

From Koerber and Litz (2008):

“In the Río Paraná, at the Quinta. [...] The type locality ‘Quinta’ refers to the small farm [Hermann] Burmeister possessed west of the city of Paraná right at the bank of the river Paraná [Burmeister 1861].”

Means of Introduction Outside the United States

This species has not been reported beyond its native range.

Short Description

From Koerber and Litz (2008):

“[...] laterally very compressed, back lead grey, belly golden yellow, sides gradually changing to white, caudal and dorsal fin grey, latter with black margin, anal fin also with black margin, but yellow, as pectoral and ventral fins. Scales very small. Dorsal fin with 15 rays and 2 anterior spines, caudal fin with 24 rays with 3 spines each at upper and lower margin, anal fin with 33

rays and 3 thick spines at the origin. Upper jaw with 12 sharp, pointed triangulate teeth, and posterior, at the palate 6 smaller teeth at both sides, lower jaw with 14 large, pointed triangulate teeth, tongue and gill arch toothless, first thick and fleshy; 6 rays in the Membrana branchiostega, ventral keel fine but strongly sawlike serrated. – Pectoral fin with 18, ventral fin with 6 rays.”

Biology

No information available.

Human Uses

No information available.

Diseases

No information available. No OIE-reportable diseases have been reported (OIE 2019).

Threat to Humans

From Froese and Pauly (2018):

“Harmless”

3 Impacts of Introductions

No information available. This species has not been reported beyond its native range.

The importation, possession, or trade of the piranha *Serrasalmus auriventris* is prohibited or restricted in the following states: Alabama (Alabama Department of Conservation and Natural Resources 2019), Alaska (Alaska State Legislature 2019), Arizona (Arizona Office of the Secretary of State 2013), Arkansas (Arkansas Game and Fish Commission 2019), California (California Department of Fish and Wildlife 2019), Colorado (Colorado Secretary of State 2019), Connecticut (Connecticut Secretary of State 2016), Georgia (Georgia Department of Natural Resources 2019), Hawaii (Hawaii Department of Agriculture 2019), Idaho (Idaho Office of the Administrative Rules Coordinator 2019), Illinois (Illinois Department of Natural Resources 2015), Kentucky (Kentucky General Assembly 2019), Louisiana (Louisiana State Legislature 2019), Maine (Maine Department of Inland Fisheries and Wildlife 2019), Massachusetts (Massachusetts Division of Fisheries and Wildlife 2014), Mississippi (Mississippi Secretary of State 2019), Nevada (State of Nevada 2018), New Mexico (New Mexico Department of Game and Fish 2010), New York (New York State Senate 2019), North Carolina (North Carolina Office of Administrative Hearings 2019), Oklahoma (Oklahoma Secretary of State 2019), South Carolina (South Carolina Legislature 2019), Texas (Texas Parks and Wildlife 2019), Utah (Utah Office of Administrative Rules 2019), and Virginia (Virginia Department of Game and Inland Fisheries 2019).

4 History of Invasiveness

This species has not been reported beyond its native range. The history of invasiveness is No Known Nonnative Population.

5 Global Distribution

The only report for this species is the initial identification in 1861. There were no georeferenced coordinates available (GBIF Secretariat 2019).



Figure 1. Map showing the global distribution of *Serrasalmus auriventis* in Argentina. No geographic coordinates of occurrences are available, so the distribution (indicated by the yellow oval) is inferred from a verbal description of the type locality (Koerber and Litz 2008). Map by K. Musser (2010). Licensed under Creative Commons (CC-BY-SA-3.0). Available: <https://commons.wikimedia.org/wiki/File:Riodelaplatabasinmap.png>. (March 2018).

6 Distribution Within the United States

This species has not been reported in the United States.

7 Climate Matching

Summary of Climate Matching Analysis

The overall Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.021, which is classified as a medium match (scores between 0.005 and 0.103, exclusive, are classified as medium). The climate match was medium throughout peninsular Florida and up the East Coast as far as southern Virginia, as well as across Texas and into the southern Great Plains except for far western Texas. The climate match was medium-high in southeastern Texas between Corpus Christi and Matagorda Bay. The rest of the contiguous United States has a low climate match. Florida and Texas were the only States with high individual Climate 6 scores, and Georgia was the only State with a medium individual Climate 6 score. All other States had low individual Climate 6 scores.

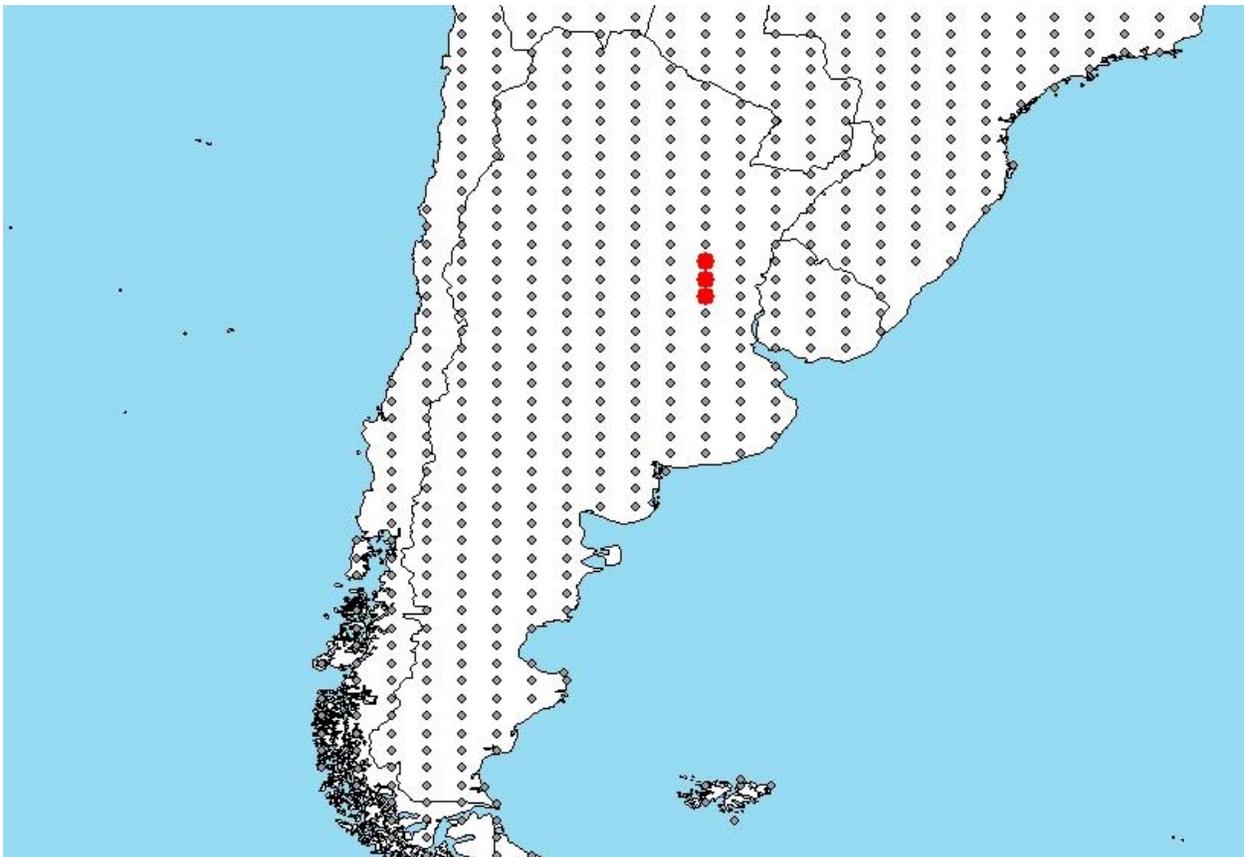


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in South America selected as source locations (red; Argentina) and non-source locations (gray) for *Serrasalmus auriventris* climate matching. Source locations from the verbal description of the type locality in Koerber and Litz (2008). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

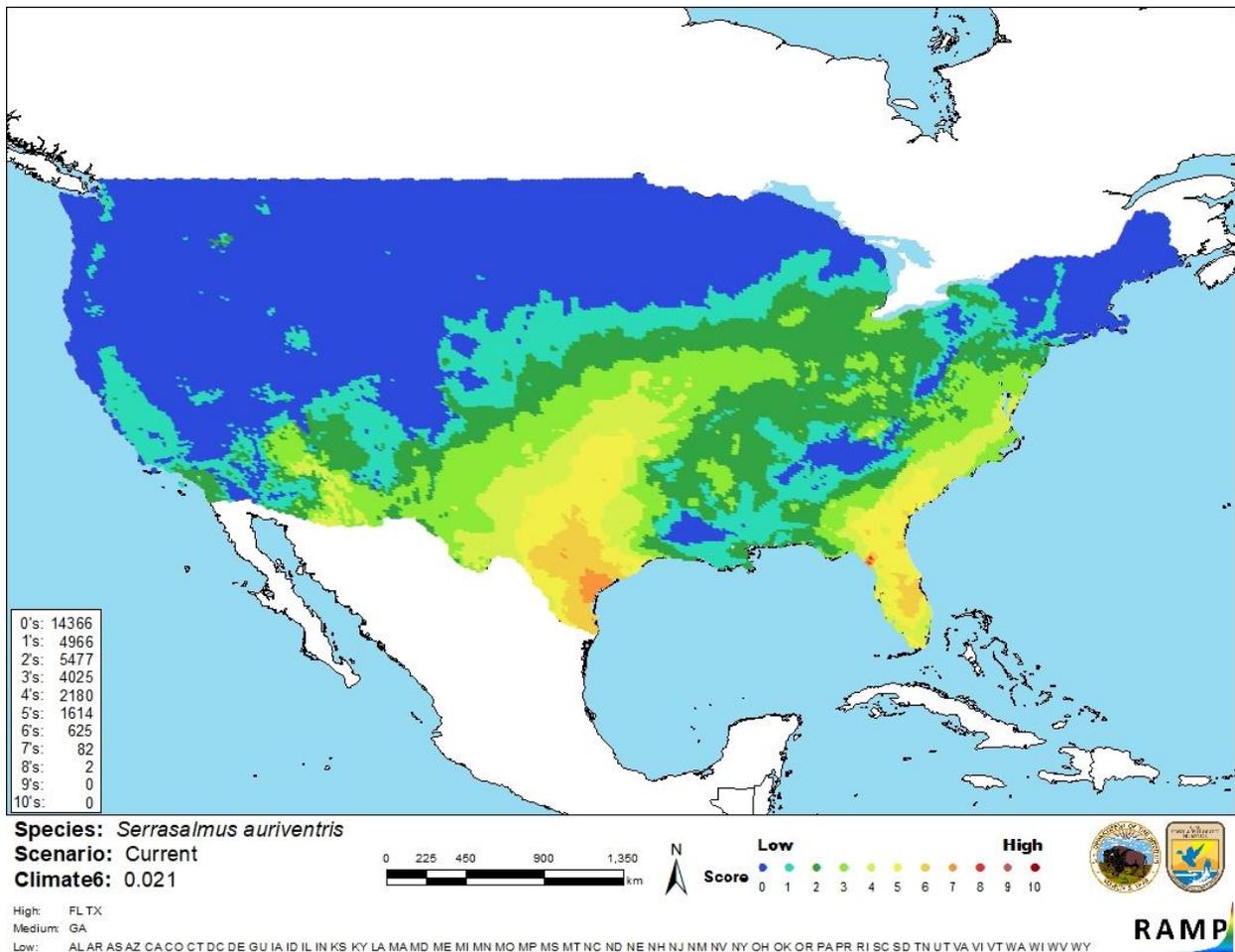


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Serrasalmus auriventris* in the contiguous United States based on source locations representing the type locality reported in Koerber and Litz (2008). Counts of climate match scores are tabulated on the left. 0/Blue = Lowest match, 10/Red = 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

8 Certainty of Assessment

Very limited information exists on *Serrasalmus auriventris*. Research addressing identification, taxonomy, biology, and distribution is needed. No nonnative populations of this species have been reported, so any impacts of introduction remain unknown. There were no georeferenced

occurrences available for climate matching. Therefore, certainty of assessment for *S. auriventris* is low.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Serrasalmus auriventris, is a piranha native to the Río Paraná in Argentina. Although considered a valid species by Eschmeyer et al. (2018), the only report of this species is the original identification, and no type specimens are known. This species has not been reported as introduced outside its native range, so the history of invasiveness is classified as No Known Nonnative Population. Along with other piranhas, the importation, possession, or trade of this species is prohibited or restricted in numerous States. The climate match was medium overall for the contiguous United States, with a high match for the States of Florida and Texas and a medium match for the State of Georgia. The lack of introduction history, biological information, georeferenced points and doubts about taxonomy lead to a low certainty of assessment. The overall risk assessment for *Serrasalmus auriventris* is Uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 4): No Known Nonnative Population**
- **Climate Match (Sec. 7): Medium**
- **Certainty of Assessment (Sec. 8): Low**
- **Remarks/Important additional information: Species has not been reported recently and no type specimens are known.**
- **Overall Risk Assessment Category: Uncertain**

10 Literature Cited

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 11.

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11 Literature Cited in Quoted Material

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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