

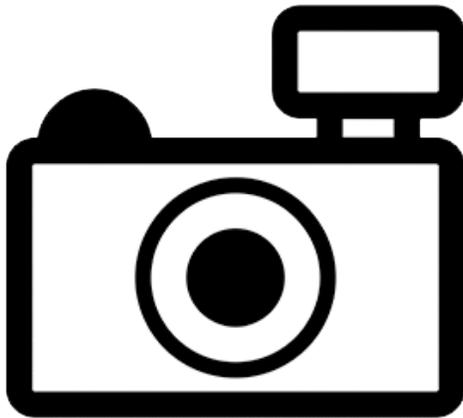
# ***Pristobrycon maculipinnis* (a piranha, no common name)**

## **Ecological Risk Screening Summary**

U.S. Fish and Wildlife Service, April 2014

Revised, February 2018

Web Version, 8/30/2019



No Photo Available

## **1 Native Range and Status in the United States**

---

### **Native Range**

From Froese and Pauly (2017):

“South America: Blackwater areas in a tributary of the Casiquiare River and a tributary of the Atabapo River in Venezuela.”

From Fricke et al. (2019):

“Amazon River basin: Venezuela and Colombia.”

### **Status in the United States**

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

From OPEFE (2012):

“Not seen by this author live and its availability in the aquarium trade is rare. It appears from recent imports, the species is becoming more available, but its present high price in the trade, may limit the amount of information available by qualified hobbyists.”

Possession or importation of fish of the family Characidae (synonym: Serrasalminidae), 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 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 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 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.”

*Pristobrycon maculipinnis* 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.”

*Pristobrycon maculipinnis* does not appear on the Maine Department of Inland Fisheries and Wildlife’s Unrestricted List.

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 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 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 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*, *Pygopristsis*, and *Serrasalmus*”

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 as introduced in the United States.

## 2 Biology and Ecology

---

### Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2018):

“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 *Pristobrycon*  
Species *Pristobrycon maculipinnis* Fink and Machado-Allison,  
1992”

From Fricke et al. (2019):

“**Current status:** Valid as *Pristobrycon maculipinnis* Fink & Machado-Allison 1992. Serrasalminidae.”

### Size, Weight, and Age Range

From Froese and Pauly (2017):

“[...] Max length : 24.8 cm SL male/unsexed (Fink and Machado-Allison 1992)”

### Environment

From Froese and Pauly (2017):

“Freshwater; benthopelagic.”

### Climate/Range

From Froese and Pauly (2017):

“Tropical”

## **Distribution Outside the United States**

### **Native**

From Froese and Pauly (2017):

“South America: Blackwater areas in a tributary of the Casiquiare River and a tributary of the Atabapo River in Venezuela.”

From Fricke et al. (2019):

“Amazon River basin: Venezuela and Colombia.”

### **Introduced**

This species has not been reported as introduced outside of its native range.

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

This species has not been reported as introduced outside of its native range.

## **Short Description**

From Froese and Pauly (2017):

“Dorsal soft rays (total): 15-16; Anal soft rays: 29 - 31; Vertebrae: 37 - 39. Dark spots on the vertical fins and scattered irregularly over the body and head; lack of a pre-anal spine; and lack of fine 'pepper-like' spots.”

## **Biology**

From Winemiller et al. (2008):

“Examples of blackwater-adapted fishes include [...] the piranha *Pristobrycon maculipinnis* [...]”

## **Human Uses**

From OPEFE (2012):

“Not seen by this author live and its availability in the aquarium trade is rare. It appears from recent imports, the species is becoming more available, but its present high price in the trade, may limit the amount of information available by qualified hobbyists.”

## **Diseases**

No OIE reportable diseases (OIE 2019) have been documented for this species.

## Threat to Humans

From Froese and Pauly (2017):

“Harmless”

## 3 Impacts of Introductions

---

This species has not been reported as introduced outside of its native range. Data on the impacts of introductions are lacking.

The importation, possession, or trade of the piranha *Pristobrycon maculipinnis* is prohibited or restricted in the following states: Alabama (Alabama Department of Conservation and Natural Resources 2019), Alaska (Alaska State Legislature 2019), Arkansas (Arkansas Game and Fish Commission 2019), California (California Department of Fish and Wildlife 2019), Georgia (Georgia Department of Natural Resources 2019), Hawaii (Hawaii Department of Agriculture 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), Mississippi (Mississippi Secretary of State 2019), New Mexico (New Mexico Department of Game and Fish 2010), North Carolina (North Carolina Office of Administrative Hearings 2019), Texas (Texas Parks and Wildlife 2019), and Virginia (Virginia Department of Game and Inland Fisheries 2019).

## 4 Global Distribution

---



**Figure 1.** Map of known global distribution of *Pristobrycon maculipinnis*. Map from GBIF Secretariat (2017).

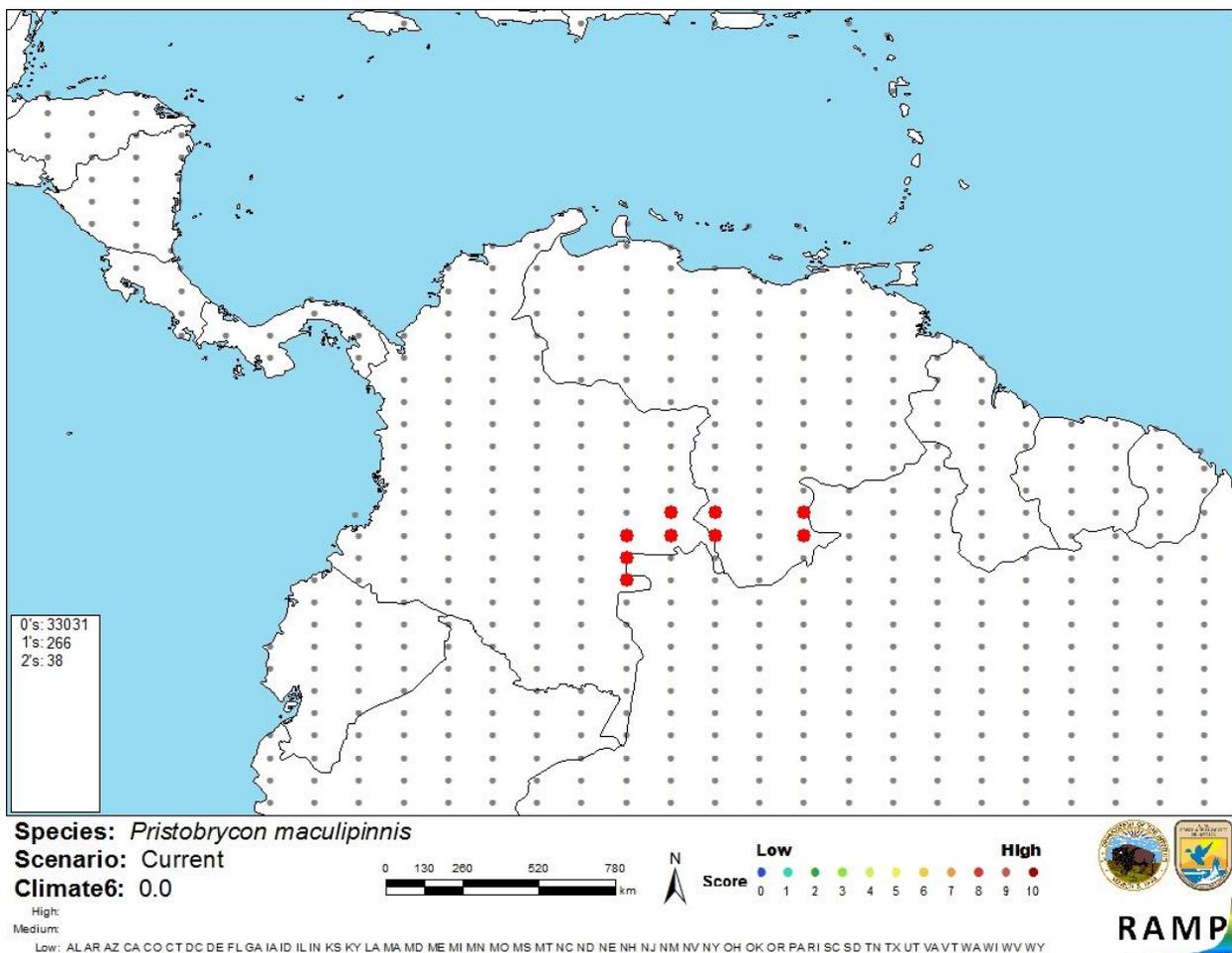
## 5 Distribution Within the United States

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

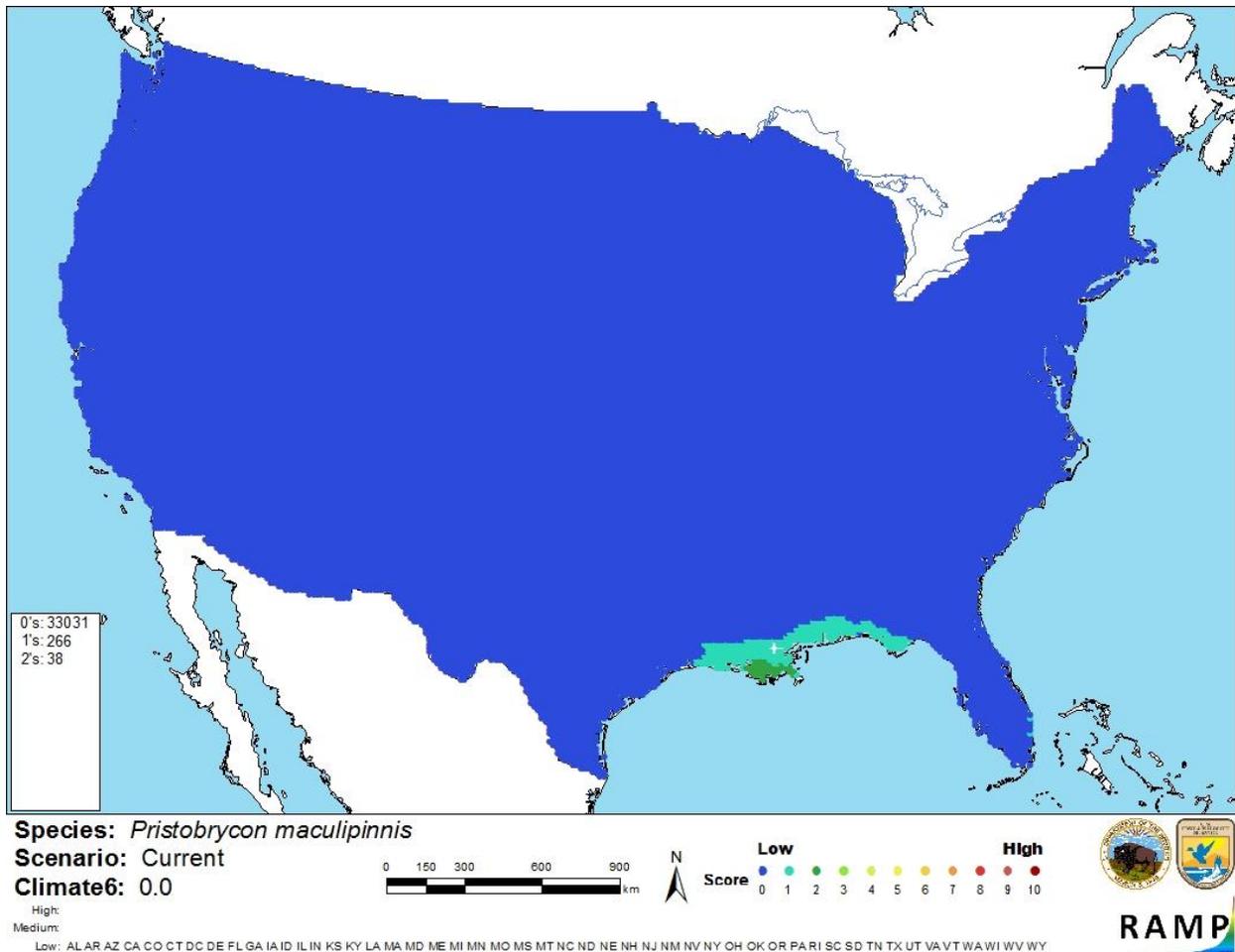
## 6 Climate Matching

### Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) was low throughout the United States. The Climate 6 score for *Pristobrycon maculipinnis* in the contiguous United States was 0.000. (Scores between 0.000 and 0.005, inclusive, are classified as low.) The Gulf Coast from the Florida panhandle through Louisiana had a slightly higher, but still low, match. All States in the contiguous United States had low climate scores.



**Figure 2.** RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red; Venezuela, Columbia) and non-source locations (gray) for *Pristobrycon maculipinnis* climate matching. Source locations from GBIF Secretariat (2017).



**Figure 3.** Map of RAMP (Sanders et al. 2014) climate matches for *Pristobrycon maculipinnis* 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
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
$\geq 0.103$	High

## 7 Certainty of Assessment

Information on the biology and distribution of *P. maculipinnis* is not widely available and no introductions of this species have been reported. Therefore, scientific information on the impacts of introductions is lacking. The certainty of this assessment low.

## 8 Risk Assessment

---

### Summary of Risk to the Contiguous United States

*Pristobrycon maculipinnis* is a freshwater species native to the northern Amazon River basin in Venezuela and Colombia. No introductions of this species have been reported outside its native range, although it can occur rarely in the aquarium trade. Numerous U.S. States prohibit or restrict the trade, possession, or use of *P. maculipinnis*. History of invasiveness is uncertain. Due to lack of information, certainty of this assessment low. The climate match with the contiguous United States is low. Overall risk posed by this species is uncertain.

### Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec.6): Low**
- **Certainty of Assessment (Sec. 7): 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.**

Alabama Department of Conservation and Natural Resources. 2019. Restrictions on possession, sale, importation and/or release of certain animals and fish. Alabama Department of Conservation and Natural Resources Administrative Code, Chapter 220-2-.26.

Alaska State Legislature. 2019. Prohibitions on importation and release of live fish. Alaska Administrative Code, Title 5, Chapter 41, Section 70.

Arkansas Game and Fish Commission. 2019. Certain exotic species prohibited. Arkansas Game and Fish Commission Code of Regulations 26.13.

California Department of Fish and Wildlife. 2019. California's invaders: Piranha. Habitat Conservation Planning Branch, California Department of Fish and Wildlife, Sacramento, California. Available: <https://www.wildlife.ca.gov/Conservation/Invasives/Species/Characidae>. (August 2019).

Fricke, R., W. N. Eschmeyer, and R. Van der Laan, editors. 2019. Eschmeyer's Catalog of Fishes: genera, species, references. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (August 2019).

Froese, R. and D. Pauly, editors. 2017. *Pristobrycon maculipinnis* Fink and Machado-Allison 1992. FishBase. Available: <http://www.fishbase.us/summary/Pristobrycon-maculipinnis.html> (February 2018).

- GBIF Secretariat. 2017. GBIF backbone taxonomy: *Pristobrycon maculipinnis* Fink and Machado-Allison 1992. Global Biodiversity Information Facility, Copenhagen. Available: <http://www.gbif.org/species/2354221> (February 2018).
- Georgia Department of Natural Resources. 2019. Wild animals/exotics. Georgia Department of Natural Resources Law Enforcement Division, Social Circle, Georgia. Available: <http://gadnrle.org/exotics>. (August 2019).
- Hawaii Department of Agriculture. 2019. Animal guidelines. Hawaii Department of Agriculture, Plant Industry Division, Honolulu, Hawaii. Available: <http://hdoa.hawaii.gov/pi/pq/import-program/animal-guidelines/>. (August 2019).
- Illinois Department of Natural Resources. 2015. Aquatic life approved species list. Illinois Department of Natural Resources, Springfield, Illinois. Available: [https://www.ifishillinois.org/programs/aquaculture/aquatic\\_approved\\_species.pdf](https://www.ifishillinois.org/programs/aquaculture/aquatic_approved_species.pdf). (August 2019).
- ITIS (Integrated Taxonomic Information System). 2018. *Pristobrycon maculipinnis* Fink and Machado-Allison 1992. Integrated Taxonomic Information System, Reston, Virginia. Available: [http://www.itis.gov/servlet/SingleRpt/SingleRpt?search\\_topic=TSN&search\\_value=641595](http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=641595) (February 2018).
- Kentucky General Assembly. 2019. Importation, possession, and prohibited aquatic species. Kentucky Administrative Regulations, Tourism, Arts, and Heritage Division, Department of Fish and Wildlife Resources, 301 KAR 1:122.
- Louisiana State Legislature. 2019. Exotic fish; importation, sale, and possession of certain exotic species prohibited; permit required; penalty. Louisiana Revised Statutes, Title 56, Section 319.
- Maine Department of Inland Fisheries and Wildlife. 2019. Fish and wildlife in captivity. Maine Department of Inland Fisheries and Wildlife, Augusta, Maine. Available: <https://www.maine.gov/ifw/fish-wildlife/captivity.html>. (August 2019).
- Mississippi Secretary of State. 2019. Guidelines for aquaculture activities. Mississippi Administrative Code, Title 2, Part 1, Subpart 4, Chapter 11. Regulatory and Enforcement Division, Office of the Mississippi Secretary of State, Jackson, Mississippi.
- New Mexico Department of Game and Fish. 2010. Director's species importation list. New Mexico Department of Game and Fish, Santa Fe, New Mexico. Available: [http://www.wildlife.state.nm.us/download/enforcement/importation/information/Directors-Species-Importation-List-08\\_03\\_2010.pdf](http://www.wildlife.state.nm.us/download/enforcement/importation/information/Directors-Species-Importation-List-08_03_2010.pdf). (August 2019).
- North Carolina Office of Administrative Hearings. 2019. Possession of certain fishes. North Carolina Administrative Code, Title 15A, Chapter 10, SubChapter C, Section 211.

OIE (World Organisation for Animal Health). 2019. OIE listed diseases, infections and infestations in force in 2019. Available: <http://www.oie.int/animal-health-in-the-world/oie-listed-diseases-2019/>. (August 2019).

OPEFE (Oregon Piranha Exotic Fish Exhibit). 2012. *Pristobrycon maculipinnis*, Marbled Piranha. OPEFE, Sutherlin, Oregon. Available: <https://opefe.com/maculipinnis.html>. (August 2019).

Sanders, S., C. Castiglione, and M. H. Hoff. 2014. Risk Assessment Mapping Program: RAMP. U.S. Fish and Wildlife Service.

Texas Parks and Wildlife. 2019. Invasive, prohibited and exotic species. Texas Parks and Wildlife, Austin, Texas. Available: [https://tpwd.texas.gov/huntwild/wild/species/exotic/prohibited\\_aquatic.phtml](https://tpwd.texas.gov/huntwild/wild/species/exotic/prohibited_aquatic.phtml). (August 2019).

Virginia Department of Game and Inland Fisheries. 2019. Nongame fish, reptile, amphibian and aquatic invertebrate regulations. Virginia Department of Game and Inland Fisheries, Henrico, Virginia. Available: <https://www.dgif.virginia.gov/fishing/regulations/nongame/>. (August 2019).

Winemiller, K. O., H. Lopez-Fernandez, D. C. Taphorn, L. G. Nico, and A. B. Duque. 2008. Fish assemblages of the Casiquiare River, a corridor and zoogeographical filter for dispersal between the Orinoco and Amazon basins. *Journal of Biogeography* 35(9):1551-1563.

## 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.**

Fink, W. L. and A. Machado-Allison. 1992. Three new species of piranhas from Brazil and Venezuela (Teleostei: Characiformes). *Ichthyological Exploration of Freshwaters* 3(1):55-72.