

# ***Potamotrygon marinae* (a stingray, no common name)**

## **Ecological Risk Screening Summary**

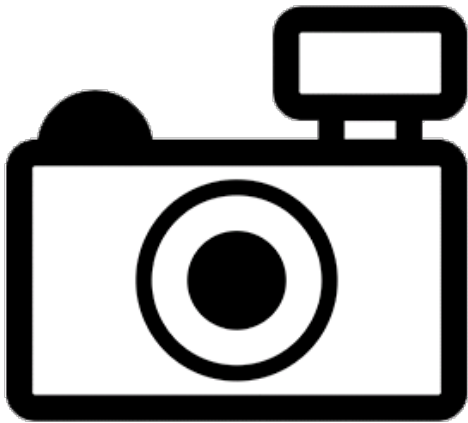
U.S. Fish & Wildlife Service, August 2012

Revised, September 2018

Web Version, 2/26/2021

Organism Type: Fish

Overall Risk Assessment Category: Uncertain



No Photo Available

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

---

### **Native Range**

From Valenti (2009):

“This freshwater stingray was recently described from the Oyapock and Maroni rivers in French Guiana.”

From Grenand et al. (2015):

“This ray can be found throughout French Guiana but, in the Oyapock, it is never found further upstream than the first leaps. The Wayãpi can find this species in the Rio Jari basin (Pará, Brazil) and the Teko in the Maroni basin.”

Mol et al. (2012) list *Potamotrygon marinae* as native to the Marowijne River in Suriname.

## Status in the United States

No records of introductions of *Potamotrygon marinae* in the wild in the United States were found. *P. marinae* is in trade in the United States.

From Aqua Imports (2018):

“GOLD DUST STINGRAY (POTAMOTRYGON MARINAE) PAIR [...] \$899.99”

“Freshwater stingrays are prohibited in a number of states and we will not ship to addresses in these states.”

The Florida Fish and Wildlife Conservation Commission has listed the freshwater stingray *Potamotrygon marinae* as a conditional species. Conditional nonnative species (FFWCC 2018), “are considered to be dangerous to the ecology and/or the health and welfare of the people of Florida. These species are not allowed to be personally possessed, although exceptions are made by permit from the Executive Director for research, commercial use (with security measures to prevent escape or release) or public exhibition purposes.”

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

“I. Fish listed below are considered restricted live wildlife:

[...]

32. All species of the family Potamotrygonidae. Common name: stingray.”

From California Department of Fish and Wildlife (2019):

“It shall be unlawful to import, transport, or possess live animals restricted in subsection (c) below except under permit issued by the department. [...]

Restricted species include:

[...]

Family Potamotrygonidae-River stingrays: All species (D).”

From Georgia DNR (2020):

“The exotic species listed below, except where otherwise noted, may not be held as pets in Georgia. This list is not all inclusive. [...]

Fresh-water stingray; all species”

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.

[...]

Freshwater stingrays Family Potamotrygonidae \*\*\*\* [indicating all species within the family are included in the regulation]”

From State of Nevada (2018):

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

[...]

Freshwater stingray.....All species in the family Potamotrygonidae”

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:

[...]

Freshwater Stingray group: *Paratrygon* spp., *Potomotrygon* spp., and *Disceus* spp.”

From Texas Parks and Wildlife (2020):

“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. Permits are required for any individual to possess, sell, import, export, transport or propagate listed species for zoological or research purposes; for aquaculture (allowed only for Blue, Nile, or Mozambique tilapia, Triploid Grass Carp, or Pacific White Shrimp); or for aquatic weed control (for example, Triploid Grass Carp in private ponds).

[...]

Freshwater Stingrays, Family Potamotrygonidae All species”

## Means of Introductions in the United States

No records of introductions of *Potamotrygon marinae* in the wild in the United States were found.

## Remarks

No additional remarks.

## 2 Biology and Ecology

---

### Taxonomic Hierarchy and Taxonomic Standing

According to Fricke et al. (2018), *Potamotrygon marinae* (Deynat 2006) is the valid name for this species; it is also the original name.

From ITIS (2018):

Kingdom Animalia  
Subkingdom Bilateria  
Infrakingdom Deuterostomia  
Phylum Chordata  
Subphylum Vertebrata  
Infraphylum Gnathostomata  
Superclass Chondrichthyes  
Class Chondrichthyes  
Subclass Elasmobranchii  
Superorder Euselachii  
Order Myliobatiformes  
Family Potamotrygonidae  
Genus *Potamotrygon*  
Species *Potamotrygon marinae* Deynat, 2006

## **Size, Weight, and Age Range**

From Valenti (2009):

“Two juvenile males, measured 23.8–29.8 cm disc width (DW) (Deynat 2006). The largest specimen recorded is a female of 41.2 cm DW (Deynat 2006).”

## **Environment**

Froese and Pauly (2018):

“Freshwater; benthopelagic.”

## **Climate**

Froese and Pauly (2018):

“Tropical”

## **Distribution Outside the United States**

Native

From Valenti (2009):

“This freshwater stingray was recently described from the Oyapock and Maroni rivers in French Guiana.”

From Grenand et al. (2015):

“This ray can be found throughout French Guiana but, in the Oyapock, it is never found further upstream than the first leaps. The Wayãpi can find this species in the Rio Jari basin (Pará, Brazil) and the Teko in the Maroni basin.”

Mol et al. (2012) list *Potamotrygon marinae* as native to the Marowijne River in Suriname.

### Introduced

No records of introductions were found for *Potamotrygon marinae*.

### Means of Introduction Outside the United States

No records of introductions were found for *Potamotrygon marinae*.

### Short Description

From de Carvalho et al. (2011):

“The reticulate dorsal pattern in *P. marinae*, described from French Guiana (Deynat, 2006), delimits large, irregular, lighter blotches formed from the association of smaller spots (much more clearly visible in live and freshly captured material). Ventral coloration in *P. marinae*, however, is composed of intense, dark brown blotches over mid, lateral and posterior disc, and most of pelvic fins; the ventral tail also presents a dark midline with lighter patterns laterally [...]”

### Biology

No information on the biology of *Potamotrygon marinae* was available.

### Human Uses

*Potamotrygon marinae* is in the ornamental aquarium trade.

From Aqua Imports (2018):

“GOLD DUST STINGRAY (POTAMOTRYGON MARINAE) PAIR [...] \$899.99”

“Freshwater stingrays are prohibited in a number of states and we will not ship to addresses in these states.”

### Diseases

No information on diseases of *Potamotrygon marinae* was available. **No records of OIE-reportable diseases (OIE 2021) were found for *P. marinae*.**

### Threat to Humans

From Reynolds et al. (2017):

“Envenomation [process by which venom is injected by the stinger] by a potamotrygonid [includes *P. marinae*] may result in severe injury, typically exceeding the degree of trauma resulting from the barb of a marine stingray. [...] Potamotrygonid envenomation may result not only in severe pain, but also edema, erythema, tissue necrosis, and ulcers, which can take up to three months to heal [Haddad et al., 2004].”

### 3 Impacts of Introductions

---

No records of introductions were found for *Potamotrygon marinae*, therefore there is no information on impacts of introductions.

*Potamotrygon marinae* is regulated in Arizona, California, Florida, Georgia, Mississippi, Nevada, Oklahoma, and Texas.

### 4 History of Invasiveness

---

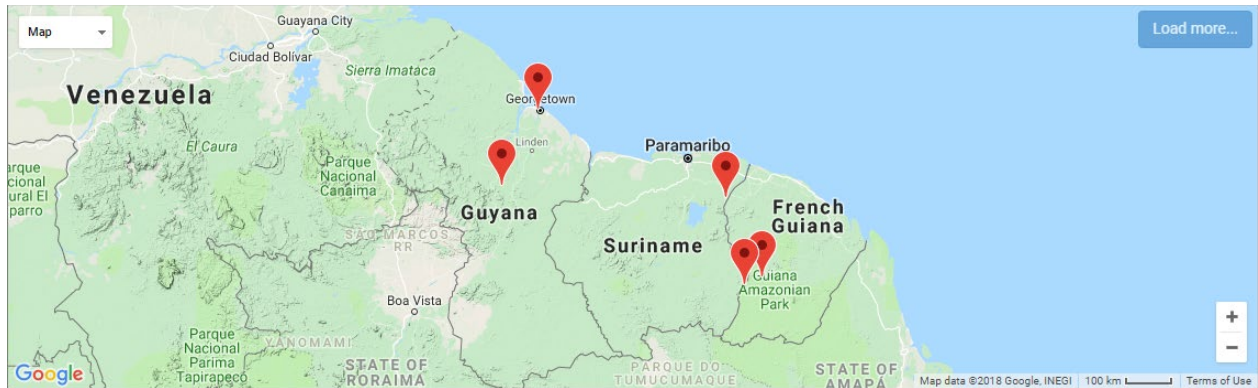
No records of introduction were found for *Potamotrygon marinae*. History of invasiveness of *P. marinae* is classified as No Known Nonnative Population.

### 5 Global Distribution

---



**Figure 1.** Known global distribution of *Potamotrygon marinae*. Locations are in Guyana, Suriname, and French Guiana. Map from GBIF Secretariat (2018). The observations in Guyana were not confirmed by any other sources and were not used to select source points for the climate match.



**Figure 2.** Additional known global distribution of *Potamotrygon marinae*. Locations are in Guyana, Suriname, and French Guiana. Map from VertNet (2018). The observations in Guyana were not confirmed by any other sources and were not used to select source points for the climate match.

Grenand et al. (2015) stated that *P. marinae* can be found in Brazil but no georeferenced locations were available to use as source points in the climate match.

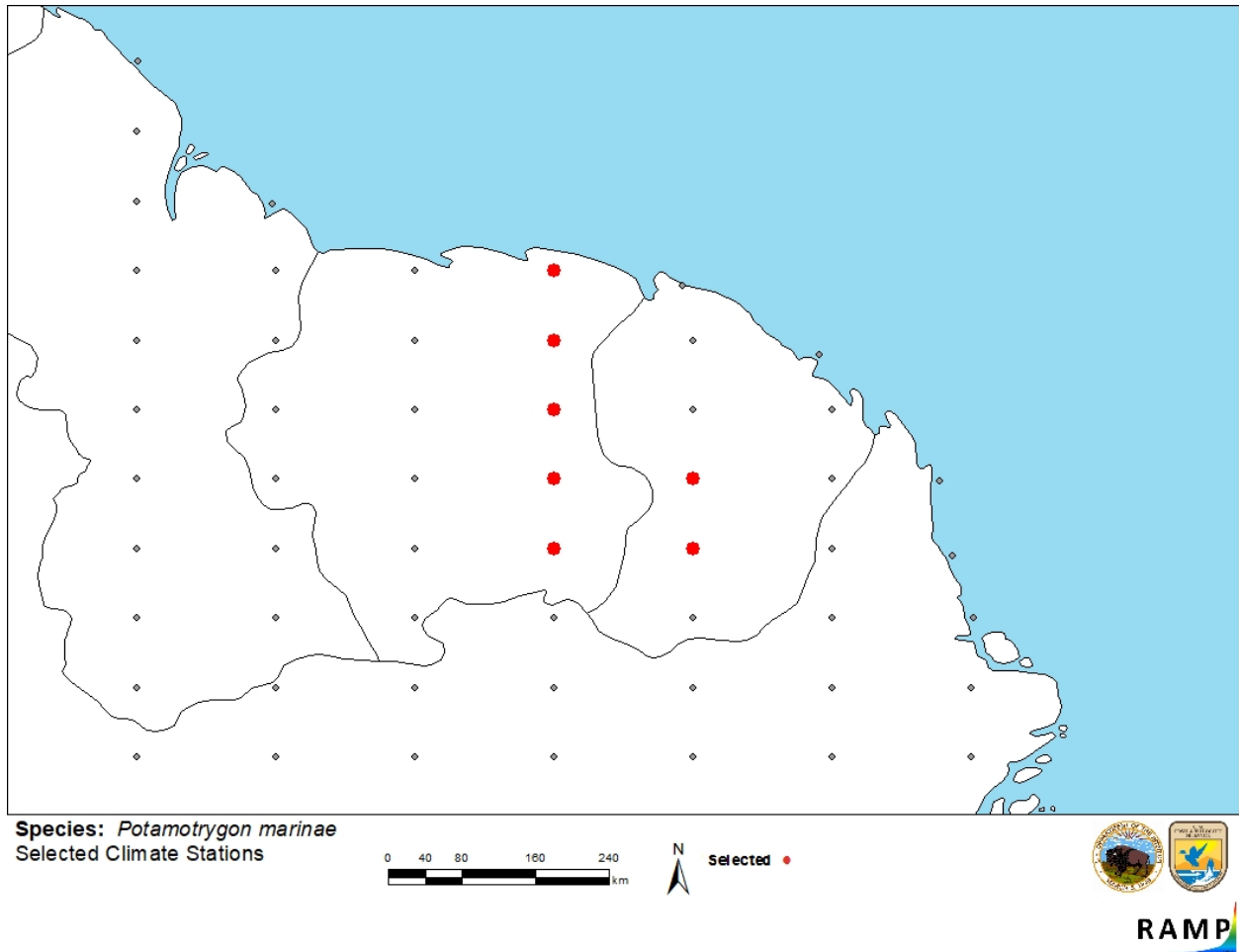
## 6 Distribution Within the United States

No records of introductions of *Potamotrygon marinae* in the wild in the United States were found.

## 7 Climate Matching

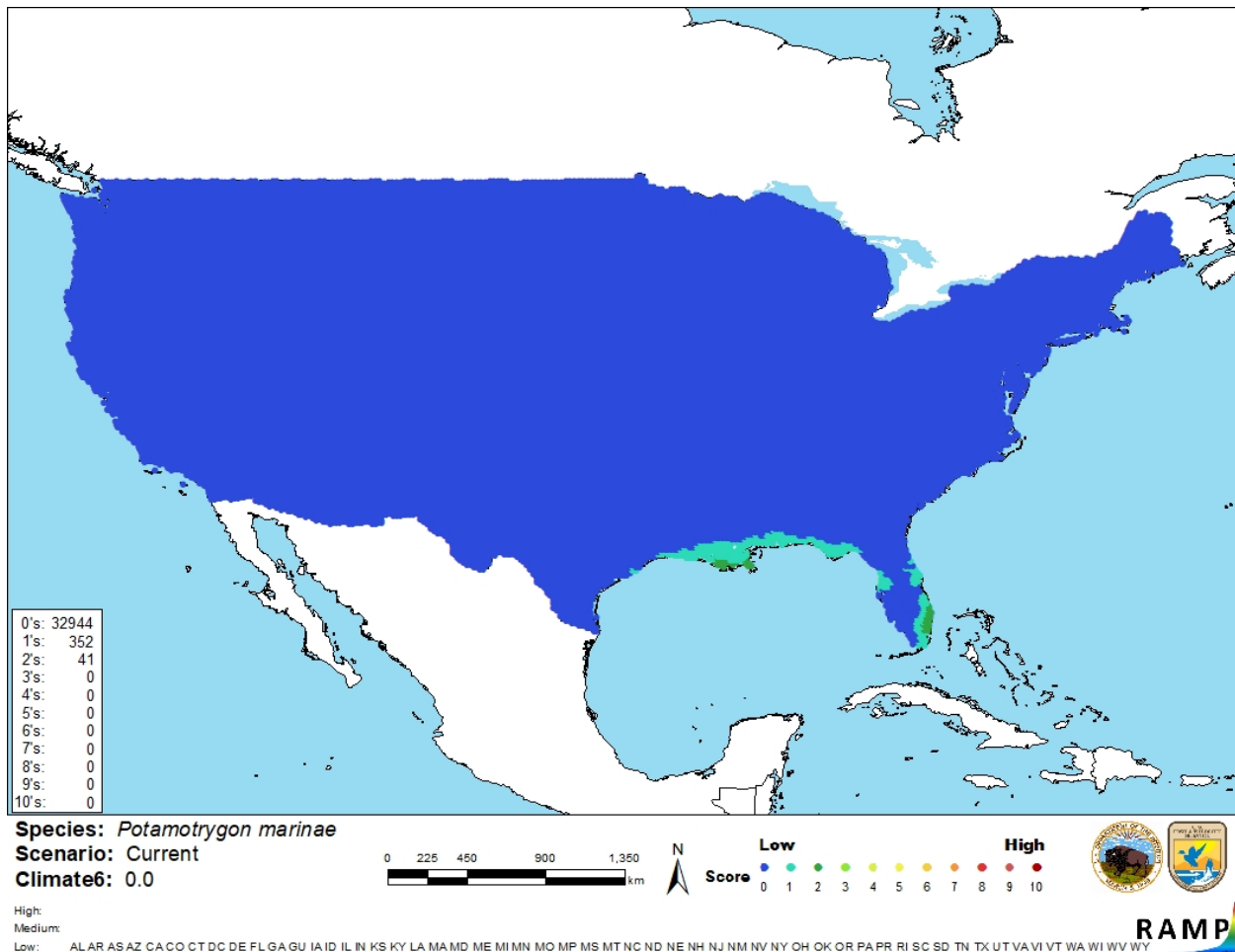
### Summary of Climate Matching Analysis

The climate match for *Potamotrygon marinae* was low across most of the contiguous United States. There were no areas of high or medium match. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.000, low (scores between 0.000 and 0.005, inclusive, are classified as low). All States had low individual climate scores.



**Figure 3.** RAMP (Sanders et al. 2018) source map showing weather stations in northern South America selected as source locations (red; Suriname, French Guiana) and non-source locations (gray) for *Potamotrygon marinae* climate matching. Source locations from GBIF Secretariat (2018) and VertNet (2018). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.





**Figure 4.** Map of RAMP (Sanders et al. 2018) climate matches for *Potamotrygon marinae* in the contiguous United States based on source locations reported by GBIF Secretariat (2018) and VertNet (2018). 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: (Count of target points with climate scores 6-10)/ (Count of all target points)	Overall Climate Match Category
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
$\geq 0.103$	High

## 8 Certainty of Assessment

The certainty of assessment for *Potamotrygon marinae* is low. There was very little information available for this species. No records of introduction were found so there is no information on impacts of introduction to evaluate. Not enough trade information was available to make an evaluation based on trade data. The entire range of the species may not be represented in the

source points for the climate match. One source mentioned that the species is present in Brazil but georeferenced observations were not available to use as source points for the climate match.

## 9 Risk Assessment

---

### Summary of Risk to the Contiguous United States

*Potamotrygon marinae* is a species of freshwater stingray that is native to rivers in Suriname, French Guiana, and Brazil. There is very little known about this species but it is present in the ornamental trade, including in the United States. *Potamotrygon marinae* is regulated in Arizona, California, Florida, Georgia, Mississippi, Nevada, Oklahoma, and Texas. The history of invasiveness is classified as No Known Nonnative Population. No records of introduction were found so there is also no information on impacts of introduction. The climate match was low for the contiguous United States. All states had low individual climate scores. The certainty of assessment is low due to lack of information. The overall risk assessment category is Uncertain.

### Assessment Elements

- **History of Invasiveness (Sec. 4): No Known Nonnative Population**
- **Overall Climate Match Category (Sec. 7): Low**
- **Certainty of Assessment (Sec. 8): Low**
- **Remarks/Important additional information:** No additional information.
- **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.**

Aqua Imports. 2018. Gold dust stingray (*Potamotrygon marinae*) pair. Available: <https://www.aqua-imports.com/shop/product/gold-dust-stingray-potamotrygon-marinae-pair/> (September 2018).

Arizona Office of the Secretary of State. 2013. Live wildlife. Arizona Administrative Code, Game and Fish Commission, Title 12, Chapter 4, Article 4.

California Department of Fish and Wildlife. 2019. Restricted species laws and regulations manual. Available: <https://wildlife.ca.gov/Conservation/Invasives/Regulations> (November 2020).

de Carvalho MR, Perez MHS, Lovejoy NR. 2011. *Potamotrygon tigrina*, a new species of freshwater stingray from the upper Amazon basin, closely related to *Potamotrygon schroederi* (Fernandez-Yépez, 1958) (Chondrichthyes: Potamotrygonidae). *Zootaxa* 2827:1–30.

- [FFWCC] Florida Fish and Wildlife Conservation Commission. 2018. Conditional species list. Tallahassee: Florida Fish and Wildlife Conservation Commission. Available: <http://myfwc.com/wildlifehabitats/nonnatives/regulations/conditional/> (September 2018).
- Fricke R, Eschmeyer WN, van der Laan R, editors. 2018. Catalog of fishes: genera, species, references. California Academy of Science. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp> (September 2018).
- Froese R, Pauly D, editors. 2018. *Potamotrygon marinae* (Deynat, 2006). FishBase. Available: <http://www.fishbase.org/summary/Potamotrygon-marinae.html> (September 2018).
- GBIF Secretariat. 2018. GBIF backbone taxonomy: *Potamotrygon marinae* (Deynat, 2006). Copenhagen: Global Biodiversity Information Facility. Available: <https://www.gbif.org/species/2419355> (September 2018).
- Georgia [DNR] Department of Natural Resources. 2020. Wild animals/exotics. Social Circle: Georgia Department of Natural Resources Law Enforcement Division. Available: <http://gadnrle.org/exotics> (November 2020).
- Grenand P, Chapuis J, Cognat A, Cristinot A, Davy D, Grenand F, Jégu M, Keith P, Martin E, Nemo F, Pagezy H, le Bail P-Y. 2015. Revision of vernacular names for the freshwater fish of French Guiana. *Cybum* 39:279–300.
- [ITIS] Integrated Taxonomic Information System. 2018. *Potamotrygon marinae* (Deynat, 2006). Reston, Virginia: Integrated Taxonomic Information System. Available: [https://www.itis.gov/servlet/SingleRpt/SingleRpt?search\\_topic=TSN&search\\_value=943765#null](https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=943765#null) (September 2018).
- Mississippi Secretary of State. 2019. Guidelines for aquaculture activities. Mississippi Administrative Code, Title 2, Part 1, Subpart 4, Chapter 11. Jackson: Regulatory and Enforcement Division, Office of the Mississippi Secretary of State.
- Mol JH, Vari RP, Covain R, Willink PW, Fisch-Muller S. 2012. Annotated checklist of the freshwater fishes of Suriname. *Cybum* 36:263–292.
- [OIE] World Organisation for Animal Health. 2021. OIE-listed diseases, infections and infestations in force in 2021. Available: <http://www.oie.int/animal-health-in-the-world/oie-listed-diseases-2021/> (February 2021).
- Oklahoma Secretary of State. 2019. List of restricted exotic species. Oklahoma Administrative Code, Title 800, Chapter 20-1-2.
- Reynolds J, Hornbrook E, Stettner G, Terrell R. 2017. Husbandry of freshwater stingrays. Pages 99–112 in Smith M, Warmolts D, Thoney D, Hueter R, Murray M, Ezcurra J, editors.

Elasmobranch husbandry manual II: recent advances in the care of sharks, rays and their relative. Columbus, Ohio: Ohio Biological Survey. Special Publication.

Sanders S, Castiglione C, Hoff M. 2018. Risk Assessment Mapping Program: RAMP. Version 3.1. U.S. Fish and Wildlife Service.

State of Nevada. 2018. Restrictions on importation, transportation and possession of certain species. Nevada Administrative Code, Chapter 503, Section 110.

Texas Parks and Wildlife. 2020. Invasive, prohibited and exotic species. Austin, Texas: Texas Parks and Wildlife. Available: [https://tpwd.texas.gov/huntwild/wild/species/exotic/prohibited\\_aquatic.phtml](https://tpwd.texas.gov/huntwild/wild/species/exotic/prohibited_aquatic.phtml) (November 2020).

Valenti SV. 2009. *Potamotrygon marinae*. The IUCN Red List of Threatened Species 2009: e.T161362A5406692. Available: <http://www.iucnredlist.org/details/182877/0> (September 2018).

VertNet. 2018. VertNet. Available: <http://portal.vertnet.org/search?q=Potamotrygon+marinae> (September 2018).

## 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.**

Deynat P. 2006. *Potamotrygon marinae* n. sp., une nouvelle espèce de raies d'eau douce de Guyane (Myliobatiformes, Potamotrygonidae) [*Potamotrygon marinae* n. sp., a new species of freshwater stingrays from French Guiana (Myliobatiformes, Potamotrygonidae)]. Comptes rendus Biologies 329:483–493.

Haddad V Jr, Garrone Neto D, de Paula Neto JB, Marques FPL, Barbaro KC. 2004. Freshwater stingrays: study of epidemiologic, clinic and therapeutic aspects based on 84 envenomings in humans and some enzymatic activities of the venom. Toxicon 43:287–294.