

# ***Trichomycterus santanderensis* (a catfish, no common name)**

## **Ecological Risk Screening Summary**

U.S. Fish and Wildlife Service, December 2016

Revised, February 2018

Web Version, 2/24/2020

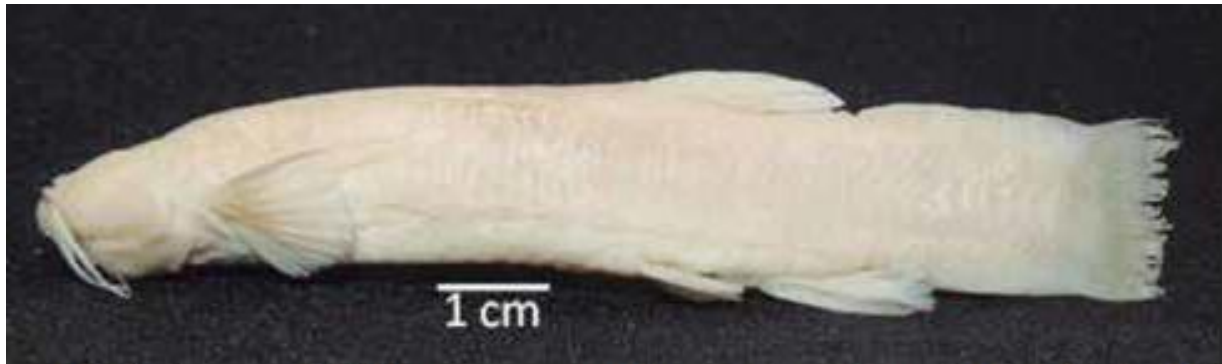


Photo: Castellanos-Morales and Galvis (2012). Licensed under Creative Commons (CC BY from Boletín Científico. Centro de Museos. Museo de Historia Natural).

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

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### **Native Range**

From Froese and Pauly (2016):

“South America: Colombia, Cave El Puente. Cave El Puente is located in the center of a mountain to the west of the Andean mountain range in Colombia [...] [Castellanos-Morales 2007]”

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

This species has not been reported as introduced or established in the United States. There is no indication that this species is in trade in the United States.

From Arizona Secretary of State (2006):

“Fish listed below are restricted live wildlife [in Arizona] as defined in R12-4-401. [...] South American parasitic catfish, all species of the family Trichomycteridae and Cetopsidae [...]”

From Dill and Cordone (1997):

“[...] At the present time, 22 families of bony and cartilaginous fishes are listed [as prohibited in California], e.g. all parasitic catfishes (family Trichomycteridae) [...]”

From FFWCC (2019):

“Nonnative Conditional species (formerly referred to as restricted species) and Prohibited species are considered to be dangerous to Florida’s native species and habitats or could pose threats to the health and welfare of the people of Florida. These species are not allowed to be personally possessed, but can be imported and possessed by permit for research or public exhibition; Conditional species may also be possessed by permit for commercial sales. Facilities where Conditional or Prohibited species are held must meet certain biosecurity criteria to prevent escape.”

*Trichomycterus santanderensis* is listed as a Prohibited species in Florida.

From Louisiana House of Representatives Database (2010):

“No person, firm, or corporation shall at any time possess, sell, or cause to be transported into this state [Louisiana] by any other person, firm, or corporation, without first obtaining the written permission of the secretary of the Department of Wildlife and Fisheries, any of the following species of fish: [...] all members of the families [...] *Trichomycteridae* (pencil catfishes) [...]”

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.  
[The list includes all species of] Family Trichomycteridae”

From Legislative Council Bureau (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 [in Nevada]: [...] All species in the families Cetopsidae and Trichomycteridae”

From Utah DNR (2012):

“All species of fish listed in Subsections (2) through (30) are classified [in Utah] as prohibited for collection, importation and possession [...] Parasitic catfish (candiru, carnero) family Trichomycteridae (All species)”

## Means of Introductions in the United States

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

## 2 Biology and Ecology

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### Taxonomic Hierarchy and Taxonomic Standing

From GBIF Secretariat (2016):

“KINGDOM Animalia  
PHYLUM Chordata  
CLASS Actinopterygii  
ORDER Siluriformes  
FAMILY Trichomycteridae  
GENUS *Trichomycterus*  
SPECIES *Trichomycterus santanderensis*”

From Eschmeyer et al. (2016):

“Current status: Valid as *Trichomycterus santanderensis* Castellanos-Morales 2007.  
Trichomycteridae: Trichomycterinae.”

### Size, Weight, and Age Range

From Froese and Pauly (2016):

“Max length : 10.1 cm SL male/unsexed; [Castellanos-Morales 2007]”

### Environment

From Froese and Pauly (2016):

“Freshwater; benthopelagic.”

From Castellanos-Morales (2007):

“The Cave El Puente is located in the center of a mountain to the west of the Andean mountain range in Colombia and is not registered in the speleological inventory of Santander. The cave is oriented vertically with narrow, rocky passageways and galleries [...] where water infiltration was observed. The wells are small, shallow, blocked by ceilings of rock and interconnected by reduced descending channels that drain the limited water flow. Water temperature during the sampling was 21.5 °C and cave temperature was 19.9 °C. The bottom of the wells is rocky and contains much sediment (only four specimens of *T. santanderensis* were collected here). Bloodsucking bats and a diversity of arthropods inhabit the interior of the galleries. The cave is located in an area untouched by agrochemical products, where the practice of sustainable agroforestry has maintained the flora and fauna relatively well conserved, and where the

Autonomous Regional Corporation for the Defense of the Bucaramanga Plateau is preparing a conservation program (Castellanos, 2005).”

## **Climate/Range**

From Froese and Pauly (2016):

“Tropical; 20°C - 22°C [Castellanos-Morales 2007], preferred ?; 7°N - 5°N, 73°W - 72°W”

## **Distribution Outside the United States**

Native

From Froese and Pauly (2016):

“South America: Colombia, Cave El Puente. Cave El Puente is located in the center of a mountain to the west of the Andean mountain range in Colombia [...] [Castellanos-Morales 2007]”

Introduced

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

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

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

## **Short Description**

From Castellanos-Morales (2007):

“*Trichomycterus santanderensis* can be distinguished from other species of the genus by the following combination of characters: variable reduction in eyes from visible to imperceptible due to covering by a thick integument; relatively high head (62.5% of HL); enlarged mouth width (49% of HL); extended maxillary, nasal and rictal barbels (113.6%, 106.7% and 75% of HL, respectively); first pectoral ray extending as long filament, about 95% of pectoral-fin length; depth of the caudal peduncle 17.5% SL; caudal fin truncate with a slightly convex edge, upper portion of fin longer than lower portion; color varied from homogeneous light-red pigmentation of adults to pale rose with small grayish round spots on dorsum of young individuals.”

“Body elongated, deeper than wide, gradually deeper from trunk toward caudal peduncle; dorsal profile of trunk convex, marked by strong dorsal muscles raised from nape to origin of dorsal fin; ventral profile of trunk straight, dorsal and ventral profile of caudal peduncle slightly convex.”

## **Biology**

From Froese and Pauly (2016):

“Troglomorphic species.”

## Human Uses

No information available.

## Diseases

No OIE-reportable diseases (OIE 2020) have been documented for this species.

## Threat to Humans

From Froese and Pauly (2016):

“Harmless”

## 3 Impacts of Introductions

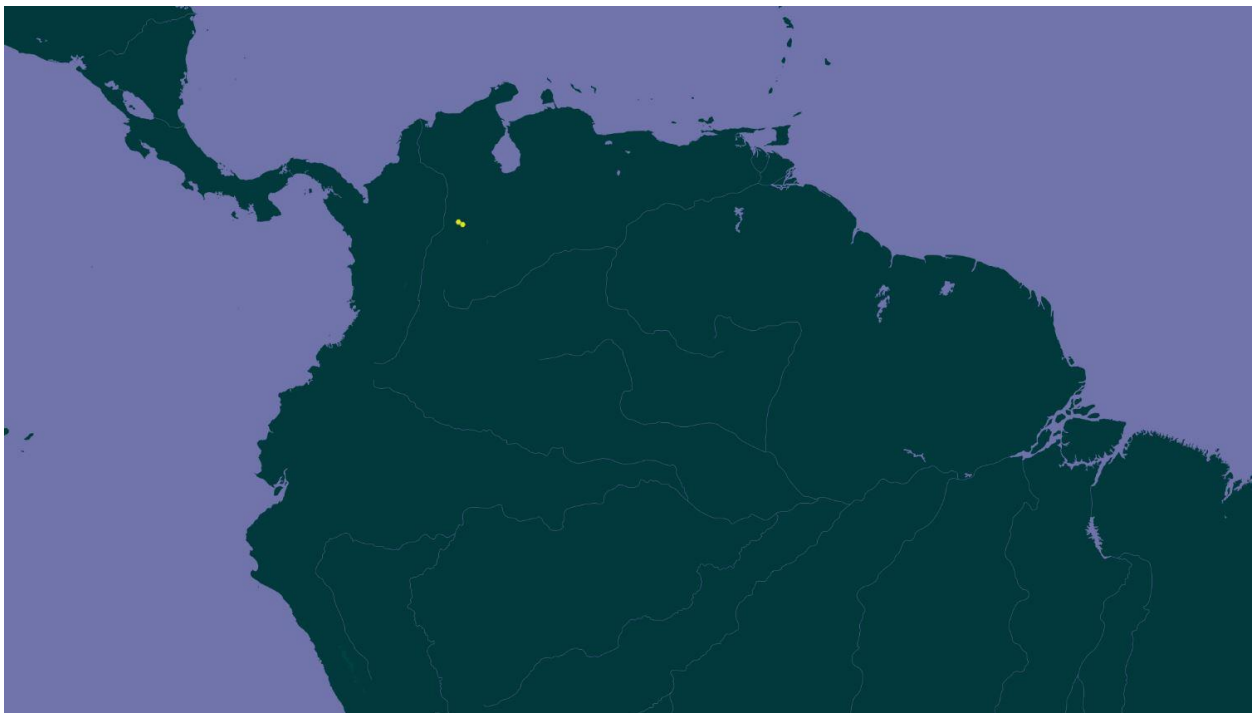
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This species has not been reported as introduced or established outside of its native range.

The importation, possession, or trade of the catfish *T. santanderensis* is prohibited or restricted in the following states: Arizona (Arizona Secretary of State 2006), California (Dill and Cordone 1997), Florida (FFWCC 2019), Louisiana (Louisiana House of Representatives Database 2010), Mississippi (Mississippi Secretary of State 2019), Nevada (Legislative Council Bureau 2018), and Utah (Utah DNR 2012).

## 4 Global Distribution

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**Figure 1.** Map of known global distribution of *Trichomycterus santanderensis* reported from Colombia. Map from GBIF Secretariat (2016).

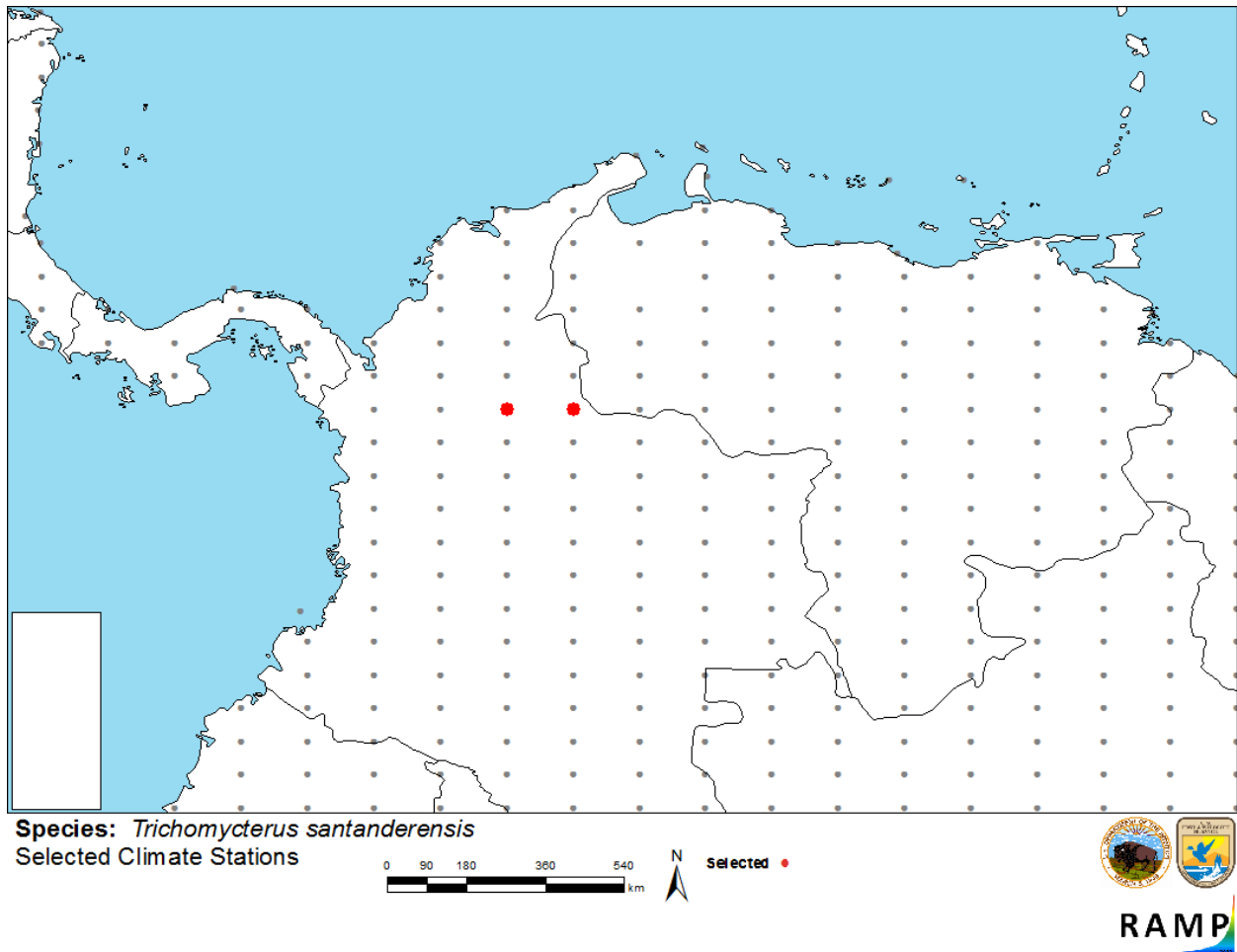
## 5 Distribution Within the United States

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

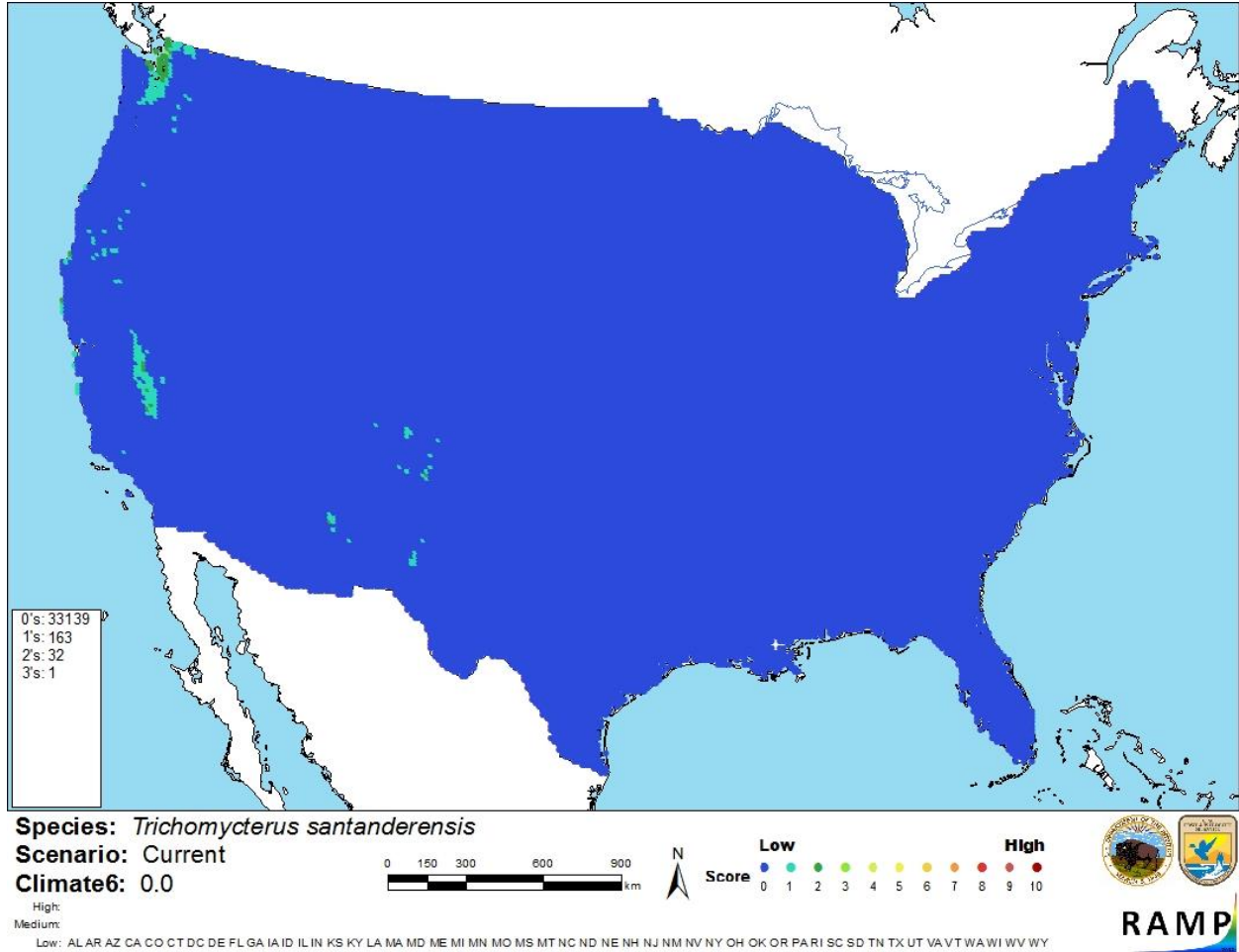
## 6 Climate Matching

### Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) was low across the contiguous United States. The Climate 6 score indicated that the contiguous United States has a low overall climate match. (Scores between 0.000 and 0.005, inclusive, are classified as low.) The Climate 6 score for *Trichomycterus santanderensis* was 0.0. All States had a low climate score.



**Figure 3.** RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red; Colombia) and non-source locations (gray) for *Trichomycterus santanderensis* climate matching. Source locations from GBIF Secretariat (2016).



**Figure 4.** Map of RAMP (Sanders et al. 2014) climate matches for *Trichomycterus santanderensis* in the contiguous United States based on source locations reported by GBIF Secretariat (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
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
$\geq 0.103$	High

## 7 Certainty of Assessment

Information on the biology of *T. santanderensis* is not widely available. No introductions of this species outside of its native range have been reported. Data on the impacts of introductions are lacking; absence of this data makes the certainty of this assessment low.

## 8 Risk Assessment

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### Summary of Risk to the Contiguous United States

*Trichomycterus santanderensis* is a small parasitic catfish native to a single cave in northern Colombia. Several U.S. States prohibit or restrict the possession, transport, or trade of this species along with other members of the family Trichomycteridae. There are no documented introductions of this species outside of its native range. History of invasiveness is uncertain. The certainty of this assessment low due to a lack of information. 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

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**Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 10.**

Arizona Secretary of State. 2006. Restricted live wildlife. Arizona Administrative Code, R12-4-406.

Castellanos-Morales, C. A. 2007. *Trichomycterus santanderensis*: A new species of troglomorphic catfish (Siluriformes, Trichomycteridae) from Colombia. *Zootaxa* 1541: 49-55.

Castellanos-Morales, C. A., and F. Galvis. 2012. Species from the *Trichomycterus* (Siluriformes: Trichomycteridae) genus in Colombia. *Boletín Científico. Centro de Museos. Museo de Historia Natural* 16(1):194-206.

Dill, W. A., and A. J. Cordone. 1997. History and status of introduced fishes in California, 1871-1996. California Department of Fish and Game. *Fish Bulletin* 178.

Eschmeyer, W. N., R. Fricke, and R. van der Laan, editors. 2016. *Catalog of fishes: genera, species, references*. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (December 2016).

FFWCC (Florida Fish and Wildlife Conservation Commission). 2019. Florida's nonnative fish and wildlife. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida. Available: <https://myfwc.com/wildlifehabitats/nonnatives/>. (November 2019).



- Froese, R., and D. Pauly, editors. 2016. *Trichomycterus santanderensis* (Castellanos-Morales 2007). FishBase. Available: <http://www.fishbase.se/summary/63490>. (December 2016).
- GBIF Secretariat. 2016. GBIF backbone taxonomy: *Trichomycterus santanderensis* (Castellanos-Morales 2007). Global Biodiversity Information Facility, Copenhagen. Available: <http://www.gbif.org/species/2343151> (December 2016).
- Legislative Council Bureau. 2018. Restrictions on importation, transportation and possession of certain species. Nevada Administrative Code, Section 503.110.
- Louisiana House of Representatives Database. 2010. Exotic fish; importation, sale, and possession of certain exotic species prohibited; permit required; penalty. Louisiana Revised Statutes, Title 56, Section 319.
- 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.
- OIE (World Organisation for Animal Health). 2020. OIE-listed diseases, infections and infestations in force in 2020. World Organisation for Animal Health, Paris. Available: <http://www.oie.int/animal-health-in-the-world/oie-listed-diseases-2019/>. (February 2020).
- Sanders, S., C. Castiglione, and M. Hoff. 2014. Risk Assessment Mapping Program: RAMP. U.S. Fish and Wildlife Service.
- Utah DNR. 2012. R657-3 – collection, importation, transportation, and possession of animals. Utah Division of Natural Resources, Salt Lake City, Utah. Available: <https://wildlife.utah.gov/hunting-in-utah/guidebooks/46-rules/rules-regulations/940-r657-3--collection-importation-transportation-and-possession-of-animals.html>. (May 2018).

## 10 References Quoted But Not Accessed

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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.**

- Castellanos, C. A. 2005. Valoración preliminar del recurso ictiológico en la cuenca superior del río Lebrija, Santander, Colombia. Reporte técnico. Corporación Autónoma Regional para la Defensa de la Meseta de Bucaramanga, Santander, Colombia.