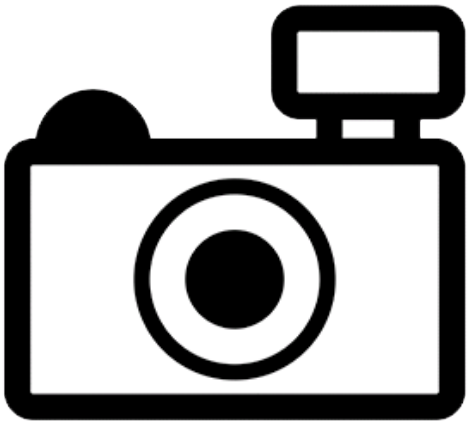
Vandellia beccarii (a catfish, no common name)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, January 2017
Revised, June 2018
Web Version, 9/3/2019



No Photo Available

1 Native Range and Status in the United States

Native Range

From Eschmeyer et al. (2018):

"Orinoco River basin and rivers of Guyana: Colombia, Guyana and Venezuela."

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 FFWCC (2017):

"Prohibited nonnative species 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 or used for commercial activities."

The Florida Fish and Wildlife Conservation Commission (FFWCC) lists the parasitic catfish *Vandellia beccarii* as a prohibited species.

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 (2017):

"Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii
Class Teleostei
Superorder Ostariophysi
Order Siluriformes
Family Trichomycteridae
Subfamily Vandelliinae
Genus *Vandellia*
Species *Vandellia beccarii* Di Caporiacco, 1935"

From Eschmeyer et al. (2018):

"Current status: Valid as *Vandellia beccarii* Di Caporiacco 1935. Trichomycteridae: Vandelliinae."

Size, Weight, and Age Range

From Froese and Pauly (2016):

"Max length : 5.9 cm NG male/unsexed; [de Pínna and Wosiacki, 2003]"

Environment

From Froese and Pauly (2016):

"Freshwater; demersal."

Climate/Range

From Froese and Pauly (2016):

"Tropical"

Distribution Outside the United States

Native

From Eschmeyer et al. (2018):

"Orinoco River basin and rivers of Guyana: Colombia, Guyana and Venezuela."

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 Schmidt (1987):

"Meristics and morphometrics for the holotype are presented first, followed by range and mean of 21 other specimens in parentheses. Standard length (mm): 57 (33.0-59.2, 44.1); dorsal-fin rays: 8 (7-10, 8.3); anal-fin rays: 6 (6-7, 6.8); pectoral-fin rays: 6 (6); pelvic-fin rays: 5 (5); SL/head length: 9.5 (7.2-8.8, 8.1); SL/body depth: 10.4 (7.9-19.8, 12.4); SL/pre- dorsal length: 1.4 (1.3-1.6, 1.4); SL/preanal length: 1.3 (1.2-1.5, 1.3); SL/prepelvic length: 1.6 (1.5-1.7, 1.6); head length/head width: 1.1 (1.0-1.5, 1.2); preorbital length/eye diameter: 1.3 (1.0-2.1, 1.4); maxillary barbel length/head length: 0.4 (0.2-0.4, 0.3); and interorbital distance/eye diameter: 1.0 (0.6-1.1, 0.8)."

"di Caporiacco (1935) used the presence of minute teeth on the mandible to distinguish *V. beccarii* from *V. plazai* and *V. hasemani* (and possibly from *V. cirrhosa* and *V. weineri*). Examination of alizarin stained specimens showed that the dentaria of *V. beccarii* are typical of Vandelliinae in not meeting at the midline (Baskin, 1972), and that the lower jaw is edentulous […]. Examination of the holotype failed to reveal any lower jaw teeth (M. L. Azzaroli, pers. comm.) and I suspect that di Caporiacco mistook small papillae on the lower jaw for teeth."

"The presence of nine premaxillary teeth (and fin ray counts) in *V. beccarii* purportedly distinguished it from *V. sanguinea* (di Caporiacco, 1935). All stained specimens I examined had seven premaxillary teeth […] and a variable number of replacement teeth. Because it is very difficult to distinguish replacement from attached teeth in unstained specimens, the examination of unstained material could have resulted in inflated tooth counts."

"Similarly, the number and arrangement of attached teeth on the interopercular and opercular tooth patches can only be clearly seen after staining. In *V. beccarii*, the attached teeth are consistent on all specimens although the number and arrangement of replacement teeth were variable. The interopercular tooth patch […] has 24 haphazardly arranged teeth, with small teeth anterior of the larger ones. The opercular teeth […] are arranged in three rows: the anterior row consists of five small teeth (counts include empty sockets), the middle row is composed of six large teeth and the posterior row contains two large teeth."

"In recently collected specimens, two bands of melanophores on the caudal peduncle extend onto the caudal fin […]. The dorsolateral band originates anterior of the base of the dorsal fin and extends along the dorsal margin of the peduncle at the base of the accessory caudal-fin rays. The ventrolateral band originates anterior of the base of the anal fin and extends along the ventral border of the peduncle. Both bands converge slightly on the caudal fin. The bands are connected by a vertical line of melanophores on the caudal fin (visible only under a microscope). This pigmentation pattern is faintly visible on the holotype (M. L. Azzaroli, pers. comm.). Specimens with black, distended intestines show a scattering of subcutaneous ovoid light-colored bodies (possibly containing fats) over the lateral surface of the gut […]."

"*V. beccarii* can be distinguished from all other vandelliines by the following combination of characters: caudal fin square or slightly emarginate; distinctive color pattern of two dark bands that extend from dorsal and anal fin converging onto caudal fin; anal-fin rays 6-7; pectoral-fin rays 6."

Biology

From Schmidt (1987):

"The black flocculent material in the intestines of several specimens is probably blood. *V. beccarii*, therefore, is probably parasitic on larger fishes like all other vandelliines. Recent specimens were all free swimming when collected in seines from tidal fresh water with no indication of what their hosts may be."

Human Uses

No information available.

Diseases

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

Threat to Humans

From Froese and Pauly (2016):

"Harmless"

3 Impacts of Introductions

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

The Florida Fish and Wildlife Conservation Commission has listed the parasitic catfish *V. beccarii* as a prohibited species (FFWCC 2017).

4 Global Distribution

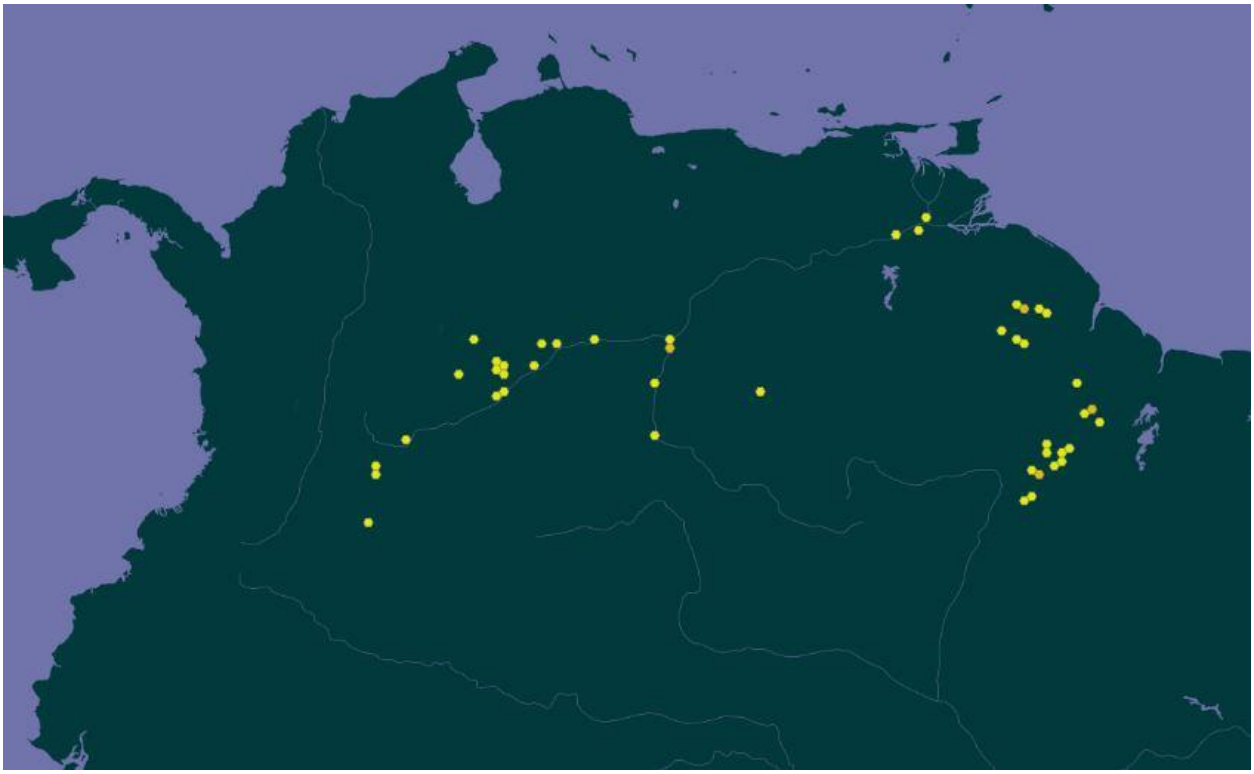


Figure 1. Known global distribution of *Vandellia beccarii*, reported from Colombia, Venezuela, and Guyana in South America. Map from GBIF Secretariat (2018).

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 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous United States was 0.0, which is a low climate match. (Scores between 0.000 and 0.005, inclusive, are classified as low.) The individual State climate scores were low in all States except for Florida, which had a medium climate score. The climate match was medium in southeastern Florida, medium-low along the Gulf Coast and Pacific Coast, and low elsewhere.

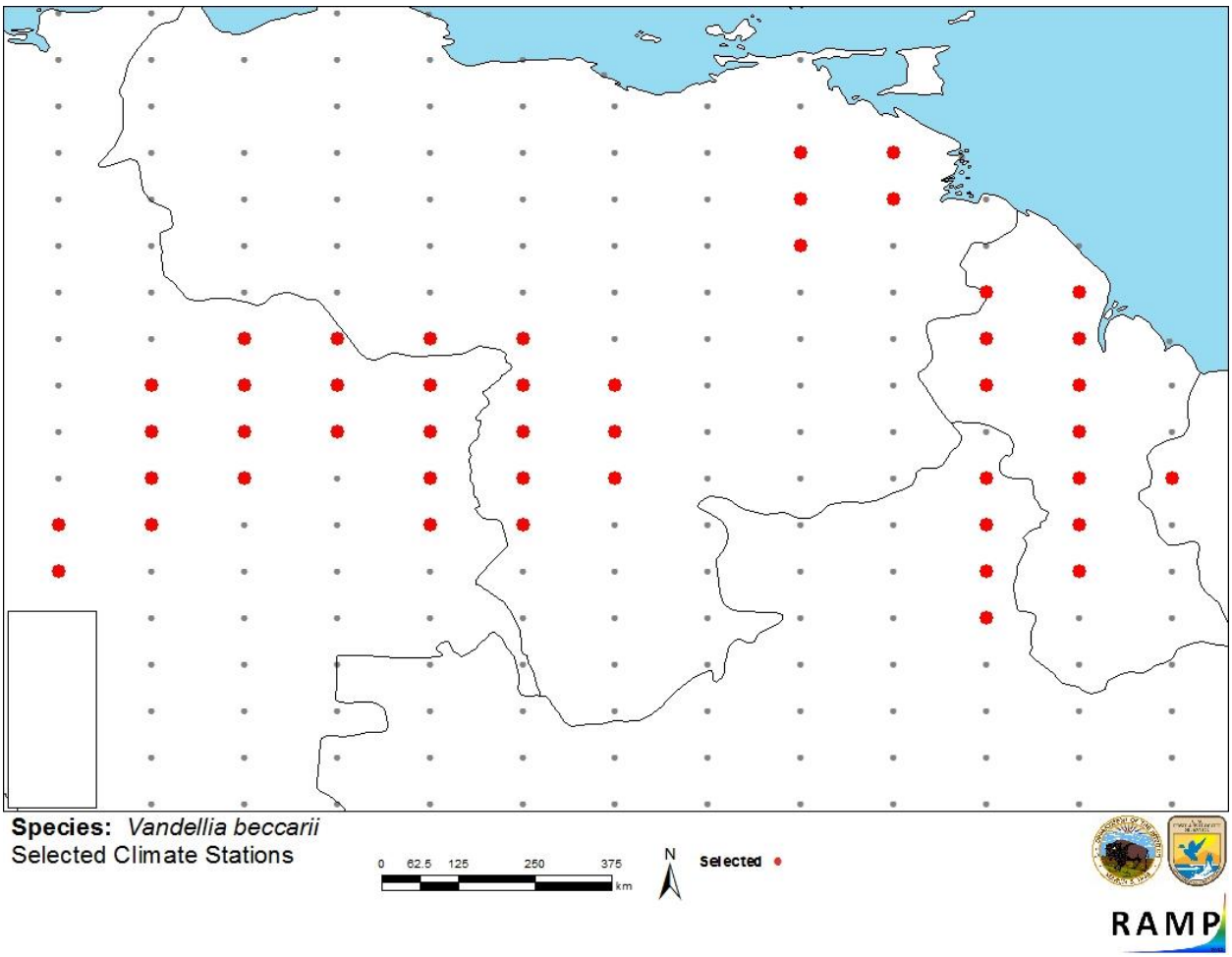


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red; Colombia, Venezuela, Brazil, Guyana, Suriname) and non-source locations (gray) for *Vandellia beccarii* climate matching. Source locations from GBIF Secretariat (2018). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

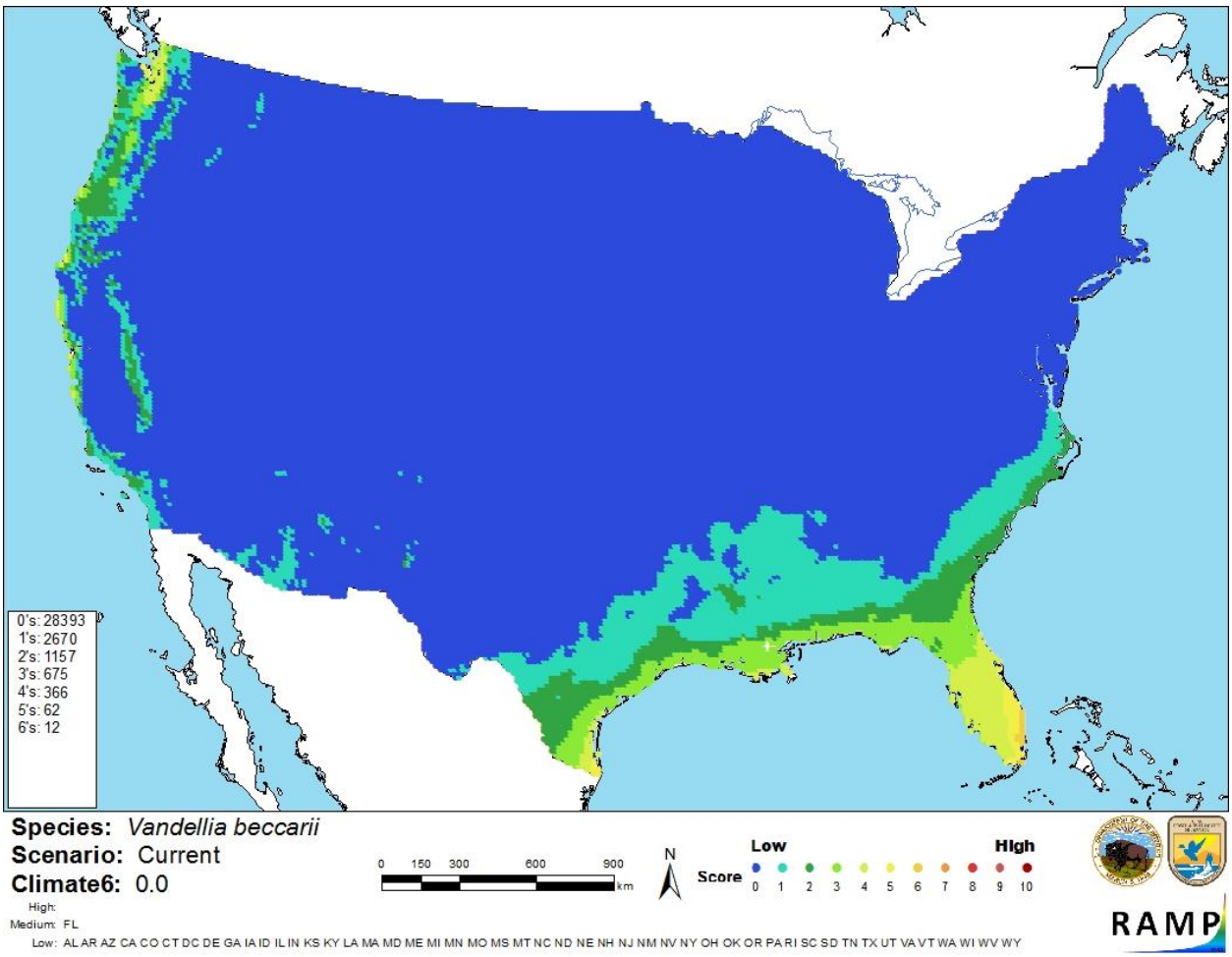


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Vandellia beccarii* in the contiguous United States based on source locations reported by GBIF Secretariat (2018). 0= Lowest match, 10=Highest match.

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

7 Certainty of Assessment

Vandellia beccarii has never been introduced outside its native range. Little is known about the biology and ecology of this species. The certainty of this assessment is low because of the lack of information about the species and potential impacts of its introduction.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Vandellia beccarii is a freshwater parasitic catfish native to the Orinoco River basin in South America. This species has a low climate match with the contiguous United States. It has not been reported as introduced outside of its native range, so history of invasiveness is uncertain. The Florida Fish and Wildlife Conservation Commission has listed the parasitic catfish *V. beccarii* as a prohibited species. Because no introductions of this species have been documented, potential adverse impacts of this species' introduction to the contiguous United States are unknown. Certainty of this assessment is low. The overall risk assessment category of 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.

Eschmeyer, W. N., R. Fricke, and R. van der Laan, editors. 2018. Catalog of fishes: genera, species, references. Available: http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp. (June 2018).

FFWCC (Florida Fish and Wildlife Conservation Commission). 2016. Prohibited species list. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida. Available: http://myfwc.com/wildlifehabitats/nonnatives/regulations/prohibited/#nogo. (January 2017).

Froese, R., and D. Pauly, editors. 2017. *Vandellia beccarii* Di Caporiacco, 1935. FishBase. Available: https://www.fishbase.de/summary/Vandellia-beccarii.html. (January 2017).

GBIF Secretariat. 2018. GBIF backbone taxonomy: *Vandellia beccarii* Di Caporiacco, 1935. Global Biodiversity Information Facility, Copenhagen. Available: https://www.gbif.org/species/5202901. (June 2018).

ITIS (Integrated Taxonomic Information System). 2017. *Vandellia beccarii* Di Caporiacco, 1935. Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=682291#null. (January 2017).

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

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

Schmidt, R. E. 1987. Redescription of *Vandellia beccarii* (Siluriformes: Trichomycteridae) from Guyana. Copeia 1987(1):234-237.

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.

di Caporiacco, L. 1935. Spedizione Nello Beccari nella Guiana Britannica. Monitore Zoologico Italiano 46(3):55-70.

de Pínna, M. C. C., and W. Wosiacki. 2003. Trichomycteridae (pencil or parasitic catfishes). Pages 270-290 *in* R. E. Reis, S. O. Kullander and C. J. Ferraris, Jr., editors. Checklist of the freshwater fishes of South and Central America. EDIPUCRS, Porto Alegre, Brazil.