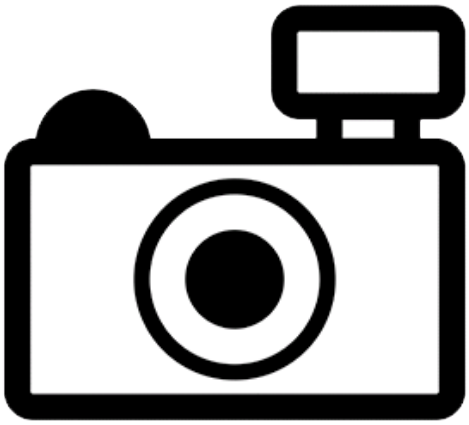
Desmopuntius gemellus (a fish, no common name)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, July 2013
Revised, July 2018
Web Version, 8/3/2018



No Photo Available

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2018):

"Asia: Sumatra, Indonesia."

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.

Means of Introductions in the United States

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

Remarks

From Seriously Fish (2018):

"It was formerly included in the genus *Puntius* which was for a number of years viewed as a polyphyletic catch-all containing over 100 species of small to mid-sized cyprinid until Pethiyagoda et al. (2012) published a partial review covering South Asian members."

Information searches in preparation of this report were conducted using the valid name *Desmopuntius gemellus* as well as the synonym *Puntius gemellus*.

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 Actinopterygii
              Class Teleostei
                Superorder Ostariophysi
                  Order Cypriniformes
                    Superfamily Cyprinoidea
                      Family Cyprinidae
                        Genus *Puntius*
                          Species *Puntius gemellus* Kottelat, 1996"

From Eschmeyer et al. (2018):

"Current status: Valid as *Desmopuntius gemellus* (Kottelat 1996). Cyprinidae: Smiliogastrinae."

Size, Weight, and Age Range

From Froese and Pauly (2018):

"Max length : 6.5 cm SL male/unsexed; [Kottelat 1996]"

Environment

From Froese and Pauly (2018):

"Freshwater; pelagic."

Climate/Range
From Froese and Pauly (2018):

"Tropical"

Distribution Outside the United States
Native
From Froese and Pauly (2018):

"Asia: Sumatra, Indonesia."

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 Seriously Fish (2018):

"*D. gemellus* can be told apart from the other three species by the following combination of characters: interaxial streak present on scale row +1 below dorsal-fin base; specimens larger than 20 mm SL with 5-6 dark lateral stripes on body; stripes thin, typically less than half a scale row deep; 2 pairs of barbels, posterior pair usually reaching beyond posterior margin of eye; 1/24/1/3 in transverse row between dorsal-fin origin and anal-fin origin; 7-11 gill rakers on anterior gill arch; mouth terminal; lower lip thin and post-labial groove interrupted medially; specimens smaller than 18 mm with 4-5 irregular dark fkank [*sic*] markings."

"Kottelat (2013) published a comprehensive nomenclatural update for Southeast Asian fishes in which the genus *Desmopuntius* was raised and diagnosed as follows: unique colour pattern made of 4–6 bars at least in juveniles, anterior bar across eye, 2nd bar behind gill opening, 3rd bar at dorsal-fin origin, 4th bar at anal-fin origin, 5th bar at middle of caudal peduncle, and 6th at caudal-fin base; often a black spot at posterior extremity of dorsal-fin base. In *D. gemellus*, *D. johorensis* and *D. trifasciatus* the barred pattern is present only in juveniles and with increasing size transforms into a striped pattern."

Biology
From Seriously Fish (2018):

"Wild fish are probably foragers feeding on diatoms, algae, organic detritus, small insects, worms, crustaceans, and other zooplankton."

Human Uses

From Seriously Fish (2018):

"This species is almost unknown in the aquarium hobby."

From Ng and Tan (1997):

"The wild-caught species currently traded can be approximately divided into three categories on the basis of how important they are to the trade."

"Category II are wild-caught species which are traded occasionally and/or in small numbers at the moment, but with a good potential for their increased popularity and export. Examples are […] zebra barb (*Puntius gemellus*), […]"

Diseases

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

Threat to Humans

From Froese and Pauly (2018):

"Harmless"

3 Impacts of Introductions

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

4 Global Distribution

Figure 1. Known global distribution of *Desmopuntius gemellus*, reported from Sumatra, Indonesia. 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 0.000, which is a low climate match. The range for a low climate match is from 0.000 to 0.005, inclusive. The climate match was categorically low in all states in the contiguous United States. Small areas of the Gulf Coast and Florida had a slightly higher, but still low, climate match.

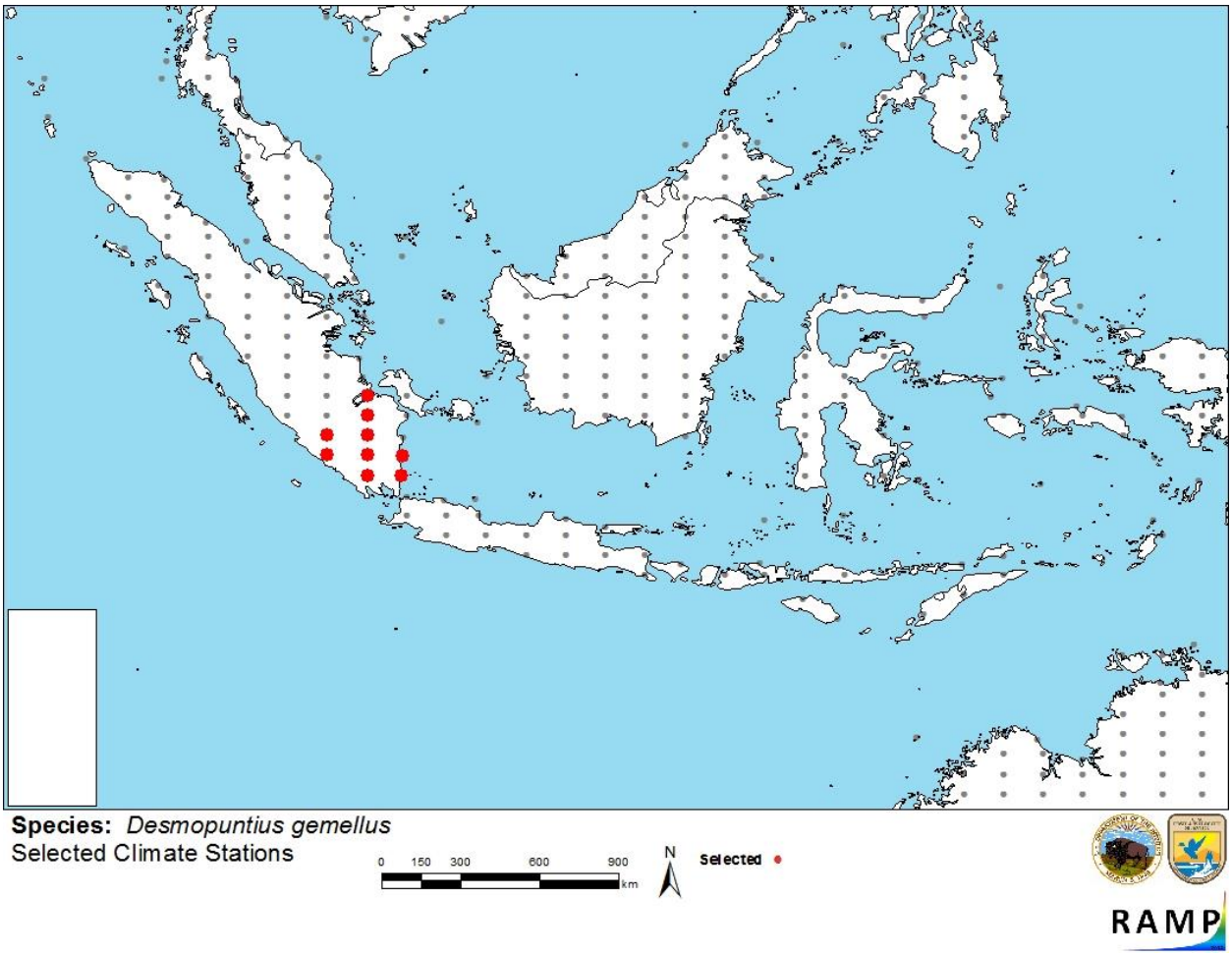


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations in Southeast Asia selected as source locations (red; Sumatra (Indonesia)) and non-source locations (gray) for *Desmopuntius gemellus* climate matching. Source locations from GBIF Secretariat (2018).

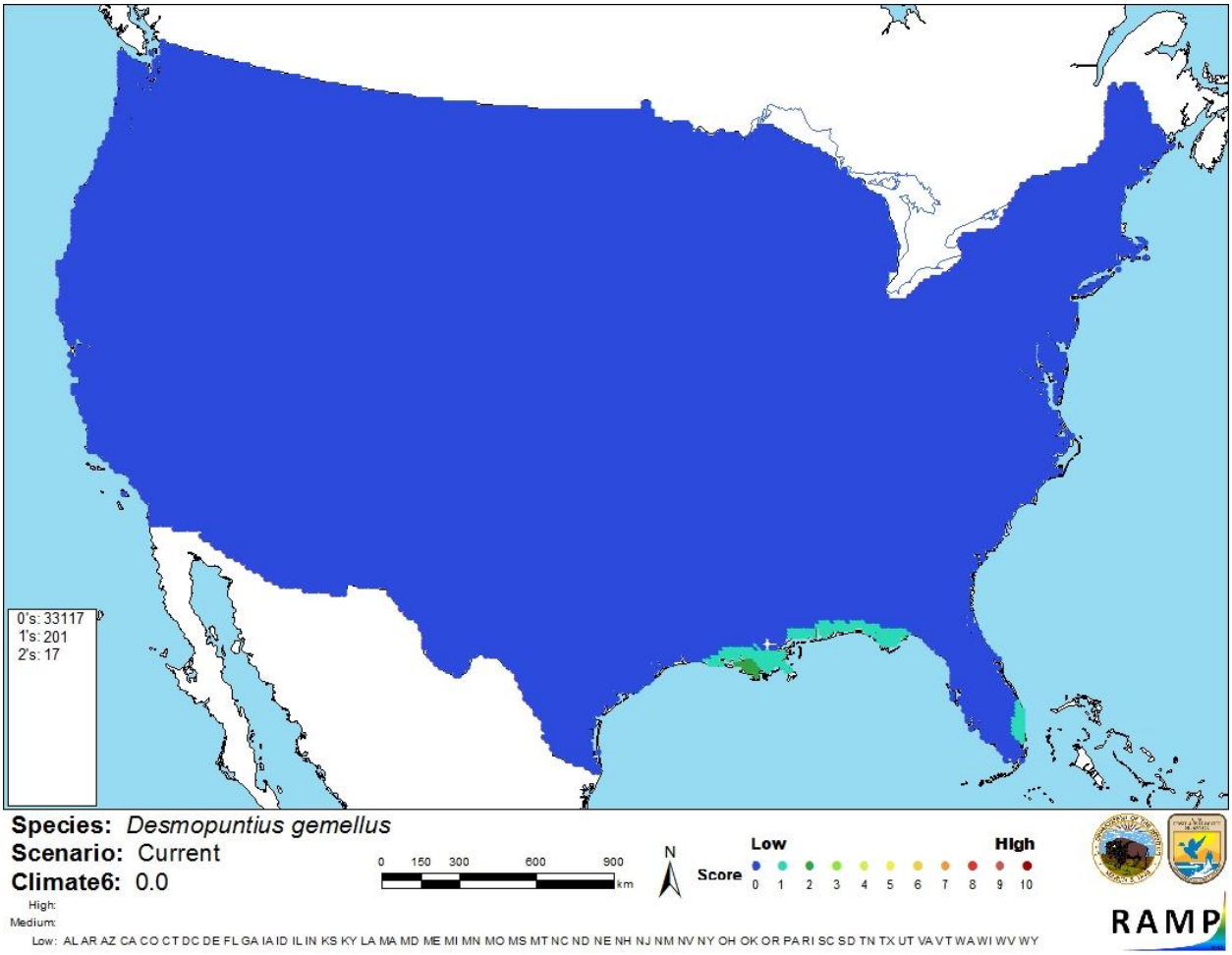


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Desmopuntius gemellus* in the contiguous United States based on source locations reported by GBIF Secretariat (2018). 0= Lowest match, 10=Highest match.

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

Peer-reviewed literature on the biology, ecology, and distribution associated with *Desmopuntius gemellus* is limited. It has never been reported as introduced outside of its native range, so no information is available on impacts of its introduction. More information and research on this species will be needed to increase the certainty of this assessment. Because of a lack of information, the certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Desmopuntius gemellus is a small cyprinid fish native to Sumatra in Indonesia. This species is rarely used in the aquarium trade, and does not appear to be in trade in the United States. *D. gemellus* has a low climate match with the contiguous United States, and it has never been documented as introduced outside of its native range. Further information is needed to adequately assess the risk this species poses to the contiguous United States, so the certainty of this assessment is low. The overall risk assessment category 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. (July 2018).

Froese, R., and D. Pauly, editors. 2018. *Desmopuntius gemellus* (Kottelat, 1996). FishBase. Available: https://www.fishbase.de/summary/Desmopuntius-gemellus.html. (July 2018).

GBIF Secretariat. 2018. GBIF backbone taxonomy: *Desmopuntius gemellus*, Kottelat, 1996. Global Biodiversity Information Facility, Copenhagen. Available: https://www.gbif.org/species/8192102. (July 2018).

ITIS (Integrated Taxonomic Information System). 2018. *Puntius gemellus* (Kottelat, 1996). Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=689807#null l. (July 2018).

Ng, P. K. L., and H. H. Tan. 1997. Freshwater Fishes of Southeast Asia: potential for the aquarium fish trade and conservation issues. Aquarium Sciences and Conservation 1:79-90.

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

Seriously Fish. 2018. *Desmopuntius gemellus* (*Puntius gemellus*). Available: https://www.seriouslyfish.com/species/desmopuntius-gemellus/. (July 2018).

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.

Kottelat, M. 1996. The identity of *Puntius eugrammus* and diagnoses of two new species of striped barbs (Teleostei: Cyprinidae) from southeast Asia. Raffles Bulletin of Zoology 44(1):301-316.

Kottelat, M. 2013. The fishes of the inland waters of southeast Asia: a catalogue and core bibliography of the fishes known to occur in freshwaters, mangroves and estuaries. Raffles Bulletin of Zoology Supplement 27:1-663.

Pethiyagoda, R., M. Meegaskumbura, and K. Maduwage. 2012. A synopsis of the South Asian fishes referred to *Puntius* (Pisces: Cyprinidae). Ichthyological Exploration of Freshwaters 23(1):69-95.