

***Barbodes kuchingensis* (a fish, no common name)**

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, January 2014

Revised, July 2018

Web Version, 8/2/2018



Photo: Shahbudin. Licensed under CC BY 3.0. Available:
<https://www.fishbase.de/Photos/ThumbnailsSummary.php?ID=27446#>. (July 2018).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2018):

“Asia: Sarawak, Malaysia and Kapuas basin, 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

Both the accepted name *Barbodes kuchingensis* and the synonym *Puntius kuchingensis* were used when researching in preparation of this assessment.

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 Ostariophysii
Order Cypriniformes
Superfamily Cyprinoidea
Family Cyprinidae
Genus *Puntius*
Species *Puntius kuchingensis* Herre, 1940”

From Eschmeyer et al. (2018):

“Current status: Valid as *Barbodes kuchingensis* (Herre 1940). Cyprinidae: Smiliogastrinae.”

Size, Weight, and Age Range

Doi et al. (2001) reported that the standard length of 581 individuals sampled in Sarawak, Malaysia, ranged between 1.3 and 11.6 cm.

Environment

From Froese and Pauly (2018):

“Freshwater; benthopelagic.”

From Seriously Fish (2018):

“It’s [...] been recorded from ancient peat swamps and associated black water streams with tannin-stained water, negligible mineral content and pH as low as 3.0 or 4.0.”

“[Aquarium Water] Temperature: 20 – 28 °C
pH: 5.0 – 7.5
Hardness: 18 – 215 ppm”

Climate/Range

From Froese and Pauly (2018):

“Tropical”

Distribution Outside the United States

Native

From Froese and Pauly (2018):

“Asia: Sarawak, Malaysia and Kapuas basin, 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):

“Though closely-affiliated with and superficially very similar to *B. lateristriga*, *B. kuchingensis* sensu stricto can be told apart by presence of a prominent row of dark spots along the lateral line, plus a short, horizontally-orientated streak extending from the upper part of the operculum [...]”

“Kottelat (2013) published a comprehensive nomenclatural update for Southeast Asian fishes in which this species was among a number of former *Puntius* transferred into the genus *Barbodes*. Members are told apart from related genera by the following aspects of ontogeny and colour pattern: small juveniles have 3-5 dots along the midlateral scale row, including one at middle of caudal- fin base, and an additional one at dorsal-fin origin; with increasing size, the spots on midlateral row may become more numerous and may fuse to form a stripe or broad band, and the spot at dorsal-fin origin may become a large blotch or a broad bar.”

“In addition, the following characters are useful in identification of *Barbodes* spp.: last simple dorsal-fin ray serrated posteriorly; rostral barbels present (except in *B. aurotaeniatus*); maxillary barbels present; lips smooth and thin, postlabial groove interrupted medially; lateral line complete or not, with 22–32 scales on lateral line row on body; ½/1/4½ scale rows between dorsal-fin origin and ventral midline in front of pelvic-fin base; 12 circumpeduncular scale rows; 12–15 gill rakers on first gill arch.”

Biology

From Inoue et al. (2003):

“*Puntius kuchingensis* and *P. binotatus* preferred slower and/or deeper water and occupied the bottom layer (low values of relative height) during the day [...]. They shifted their habitat use to the channel margin at night.”

“The best predictor of the CPUE [catch per unit effort] of *P. kuchingensis* was the length of eroded banks. Their abundance was lower in secondary-forest reaches, which had more eroded banks [...].”

“*Rasbora sarawakensis*, *R. caudimaculata*, *P. kuchingensis*, and *P. binotatus* were diurnal feeders and still at night (M. Inoue, T. Iwata, and S. Nakano, personal observation). Channel margins may be favorable resting habitats for them at night, owing to lower predation risks from aquatic predators (e.g. *Channa* spp.) due to shallow water (Power 1987) and to lower energy expenditure due to slow currents (Fausch 1984).”

From Froese and Pauly (2018):

“Inhabits pools in clear water streams in the forest and the foothills, usually over sandy to rocky substrate [Kottelat and Widjanarti 2005].”

From Seriously Fish (2018):

“Predominantly found in shallow forest streams containing clear water, sometimes in the pools that form at the base of waterfalls.”

“Substrates may comprise smooth, water-worn rocks and boulders of varying sizes, sand or gravel, often with submerged woody structures, leaf litter, and aquatic plants from genera such as *Cryptocoryne* or *Barclaya*.”

“Flow rate tends to vary both with locality and time of year.”

“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 rarely-exported [*sic*] for the aquarium hobby but is available on occasion.”

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

No information available. There are no documented introductions of this species outside of its native range.

4 Global Distribution



Figure 1. Known global distribution of *Barbodes kuchingensis*, reported from Borneo. 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. The range for a low climate match is from 0.0 to 0.005, inclusive. The climate match was uniformly low across the entire contiguous United States.

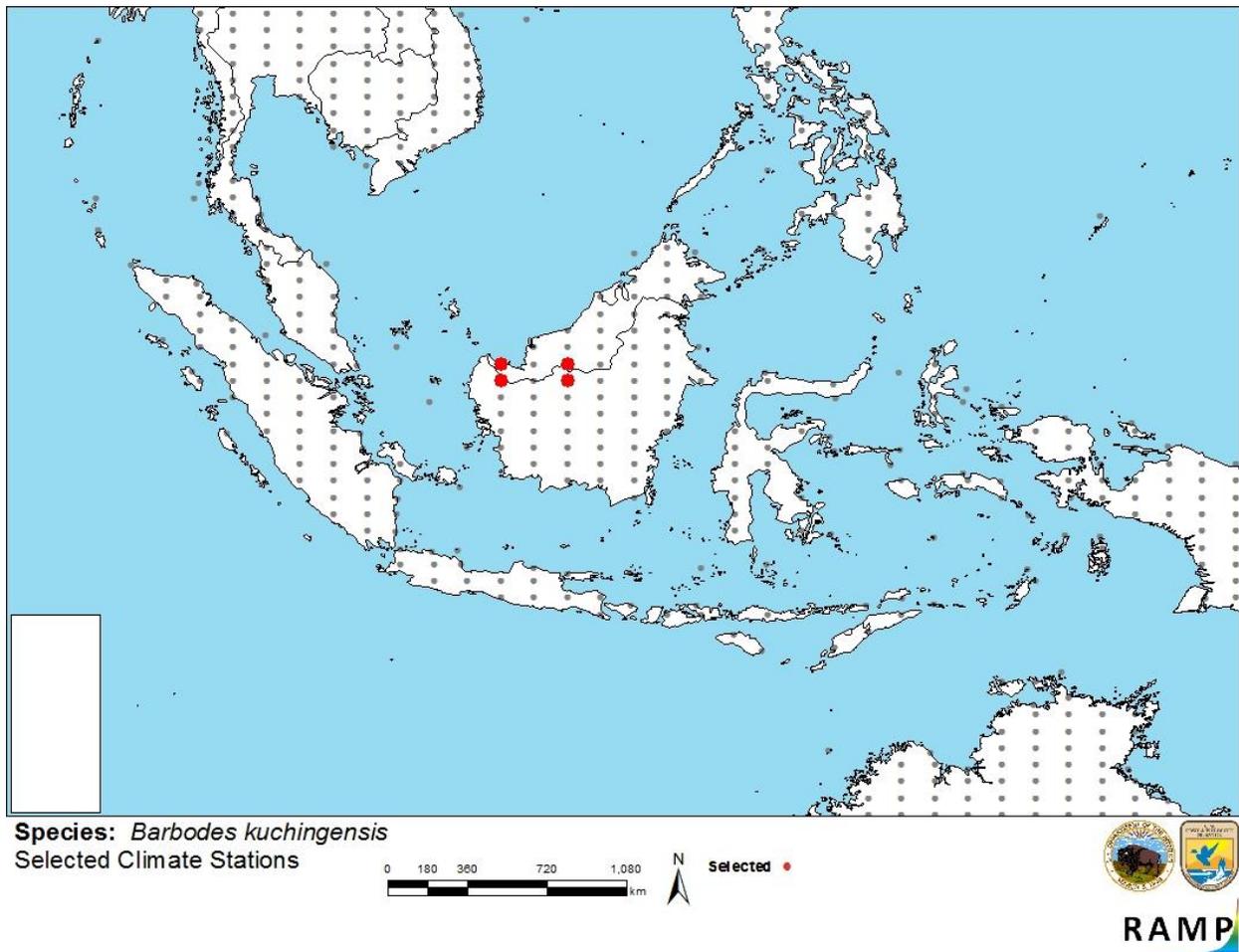


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations in Southeast Asia selected as source locations (red; Borneo (Malaysia and Indonesia)) and non-source locations (gray) for *Barbodes kuchingensis* climate matching. Source locations from GBIF Secretariat (2018).

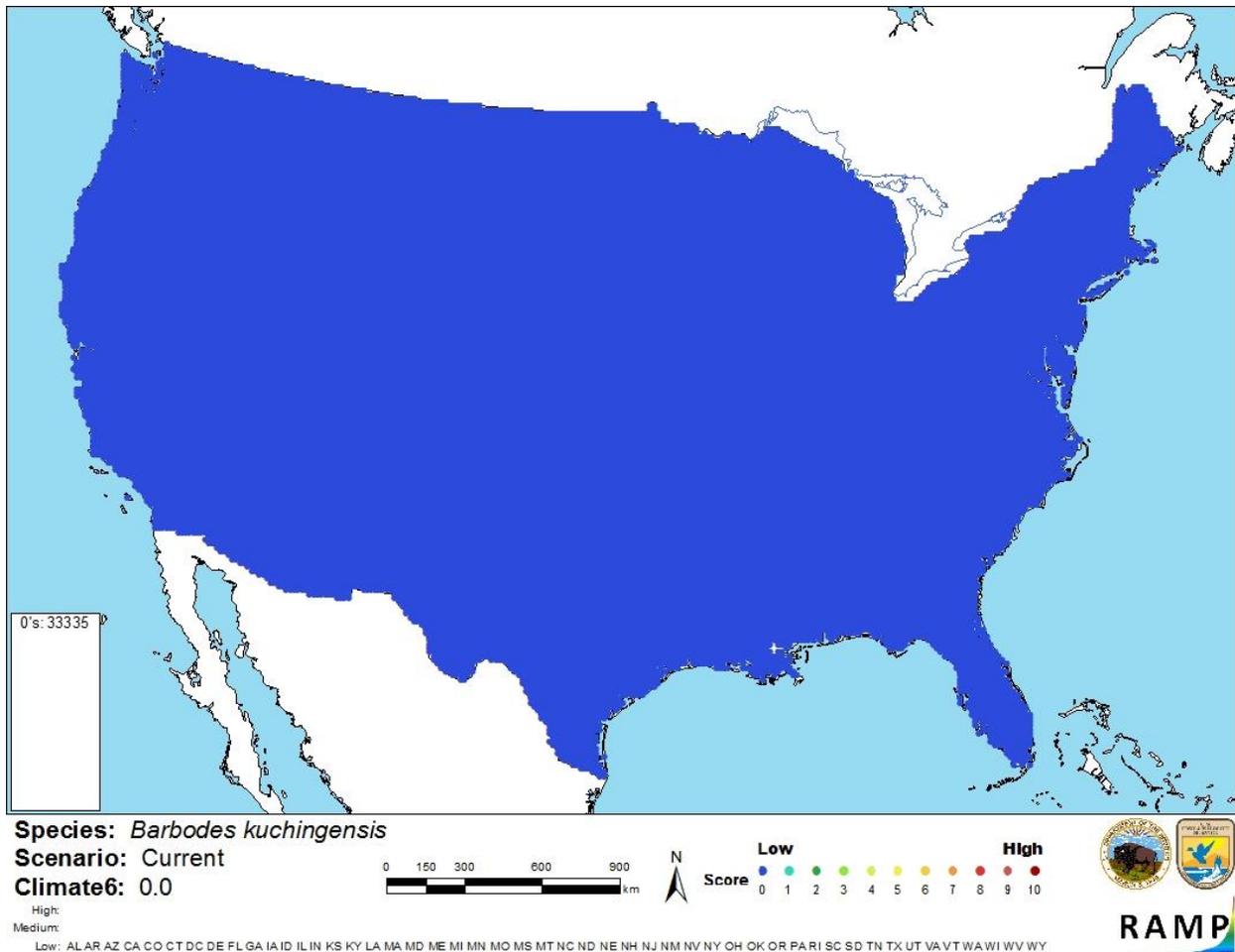


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Barbodes kuchingensis* in the contiguous United States based on source locations reported by GBIF Secretariat (2018). 0=Lowest match, 10=Highest match.

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
$0.000 \leq X < 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

7 Certainty of Assessment

The certainty of this assessment is low. There was limited biological and ecological information available for *Barbodes kuchingensis*. This species has never been reported as introduced or established outside of its native range, so no impacts of introductions of this species are available from which to base an assessment of risk.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Barbodes kuchingensis is a small freshwater cyprinid native to Indonesia and Malaysia. No introductions of this species outside of its native range have been documented. *B. kuchingensis* has a climate match that is uniformly very low across the entire contiguous United States. Due to a lack of information from which to base an assessment of risk, the certainty of this assessment is low, and 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.

Doi, A., T. Iwata, M. Inoue, H. Miyasaka, M. S. Sabki, and S. Nakano. 2001. A collection of freshwater fishes from the Rayu basin of western Sarawak, Malaysia. *Raffles Bulletin of Zoology* 49(1):13-18.

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. *Barbodes kuchingensis* (Herre, 1940). FishBase. Available: <https://www.fishbase.de/summary/27446>. (July 2018).

GBIF Secretariat. 2018. GBIF backbone taxonomy: *Barbodes kuchingensis*, Herre, 1940. Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/8074510>. (July 2018).

Inoue, M., T. Iwata, S. Nakano, A. Doi, and H. Miyasaka. 2003. Fish assemblage composition, abundance-habitat relationships and habitat use in tropical rain forest streams, Sarawak, Borneo: effects of past deforestation. *Biosphere Conservation* 5(2):71-86.

ITIS (Integrated Taxonomic Information System). 2018. *Puntius kuchingensis* (Herre, 1940). Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=689815#null. (July 2018).

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

Seriously Fish. 2018. *Barbodes kuchingensis*—False Spanner Barb (*Puntius kuchingensis*, *Puntius lateristriga punctatus*). Available: <https://www.seriouslyfish.com/species/barbodes-kuchingensis/>. (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.

Fausch, K. D. 1984. Profitable stream positions for salmonids: relating specific growth rate to net energy gain. *Canadian Journal of Zoology* 62:441-451.

Kottelat, M., and E. Widjanarti. 2005. The fishes of Danau Sentarum National Park and the Kapuas Lakes area, Kalimantan Barat, Indonesia. *Raffles Bulletin of Zoology Supplement* (13):139-173.

Power, M. E. 1987. Predator avoidance by grazing fishes in temperate and tropical streams: importance of stream depth and prey size. Pages 331-351 *in* W. C. Kerfoot and A. Sih, editors. *Predation: Direct and indirect impacts on aquatic communities*. University Press of New England, Hanover, New Hampshire.