Puntius brevis (a fish, no common name)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, February 2013
Revised, March 2019
Web Version, 8/8/2019

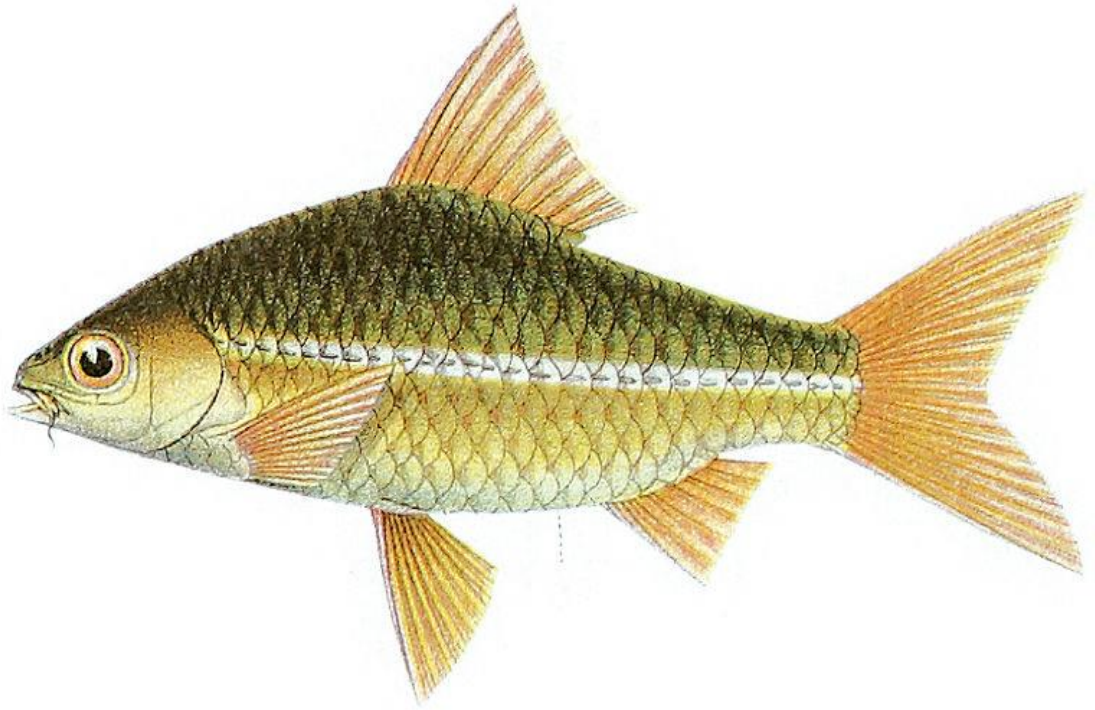

Image: Zoologische Mededelingen. Licensed under Creative Commons Attribution 3.0 Unported. Available: https://commons.wikimedia.org/wiki/File:Puntius_brevis_Bleeker.jpg. (March 2019).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2019):

"Asia: Mekong and Chao Phraya basins, Malay Peninsula and Java."

From Allen (2012):

"Recorded from the Mekong (Lao PDR, Thailand, Viet Nam, and Cambodia) and Chao Phraya basins (Thailand upstream to Chiang Mai), Malaysia (Peninsula) and Indonesia (Java)."

Status in the United States

There are no records of any established wild populations of *Puntius brevis* in the United States. No records of *P. brevis* in trade in the United States were found.

Means of Introductions in the United States

There are no records of any established wild populations of *Puntius brevis* in the United States.

Remarks

No additional remarks.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From Fricke et al. (2019):

"**Current status:** Valid as *Puntius brevis* (Bleeker 1849)."

From ITIS (2019):

"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 brevis* (Bleeker, 1850)"

Size, Weight, and Age Range

From Froese and Pauly (2019):

"Max length : 12.0 cm SL male/unsexed; [Baird et al. 1999]"

Environment
From Froese and Pauly (2019):

"Freshwater; benthopelagic."

Climate/Range
From Froese and Pauly (2019):

"Tropical"

Distribution Outside the United States
Native
From Froese and Pauly (2019):

"Asia: Mekong and Chao Phraya basins, Malay Peninsula and Java."

From Allen (2012):

"Recorded from the Mekong (Lao PDR, Thailand, Viet Nam, and Cambodia) and Chao Phraya basins (Thailand upstream to Chiang Mai), Malaysia (Peninsula) and Indonesia (Java)."

Introduced
No records of introductions of *Puntius brevis* outside of its native range.

Means of Introduction Outside the United States
No records of introductions of *Puntius brevis* outside of its native range.

Short Description
From Froese and Pauly (2019):

"The last simple dorsal ray without serration along its posterior margin; 1 pair of maxillary barbels; a black blotch on caudal peduncle [Kottelat 1998]; lateral line complete; no discrete dark spot at base of anterior dorsal-fin rays [Rainboth 1996]."

Biology
From Froese and Pauly (2019):

"Usually found in slow moving or standing water [Kottelat 1998]. Occurs in floodplains, canals, ditches and small sluggish streams. Proliferates in impoundments, and lives in areas with abundant aquatic vegetation. Feeds on crustaceans, tubificid worms, algae and zooplankton. Moves into newly inundated land during flood season and spawns there [Rainboth 1996; Vidthayanon 2002]."

Human Uses
From Allen (2012):

"Found in commercial and subsistence fisheries."

Diseases
No records of OIE-reportable diseases (OIE 2019) were found for *Puntius brevis*.

According to Poelen et al. (2014) *Puntius brevis* is host to Southeast Asian liver fluke (*Opisthorchis viverrini*) and *Haplorchoides mehrai*.

According to Han et al. (2008) *Puntius brevis* is a second intermediate host to *Centrocestus formosanus*.

Threat to Humans
From Froese and Pauly (2019):

"Harmless"

3 Impacts of Introductions

No records of introductions of *Puntius brevis* outside of its native range were found; therefore, there is no information on impacts of introduction.

4 Global Distribution

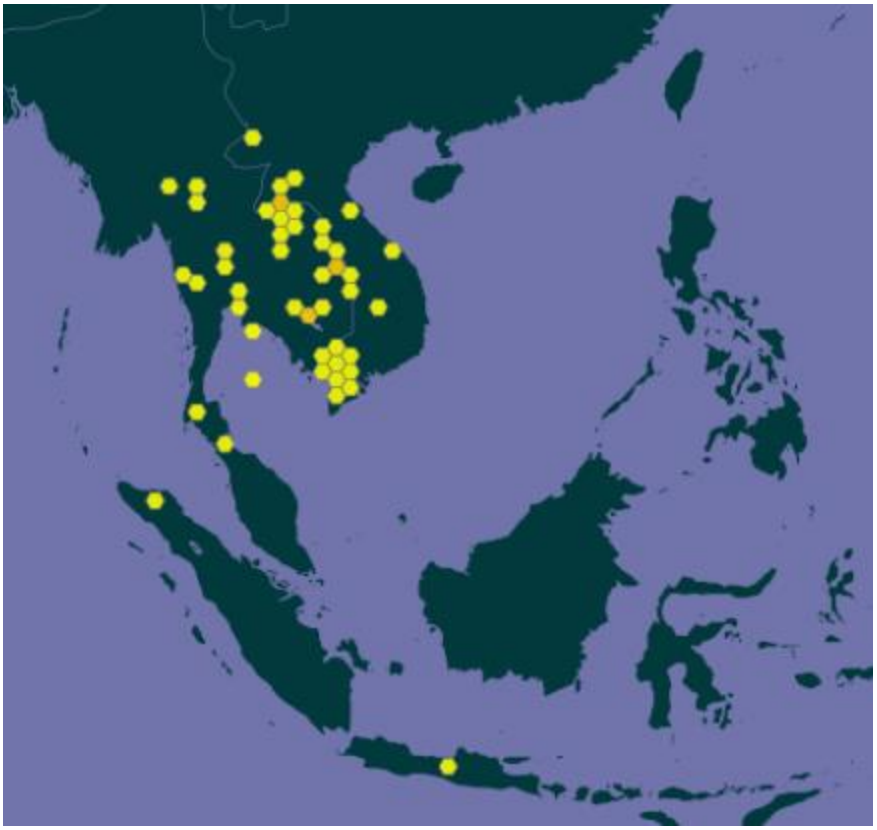

Figure 1. Known global distribution of *Puntius brevis*. Locations are in Thailand, Laos, Cambodia, Vietnam, and Indonesia. Map from GBIF Secretariat (2019).

No georeferenced observations were available in peninsular Malaysia to be used in selecting source points for the climate match.

5 Distribution Within the United States

There are no records of any established wild populations of *Puntius brevis* in the United States.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Puntius brevis* was low for a majority of the contiguous United States. There were some patches of medium match along the southern border in Florida and Texas. 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 a low individual Climate 6 score.

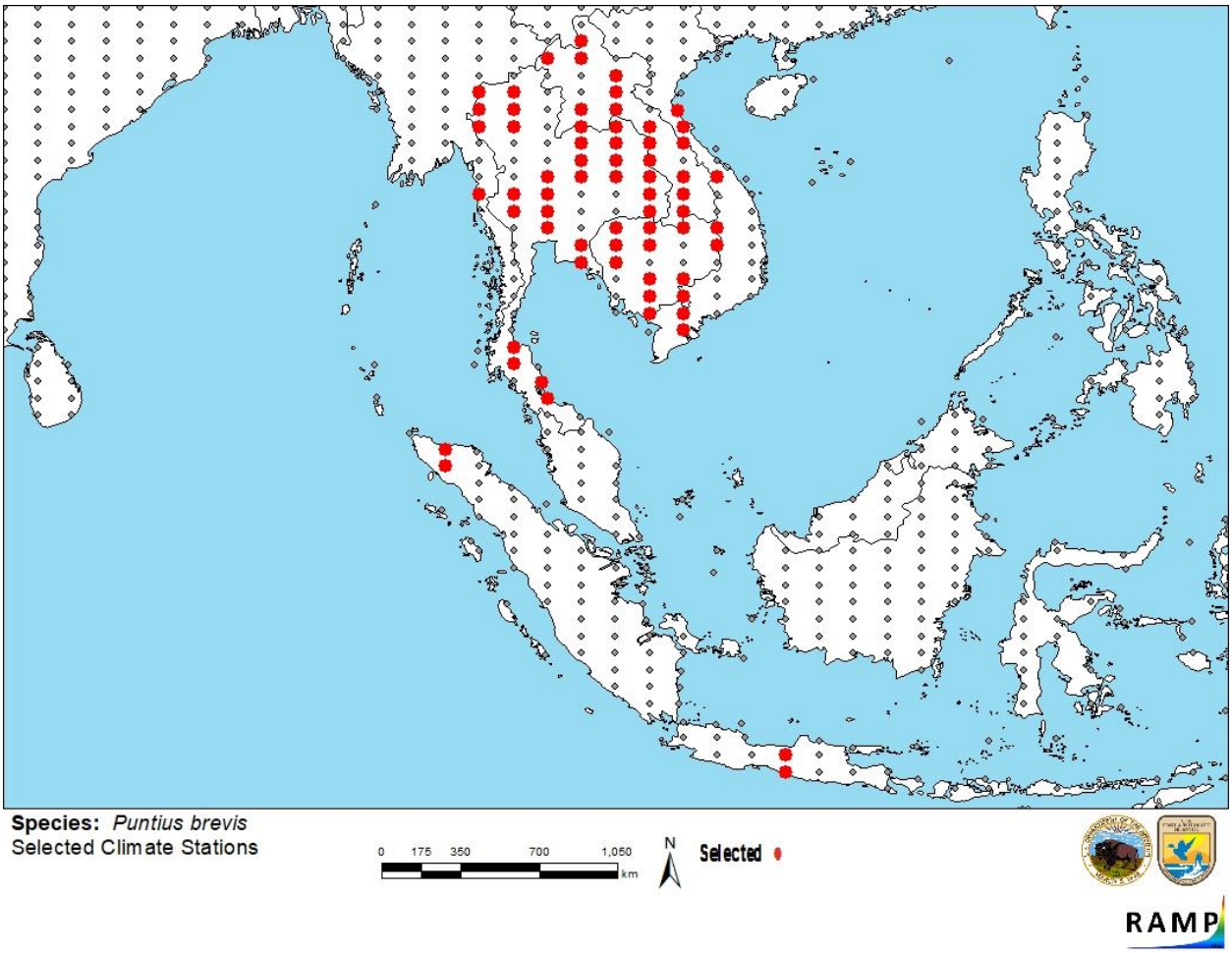

Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in southeast Asia selected as source locations (red; Myanmar, Thailand, Vietnam, Cambodia, Laos, and Indonesia) and non-source locations (gray) for *Puntius brevis* climate matching. Source locations from GBIF Secretariat (2019). Source locations were selected to be within 100km of known observations of the species and do not represent actual observation locations (Sanders et al. 2018).

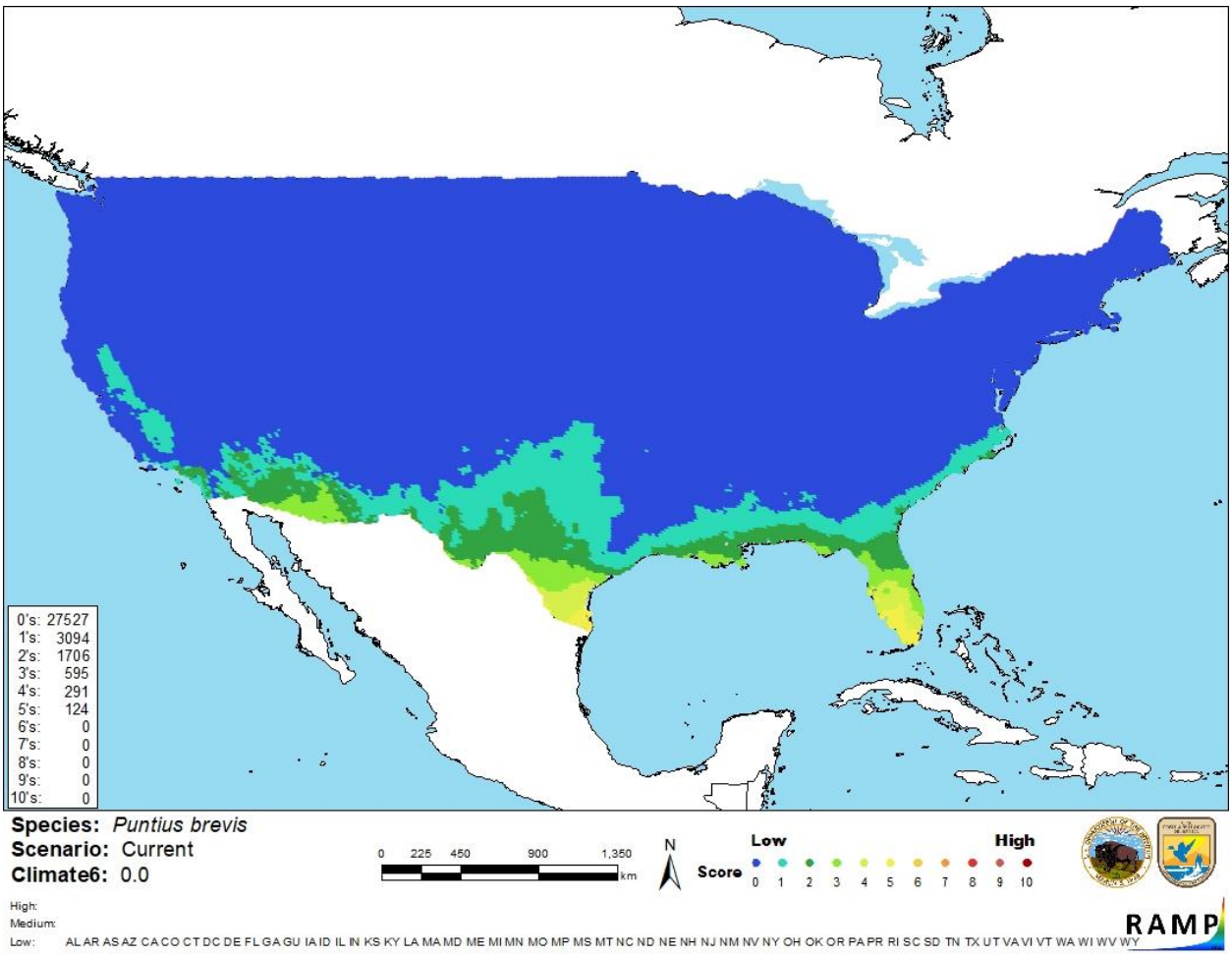

Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Puntius brevis* in the contiguous United States based on source locations reported by GBIF Secretariat (2019). 0 = Lowest match, 10 = Highest match.

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

The certainty of assessment for *Puntius brevis* is low. There was some information on the biology and environment, but it was limited. *Puntius brevis* has not been reported as introduced outside of its native range. Therefore there is no information on impacts of introductions.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Puntius brevis is a fish native to the Mekong and Chao Phraya basins, Malay Peninsula, and Java. It is used for commercial and subsistence fishing. The history of invasiveness is uncertain. It has not been reported outside of its native range. The climate match for the contiguous United States was low with all states having low individual climate scores. The certainty of assessment is low. The overall risk assessment category for *Puntius brevis* is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): Low**
- **Certainty of Assessment (Sec. 7): Low**
- **Remarks/Important additional information: No additional remarks.**
- **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.

Allen, D. J. 2012. *Puntius brevis*. The IUCN Red List of Threatened Species 2012: e.T180959A1682359. Available: https://www.iucnredlist.org/species/180959/1682359 (March 2019).

Fricke, R., W. N. Eschmeyer, and R. van der Laan, editors. 2019. Eschmeyer's catalog of fishes: genera, species, references. Available: http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp. (March 2019).

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Han, E. T., E. H. Shin, S. Phommakorn, B. Sengvilaykham, J. L. Kim, H. J. Rim, and J. Y. Chai. 2008. *Centrocestus formosanus* (Digenea: Heterophyidae) encysted in the freshwater fish, *Puntius brevis*, from Lao PDR. Korean Journal of Parasitology 46(1):49–53.

ITIS (Integrated Taxonomic Information System). 2019. *Puntius brevis* (Bleeker, 1849). Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=689790#null. (March 2019).

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

Poelen, J. H., J. D. Simons, and C. J. Mungall. 2014. Global Biotic Interactions: an open infrastructure to share and analyze species-interaction datasets. Ecological Informatics 24:148–159.

Sanders, S., C. Castiglione, and M. Hoff. 2018. Risk assessment mapping program: RAMP, version 3.1. U.S. Fish and Wildlife Service.

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.

Baird, I. G., V. Inthaphaisy, P. Kisouvannalath, B. Phylavanh, and B. Mounsouphom. 1999. The fishes of southern Lao. Lao Community Fisheries and Dolphin Protection Project. Ministry of Agriculture and Forestry, Lao PDR.

Kottelat, M. 1998. Fishes of the Nam Theun and Xe Bangfai basins, Laos, with diagnoses of twenty-two new species (Teleostei: Cyprinidae, Balitoridae, Cobitidae, Coiidae and Odontobutidae). Ichthyological Exploration of Freshwaters 9(1):1–128.

Rainboth, W. J. 1996. Fishes of the Cambodian Mekong. FAO species identification field guide for fishery purposes. FAO, Rome.

Vidthayanon, C. 2002. Peat swamp fishes of Thailand. Office of Environmental Policy and Planning, Bangkok, Thailand.