

Burmese Bumblebee Barb (*Pethia tiantian*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, February 2013

Revised, March 2019

Web Version, 6/19/2020

Organism Type: Fish

Overall Risk Assessment Category: Uncertain



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1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2019):

“Asia: northern Myanmar.”

From Dahanukar (2015):

“Known only from the vicinity of Putao in northern Myanmar (Kullander and Fang 2005).”

Status in the United States

Pethia tiantian has not been reported in the wild or in trade in the United States.

Means of Introductions in the United States

Pethia tiantian has not been reported in the wild or in trade in the United States.

Remarks

Pethia tiantian and the synonym, *Puntius tiantian*, were used to conduct research for this species.

From Dahanukar (2015):

“*Pethia tiantian* is currently known only from two populations despite extensive survey (Kullander and Fang 2005). The populations are only 10 km apart. Restricted population and small number of localities qualifies the species for threatened categories, [...]”

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Fricke et al. (2019), the current and valid name of this species is *Pethia tiantian* (Kullander and Fang 2005). The original name of this species was *Puntius tiantian* (Kullander and Fang 2005).

From GBIF Secretariat (2019):

“Kingdom Animalia
Phylum Chordata
Order Cypriniformes
Family Cyprinidae
Genus *Pethia*
Species *Pethia tiantian* (Kullander and Fang, 2005)”

Size, Weight, and Age Range

From Froese and Pauly (2019):

“Max length : 4.5 cm SL male/unsexed; [Kullander and Fang 2005]”

Environment

From Froese and Pauly (2019):

“Freshwater; benthopelagic; depth range 0 - 1 m [Kullander and Fang 2005].”

Climate

From Froese and Pauly (2019):

“Tropical”

Distribution Outside the United States

Native

From Froese and Pauly (2019):

“Asia: northern Myanmar.”

From Dahanukar (2015):

“Known only from the vicinity of Putao in northern Myanmar (Kullander and Fang 2005).”

Introduced

Pethia tiantian has not been reported as introduced anywhere outside of its native range.

Means of Introduction Outside the United States

Pethia tiantian has not been reported as introduced anywhere outside of its native range.

Short Description

From Froese and Pauly (2019):

“Dorsal spines (total): 0; Dorsal soft rays (total): 11-12; Anal spines: 0; Anal soft rays: 8; Vertebrae: 29 - 31. A member of the *Puntius conchoni* group uniquely distinguishable by the shape of the last unbranched dorsal fin ray which is slender, flexible and with short serrations posteriorly. Similar to *P. cumingii*, *P. didi* and *P. meingangbii* by presence of a dark vertical bar anteriorly on side and a dark round blotch on caudal peduncle; differs from these species by lateral line continued to caudal fin base vs. present on only 5 to 10 scales. Distinguished from the geographically close *P. didi* by body depth 35.4-39.8% SL vs. 40.4-48.2% SL and dorsal fin length 23.2-26.0% SL vs. 26.6-31.8% SL, and males with a single dark band across dorsal and anal fin vs. two series of black elongate marks in dorsal fin and one series of black marks in anal fin [Kullander and Fang 2005].”

From Rajasekaran and Sivakumar (2016):

“[...] shares a relatively small eye only with *P. tiantian*.”

From Knight et al. (2012):

“[...] humeral blotch being more of a bar gradually becoming narrower at the level of pectoral fin in *P. tiantian* [...]”

“[...] flexible and short serrated unbranched dorsal fin ray [...]”

Biology

From Froese and Pauly (2019):

“Occurs in a small hill stream, about 3 m wide on average, flowing through low forest, with grass and shrub along banks and over a varied bottom with rock, gravel and sand [Kullander and Fang 2005].”

From Kullander (2017)

“Known only from small hillstreams near Putao, northern Myanmar. At the time of collecting in the low water season, the streams, in a setting of hilly low forests, were shallow, mostly less than 0.5 m deep, [...] with clear water running over gravel, rocks or sand (Kullander, 2012 [...]). The velocity was relatively fast, including frequent riffles.”

Human Uses

No information on human uses was found.

Diseases

No information on diseases was found. **No OIE-reportable diseases (OIE 2020) were found to be associated with *Pethia tiantian*.**

Threat to Humans

From Froese and Pauly (2019):

“Harmless”

3 Impacts of Introductions

Pethia tiantian has not been reported as introduced anywhere outside of their native range.

4 History of Invasiveness

Pethia tiantian has not been reported as introduced anywhere outside of their native range, therefore the history of invasiveness is No Known Nonnative Population.

5 Global Distribution

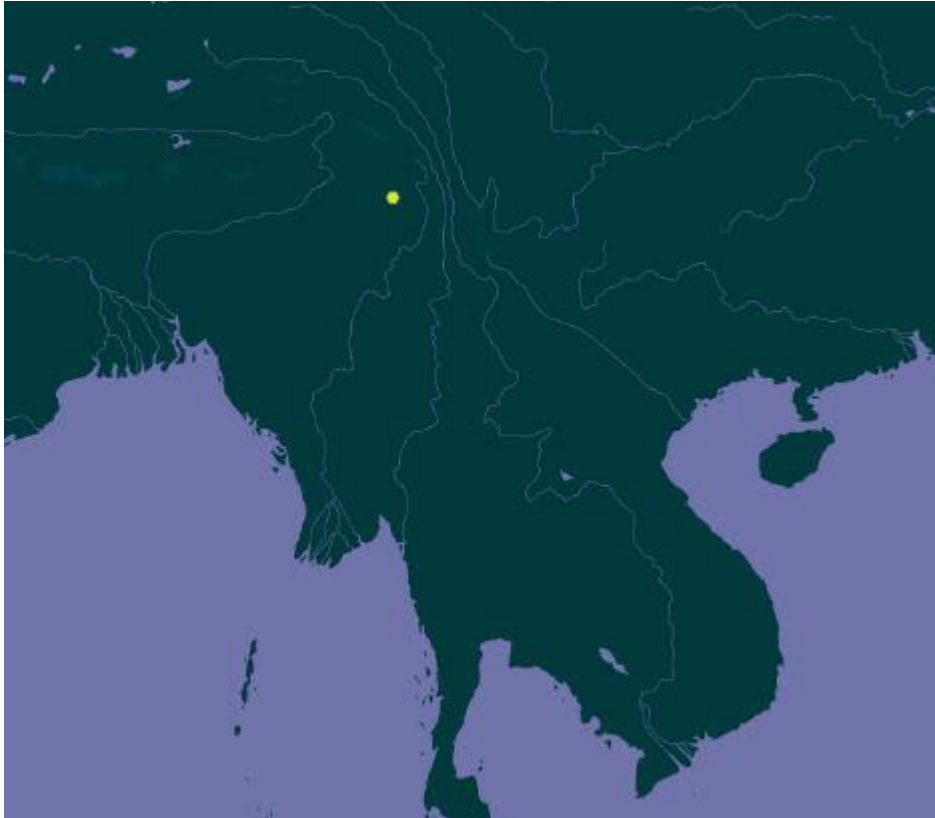


Figure 1. Known global distribution of *Pethia tiantian*. Location is in Myanmar. Map from GBIF Secretariat (2019).

6 Distribution Within the United States

Pethia tiantian has not been reported anywhere within the United States.

7 Climate Matching

Summary of Climate Matching Analysis

The climate match for the contiguous United States was consistently low across all States. There are no areas of medium or high match in any state. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for contiguous United States was 0.000, low (scores between 0.000 and 0.005, inclusive, are classified as low). All States received low individual Climate 6 scores.

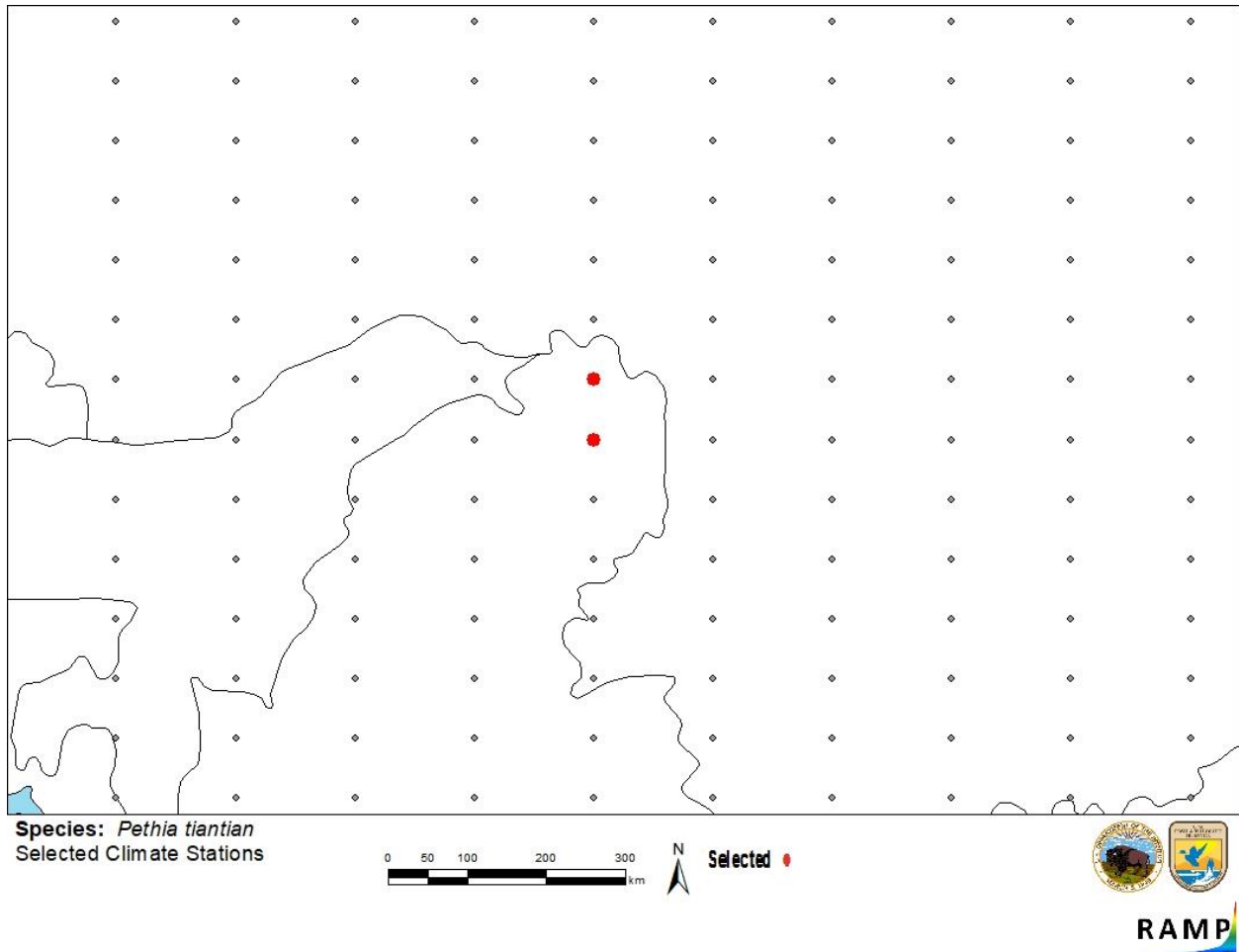


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in northern Myanmar (southern Asia) selected as source locations (red) and non-source locations (gray) for *Pethia tiantian* climate matching. Source locations from GBIF Secretariat (2019). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

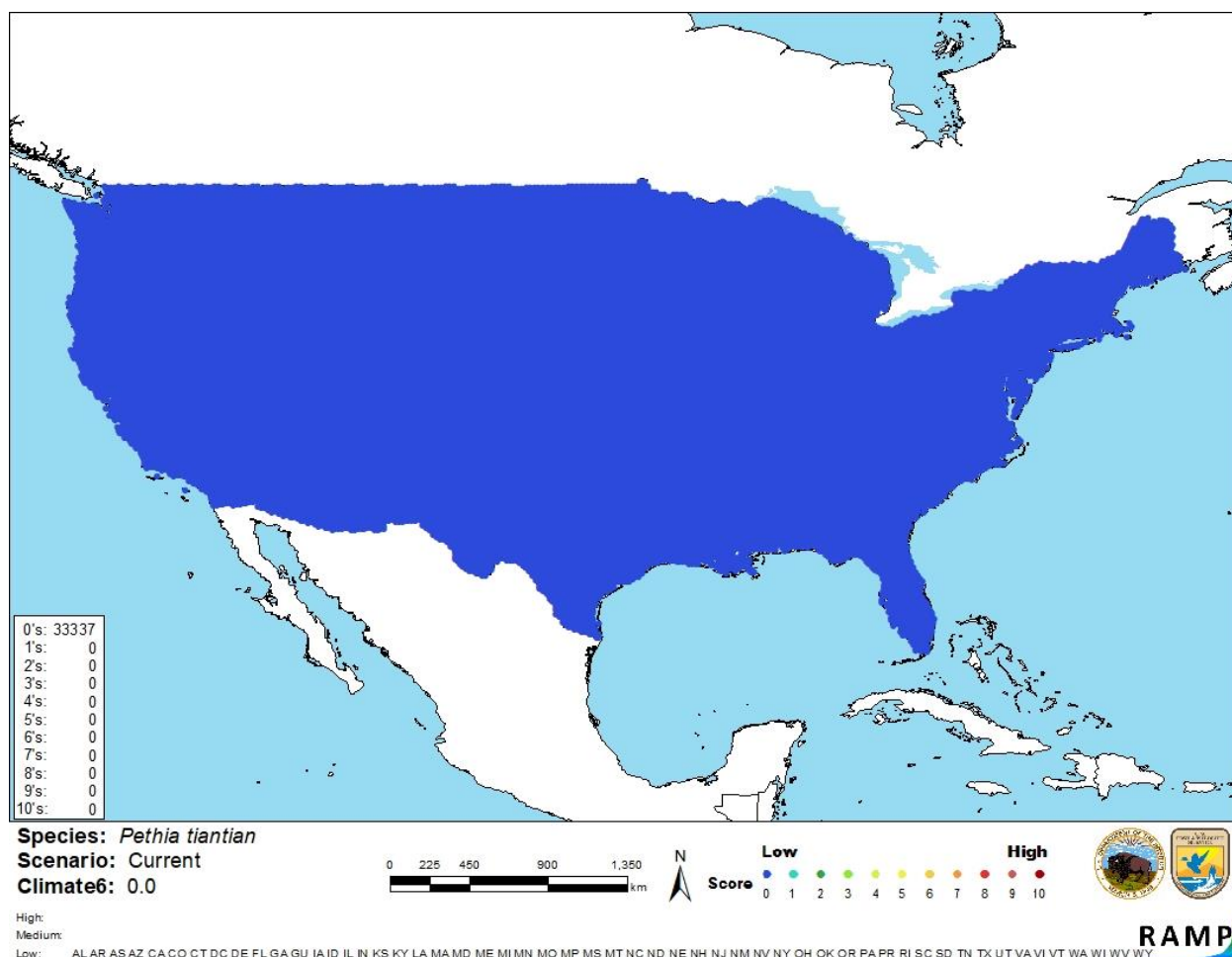


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Pethia tiantian* in the contiguous United States based on source locations reported by GBIF Secretariat (2019). Counts of climate match scores are tabulated on the left. 0/Blue = Lowest match, 10/Red = Highest match.

The High, Medium, and Low Climate match Categories are based on the following table:

Climate 6: (Count of target points with climate scores 6-10)/ (Count of all target points)	Overall Climate Match Category
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

8 Certainty of Assessment

Limited information is available for *Pethia tiantian*. *P. tiantian* has not been introduced anywhere outside of its native range. The certainty of assessment is low because of a lack of information.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Pethia tiantian, Burmese Bumblebee Barb, is native to Putao in northern Myanmar. Only two populations have been recorded. *P. tiantian* can be found in shallow, fast moving streams. *Pethia tiantian* has not been introduced anywhere outside of its native range nor is it found in trade. The history of invasiveness is classified as No Known Nonnative Population. The climate match for the contiguous United States is low, with no areas of medium or high match. The certainty of assessment is low due to lack of information. The overall risk assessment category for *Pethia tiantian* is Uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 4): No Known Nonnative Population**
- **Overall Climate Match Category (Sec. 7): Low**
- **Certainty of Assessment (Sec. 8): Low**
- **Remarks/Important additional information: No additional information**
- **Overall Risk Assessment Category: Uncertain**

10 Literature Cited

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 11.

- Dahanukar N. 2015. *Pethia tiantian*. The IUCN Red List of Threatened Species 2015: e.T168533A70438505. Available: <https://www.iucnredlist.org/species/168533/70438505> (March 2019).
- Fricke R, Eschmeyer WN, van der Laan R, editors. 2019. Eschmeyer's catalog of fishes: genera, species, references. California Academy of Science. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp> (February 2019).
- Froese R, Pauly D, editors. 2019. *Pethia tiantian* (Kullander and Fang, 2005). FishBase. Available: <https://www.fishbase.de/summary/Pethia-tiantian.html> (March 2019).
- GBIF Secretariat. 2019. GBIF backbone taxonomy: *Pethia tiantian* (Kullander and Fang, 2005). Copenhagen: Global Biodiversity Information Facility. Available: <https://www.gbif.org/species/7482615> (March 2019).
- Knight JDM, Devi KR, Indra TJ, Arunachalam M. 2012. A new species of barb *Puntius nigripinnis* (Teleostei: Cyprinidae) from southern Western Ghats, India. Journal of Threatened Taxa 4:2409–2416.

Kullander SO. 2017. *Devario fangae* and *Devario myitkyinae*, two new species of danionin cyprinids from northern Myanmar (Teleostei: Cyprinidae: Danioninae). *Zootaxa* 4227:407–421.

[OIE] World Organisation for Animal Health. 2020. OIE-listed diseases, infections and infestations in force in 2020. Available: <http://www.oie.int/animal-health-in-the-world/oie-listed-diseases-2020/> (June 2020).

Rajasekaran N, Sivakumar R. 2016. Biometric and DNA barcoding of rosy barb *Puntius conchoni* (Hamilton, 1822) along Lower Anicut and Mananjeri, Tamil Nadu. *European Journal of Biotechnology and Bioscience* 4:5–10.

Sanders S, Castiglione C, Hoff M. 2018. Risk Assessment Mapping Program: RAMP. Version 3.1. U.S. Fish and Wildlife Service.

11 Literature Cited in Quoted Material

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.

Kullander SO, Fang F. 2005. Two new species of *Puntius* from northern Myanmar (Teleostei: Cyprinidae). *Copeia* 2005:290–302.

Kullander SO. 2012. [Source material did not give full citation for this reference.]