

***Pethia manipurensis* (a fish, no common name)**

Ecological Risk Screening Summary

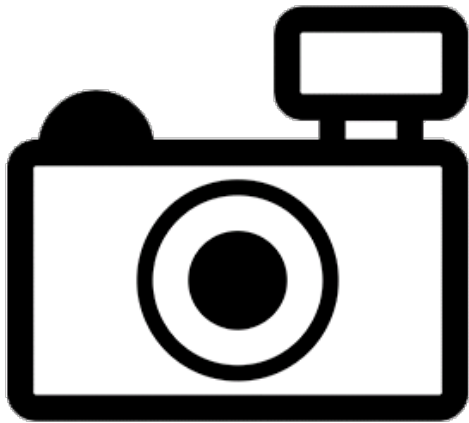
U.S. Fish & Wildlife Service, October 2013

Revised, October 2018

Web Version, 1/6/2021

Organism Type: Fish

Overall Risk Assessment Category: Uncertain



No Photo Available

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2018a):

“Asia: India.”

“[In India:] Known from the Loktak Lake, Manipur [Knight et al. 2012]. Type locality, Lake Loktak, Moirang [Eschmeyer 2003].”

From Singh (2015):

“*Pethia manipurensis* has a restricted range of less than 120 km² and may even be less than 100 km² with the area of occupancy of this lake endemic being less than 100 km².”

Status in the United States

No records of *Pethia manipurens* in the wild or in trade in the United States were found.

Pethia manipurens falls within Group I of New Mexico's Department of Game and Fish Director's Species Importation List (New Mexico Department of Game and Fish 2010). Group I species "are designated semi-domesticated animals and do not require an importation permit."

Means of Introductions in the United States

No records of *Pethia manipurens* in the wild in the United States were found.

Remarks

The name change to *Pethia manipurens* from *Puntius manipurens* is recent (Fricke et al. 2018); therefore, information searches were conducted using both names.

From Singh (2015):

"Its habitat and quality are declining due to siltation, eutrophication, water quality deterioration. These threats are likely to continue as there is continuous inflow of nutrients rich soil from the catchment area, sewage from the municipal areas and agricultural residue from the surrounding agricultural fields. The species is under severe threat and is assessed as Endangered."

"*Pethia manipurens* is known only from the Loktak Lake, Manipur, India. which [*sic*] is a protected area. The state Government of Manipur is greatly concerned about the deteriorating conditions of the Loktak Lake. During 1986 the Loktak Development Authority (LDA) was constituted by the state Government to check deterioration of Loktak lake and to bring improvement in the areas of power generation, fisheries, tourism and siltation control etc. Recently, the Government of Manipur has notified the Manipur Loktak lake (Protection) Act, 2006 and Loktak lake (Protection) Rules, 2008, which would improve functioning of the authority by reorganizing and bringing legislative basis for lake management."

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Fricke et al. (2018), *Pethia manipurens* is the valid name for this species. It was originally described as *Puntius manipurens*.

From Froese and Pauly (2018b):

"Animalia (Kingdom) > Chordata (Phylum) > Vertebrata (Subphylum) > Gnathostomata (Superclass) > [...] Actinopterygii (Class) > Cypriniformes (Order) > Cyprinidae (Family) > Barbinae (Subfamily) > *Pethia* (Genus) > *Pethia manipurens* (Species)"

Size, Weight, and Age Range

From Froese and Pauly (2018a):

“Max length : 6.2 cm SL male/unsexed; [Knight et al. 2012]”

Environment

From Froese and Pauly (2018a):

“Freshwater; benthopelagic.”

Climate

From Froese and Pauly (2018a):

“Tropical”

Distribution Outside the United States

Native

From Froese and Pauly (2018a):

“Asia: India.”

“[In India:] Known from the Loktak Lake, Manipur [Knight et al. 2012]. Type locality, Lake Loktak, Moirang [Eschmeyer 2003].”

From Singh (2015):

“*Pethia manipurensis* has a restricted range of less than 120 km² and may even be less than 100 km² with the area of occupancy of this lake endemic being less than 100 km².”

Introduced

No records of introductions of *Pethia manipurensis* were found.

Means of Introduction Outside the United States

No records of introductions of *Pethia manipurensis* were found.

Short Description

From Motilan et al. (2014):

“Freshwater fish subfamily (Cyprininae) includes barbs [*Pethia manipurensis*] which are characteristic in having large scales, bright colours, [...] which made them popular in the aquarium trade (Clyde, et.al., 1997).”

Biology

From Motilan et al. (2014):

“In their natural habitats the species breed in ponds, lakes, paddy fields, rivers, streams and small pits.”

Human Uses

From Motilan et al. (2014):

“*Pethia manipurensis* locally known as Ngaka meingangbi in Manipuri is an economically important fish for preparation of Hentak and Ngari, the two important solid substrate fermented fish products which enhance flavour of food for Manipuri (Sarojnalini and Vishwanath, 1988).”

From Basudha et al. (2018):

“*Pethia manipurensis* is a beautiful bright coloured species having potential target species in ornamental fish species.”

According to Jayalal and Ramachandran (2012), *Pethia manipurensis* (under the name *Punitus manipurensis*) is exported from India in the ornamental trade.

From Raghavan et al. (2013):

“Although there were no customs records showing the exports of 24 species, many specimens of four threatened cyprinids *Dawkinsia arulius*, *D. rohani*, *Devario assamensis* and *Pethia manipurensis*, confirmed to have come from India, were encountered in wholesale and retail shops in Germany and Singapore in 2010 and 2011. This is a clear indication that several threatened species are exported after ‘mislabelling’ or labelling under the general ‘live ornamental fish’ code.”

From Yumnam et al. (2012):

“Interestingly, folkloric treatment utilizing materials other than herbal source are also to be noted that some edible and ornamental fish species of Manipur like *Monopterus albus*, *Acantophthalmus pangia*, *Clarias batrachus*, *Anguilla bengalensis*, *Puntius manipurensis*, *P. ticto*, *Channa orientalis* etc. have been used in the treatment of certain disease like mal-nutrition, Anaemia [*sic*], hormone formation, asthma, purification of blood, stomach ulcer, and protein deficiency.”

Diseases

No information on parasites or pathogens of *Pethia manipurensis* was found. **No records of OIE-reportable diseases (OIE 2021) were found for *P. manipurensis*.**

Threat to Humans

From Froese and Pauly (2018a):

“Harmless”

3 Impacts of Introductions

No records of introductions of *Pethia manipurensis* were found; therefore, there is no information on impacts of introductions.

4 History of Invasiveness

No records of introductions of *Pethia manipurensis* were found; therefore, the history of invasiveness is classified as “no known nonnative population.”

5 Global Distribution



Figure 1. Location of Lake Loktok in the Manipur state of India. *Pethia manipurensis* is endemic to Lake Loktok (Singh 2015; Froese and Pauly 2018a). Map from Google Maps (2018).

Coordinates for collections of *Pethia manipurensis* are given in Basudha et al. (2018). These observations were used to select source points for the climate match.

6 Distribution Within the United States

No records of *Pethia manipurensis* in the wild in the United States were found.

7 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Pethia manipurensis* was low across the contiguous United States. There were no areas of medium or high match. 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 had low individual climate 6 scores.

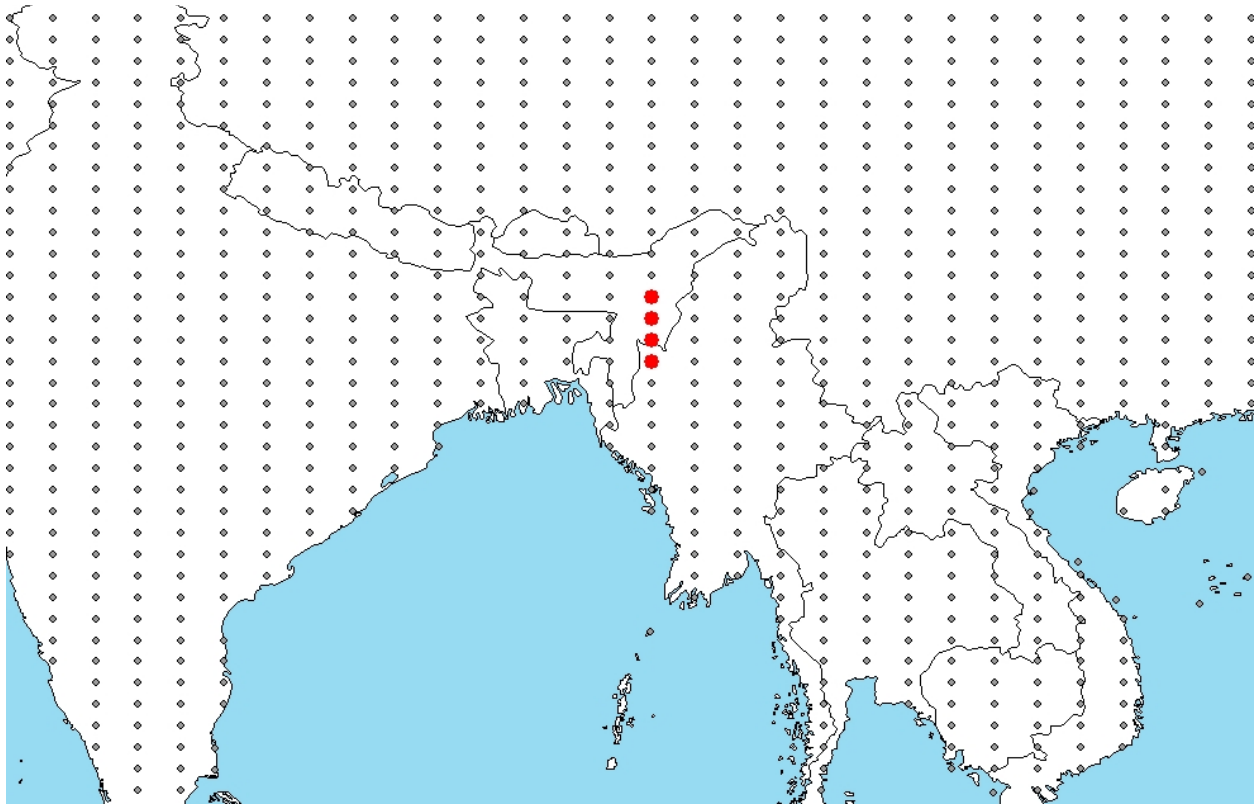


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in southern Asia selected as source locations (red; India, Myanmar) and non-source locations (gray) for *Pethia manipurensis* climate matching. Source locations from Basudha et al. (2018). Selected source locations are within 100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

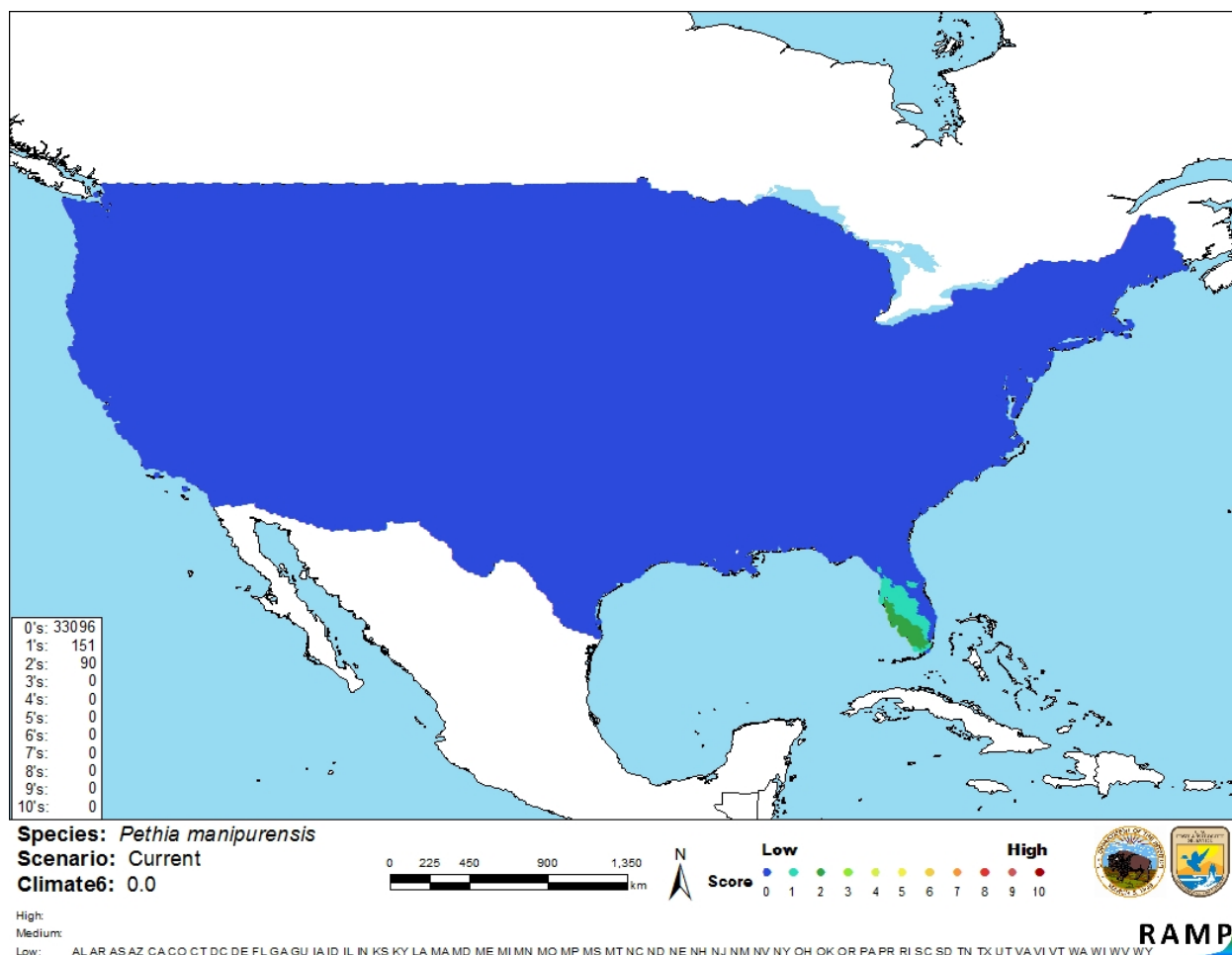


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Pethia manipurensis* in the contiguous United States based on source locations reported by Basudha et al. (2018). Counts of climate match scores are tabulated on the left. 0/Blue = Lowest match, 10/Red = Highest match.

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

The certainty of assessment for *Pethia manipurensis* is low. There is minimal biological and ecological information available. Information on human uses of this species was the most plentiful and from peer-reviewed literature. No records of introduction were found so there is no information on impacts to evaluate.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Pethia manipurensis is a species of small fish native to Lake Loktok in India. The fish is used in local foods, medicine, and has been exported as part of the aquarium trade. The lake it is endemic to is part of a conservation area and there is concern over the population status of this species. The history of invasiveness is classified as “no known nonnative population.” There were no records of introduction found. *P. manipurensis* is present in the aquarium trade but no information was available regarding the time in trade or volume of trade. The climate match is low. There are no areas of medium or high match in the contiguous United States. The certainty of assessment is low. There is a general lack of biological information. The overall risk assessment category 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.

Basudha Ch, Sobita N, Sushindrajit N. 2018. Studies on morphological variation in three barbin fishes (Cyprinidae: Barbinae) from different water areas of Manipur, India. *Indian Journal of Animal Research* 52:687–694.

Fricke R, Eschmeyer WN, van der Laan R, editors. 2018. Catalog of fishes: genera, species, references. California Academy of Science. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp> (October 2018).

Froese R, Pauly D, editors. 2018a. *Pethia manipurensis* (Menon, Rema Devi & Vishwanath, 2000). FishBase. Available: <http://www.fishbase.org/summary/Pethia-manipurensis.html> (October 2018).

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<https://www.google.com/maps/place/Loktak+Lake/@24.5534215,93.7407992,5z/data=!4m5!3m4!1s0x37493416caa759a7:0x9c989130312efe8e!8m2!3d24.5593375!4d93.8146526> (October 2018).
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- [OIE] World Organisation for Animal Health. 2021. OIE-listed diseases, infections and infestations in force in 2020. Available: <http://www.oie.int/animal-health-in-the-world/oie-listed-diseases-2020/> (January 2021).
- Sanders S, Castiglione C, Hoff M. 2018. Risk Assessment Mapping Program: RAMP. Version 3.1. U.S. Fish and Wildlife Service.
- Singh L. 2015. *Pethia manipurensis*. The IUCN Red List of Threatened Species 2015: e.T168450A70100378. Available: <https://www.iucnredlist.org/species/168450/70100378> (October 2018).
- Yumnam RS, Devi CHO, Abujam SKS, Chetia D. 2012. Study on the ethnomedicinal system of Manipur. *International Journal of Pharmaceutical and Biological Archives* 3:587–591.

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.

- Eschmeyer WN, editor. 2003. Catalog of fishes. Updated database version of March 2003. Catalog databases as made available to FishBase in March 2003.

Knight, JDM, Rema Devi K, 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.

Sarojnalini Ch, Vishwanath W. 1988. Composition and digestibility of fermented fish foods of Manipur. *Journal of Food Science Technology* 25:349–351.