

# Ticto Barb (*Pethia ticto*)

## Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, July 2017  
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[https://commons.wikimedia.org/wiki/File:Pethia\\_ticto.JPG](https://commons.wikimedia.org/wiki/File:Pethia_ticto.JPG). (July 2017).

## 1 Native Range and Status in the United States

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### Native Range

From Froese and Pauly (2017):

“Asia: Pakistan, India, Nepal, Sri Lanka, Bangladesh, Myanmar and Thailand [Talwar and Jhingran 1991]. Occurs in the upper Mekong, Salween, Irrawaddy, Meklong and upper Chao Phraya basins [Kottelat 2001].”

## Status in the United States

This species has not been reported as introduced or established in the United States. No reference was found to trade within the U.S.

## Means of Introductions in the United States

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

## Remarks

From Dahanukar (2015):

“Synonym(s):

*Cyprinus ticto* Hamilton, 1822  
*Puntius ticto* (Hamilton, 1822)”

“Common Name(s):

English: Ticto Barb, Firefin Barb, Tic-tac-toe Barb, Two-spot Barb”

From Seriously Fish (2017):

“This species’ name is frequently misapplied to the congener *P. padamya* in aquarium literature though in reality the two are easy to tell apart as *P. ticto* is much the less colourful fish with males lacking reddish-orange pigmentation on the body.”

“The genus *Puntius* was viewed as a polyphyletic catch-all containing over 100 species of small to mid-sized cyprinid for a number of years until Pethiyagoda et al. (2012) published a partial review covering South Asian members. The majority of sub-Himalayan *Puntius* species were reclassified and new genera *Dawkinsia*, *Dravidia*, and *Pethia* erected to accomodate some of them, with the remainder either retained in *Puntius* or moved to the existing *Systemus* assemblage, though the definition of the latter was altered meaning some Southeast Asian species formerly placed there are no longer members.”

## 2 Biology and Ecology

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### Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2017):

“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 ticto* (Hamilton, 1822) – two-spot barb”

From Eschmeyer et al. (2017):

“Current status: Valid as *Pethia ticto* (Hamilton 1822). Cyprinidae: Cyprininae.”

The valid name according to Eschmeyer et al. (2017) is adopted in this assessment because this source uses the most up-to-date taxonomic references for fish. See Remarks section, above, for an explanation of the movement of *Puntius* species to the genus *Pethia*.

### **Size, Weight, and Age Range**

From Froese and Pauly (2017):

“Max length : 10.0 cm TL male/unsexed; [Talwar and Jhingran 1991]”

### **Environment**

From Froese and Pauly (2017):

“Freshwater; brackish; benthopelagic; pH range: 6.5 - 7.0; dH range: ? - 10; potamodromous [Riede 2004].”

“14°C - 22°C [Riehl and Baensch 1991; assumed to be recommended aquarium water temperature based on information source]”

### **Climate/Range**

From Froese and Pauly (2017):

“Subtropical [...]”

From Dahanukar (2015):

“Inhabits mostly montane and submontane regions, and flood plains.”

### **Distribution Outside the United States**

Native

From Froese and Pauly (2017):

“Asia: Pakistan, India, Nepal, Sri Lanka, Bangladesh, Myanmar and Thailand [Talwar and Jhingran 1991]. Occurs in the upper Mekong, Salween, Irrawaddy, Meklong and upper Chao Phraya basins [Kottelat 2001].”

## 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 Linthoingambi and Vishwanath (2007):

“Body deep, its depth 36.8-45.0% SL; last simple ray of dorsal fin long, spiny and serrated posteriorly with 15-17 serrae, spine length 20.6-28.0% SL, 78.3-88.6% HL; lateral line incomplete with 22-26 scales in the row, 6-11 pored; preanal scales 16; two spots along lateral line scale row, one on the 4th scale and second on 17th -20th scales; two complete black bands on dorsal fin.”

“Dorsal fin origin a little behind that of pelvic fin, inserted midway between tip of snout and base of caudal fin; 3 simple and 8 branched rays; third simple ray long, spiny and finely serrated posteriorly with 15-17 serrae. Pectoral fin with 1 posteriorly serrated simple ray and 12 branched rays, almost reaching the pelvic fin origin. Pelvic fin with 8-9 rays, the 1st and last two undivided. Anal fin with 3 simple and 5 branched rays. Caudal fin with 10+9 principal rays, 9+8 branched.”

“Scales large. Lateral line incomplete, 22-26 in the row with 6-11 pored.  $\frac{1}{2}$  scales between dorsal fin origin and lateral-line row,  $5\frac{1}{2}$  between lateral line and pelvic fin origin. Predorsal scales 9-10. Preanal scales 16.”

“Predorsal bones 4, predorsal neural spines 4. First pterygiophore inserted between 8th and 9th vertebrae. Total vertebrae 4+26.”

“Colouration. A black spot on the 4th scale and one on 17th -20th scales of lateral line row. Two black bands on dorsal fin, the first at middle length on the membranes between the branched rays and the second on the branched rays at about  $\frac{3}{4}$  length of the fin from its base.”

From Seriously Fish (2017):

“Adult males are noticeably slimmer and more colourful than females, especially the unpaired and ventral fins.”

## Biology

From Froese and Pauly (2017):

“Found in still, shallow, marginal waters of tanks and rivers, mostly with muddy bottoms. They browse close to the substrate in shallow water. Feed on crustaceans, insects and plankton. About 150 eggs are laid in batches of about 20 at a time; eggs hatch in about a day, and fry are free-swimming the next day.”

From Seriously Fish (2017):

“Like most small cyprinids *Pethia* spp. are egg-scattering free spawners exhibiting no parental care.”

## Human Uses

From Froese and Pauly (2017):

“Fisheries: of no interest; aquarium: commercial”

From Dahanukar (2015):

“It is commonly used as a dried and fermented fish in northeastern India, Nepal (S. Chaudhry pers. comm. 2010).”

From Hossain et al. (2015):

“It is the most popular aquarium fish among barb species in Bangladesh and in other Asian countries (Froese and Pauly, 2014). This fish is an important target species for small scale fishers (Rahman, 1989). It is a source of animal protein and micronutrients in the diet of rural small-scale farmers (Roos et al., 2007).”

## Diseases

Banerjee and Rajamohana (2017) report that *Pethia ticto* is host to the parasite *Senga ticto* Srivastav et al., 2007 in the family Bothriocephalidae. The parasite is found in Uttar Pradesh, India.

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

## Threat to Humans

From Froese and Pauly (2017):

“Harmless”

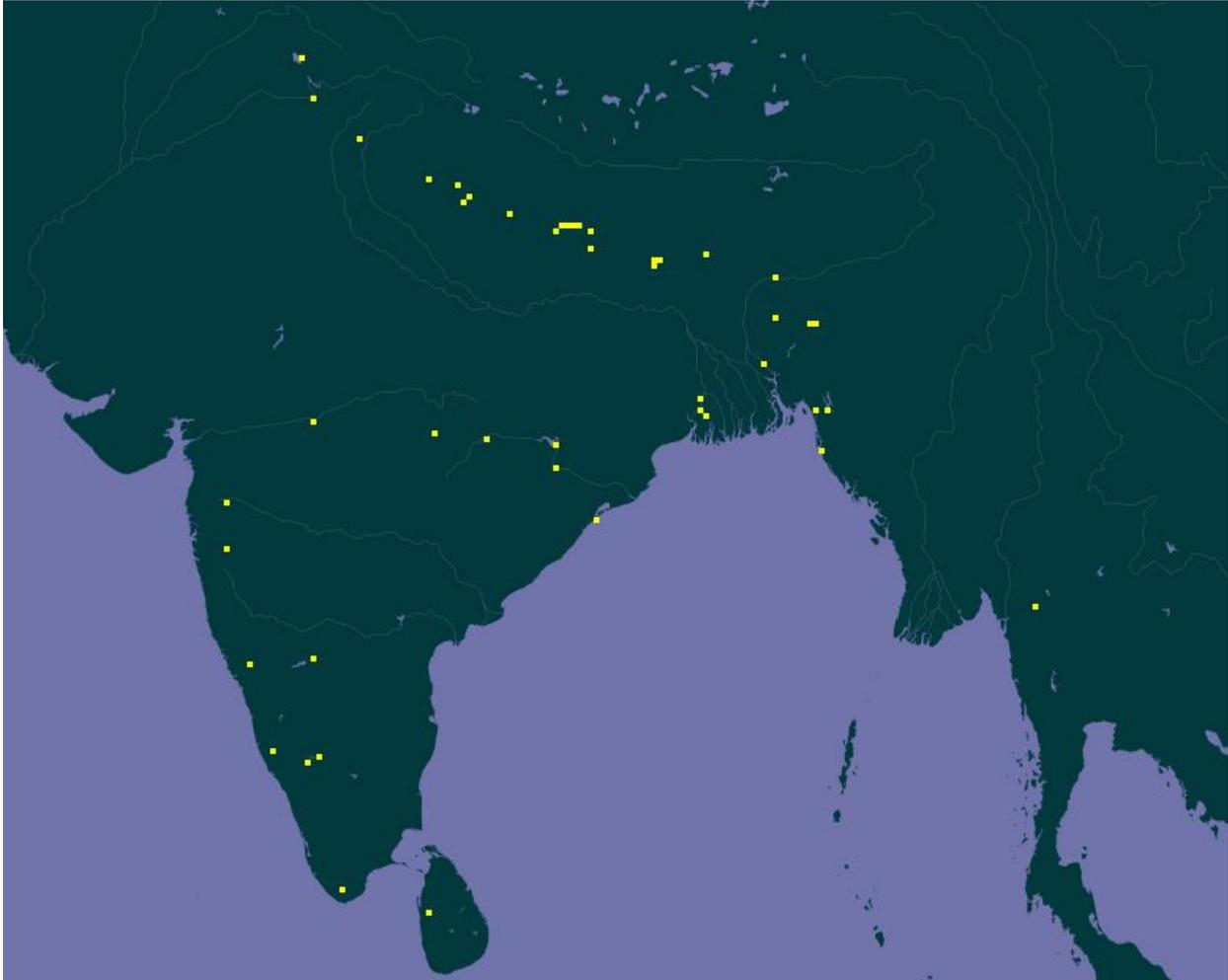
## 3 Impacts of Introductions

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

## 4 Global Distribution

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**Figure 1.** Known global distribution of *Pethia ticto* across the Indian subcontinent. Map from GBIF (2016). A point off the coast of Malaysia was excluded from the extent of this map due to incorrect coordinate information in GBIF (2016).

## 5 Distribution Within the United States

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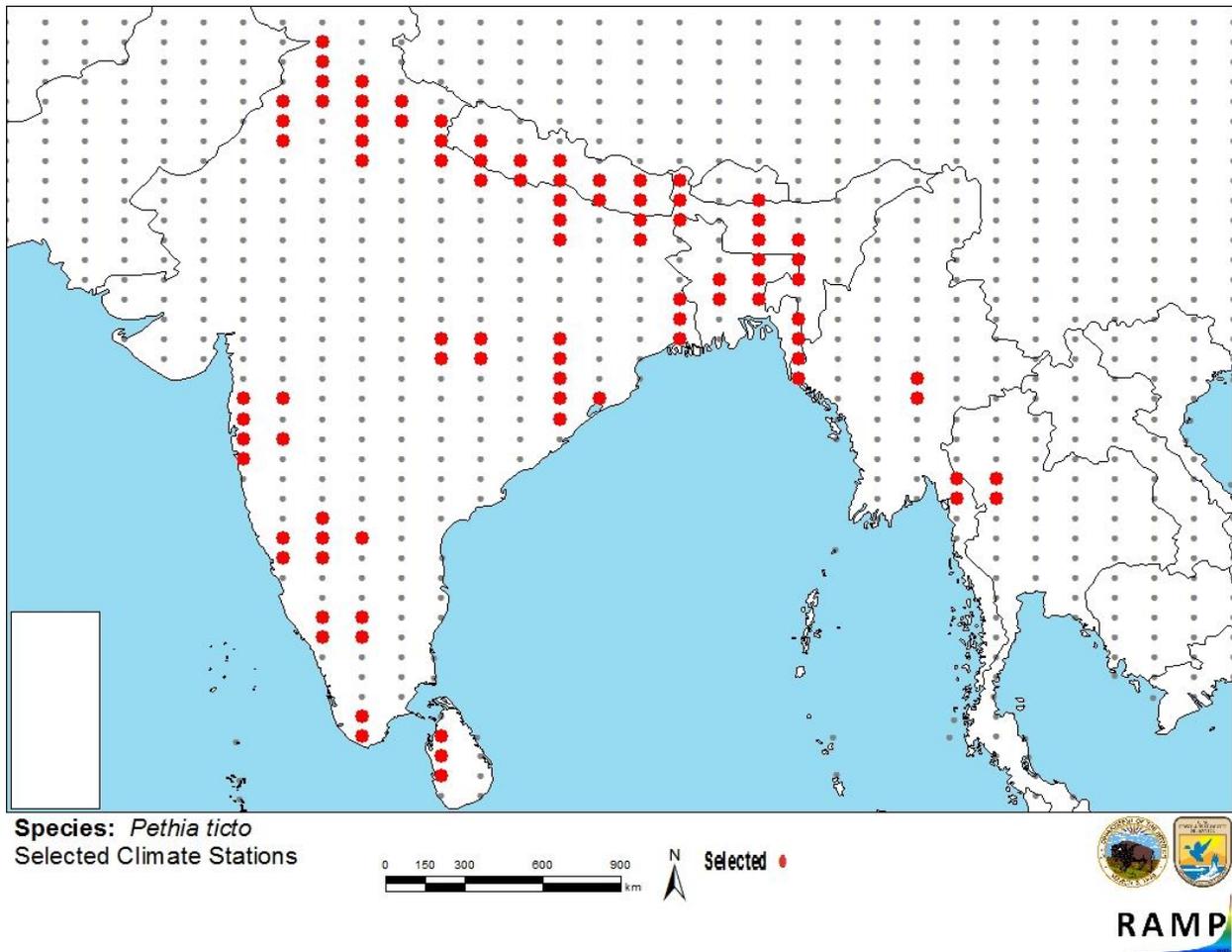
This species has not been reported as introduced or established in the United States.

## 6 Climate Matching

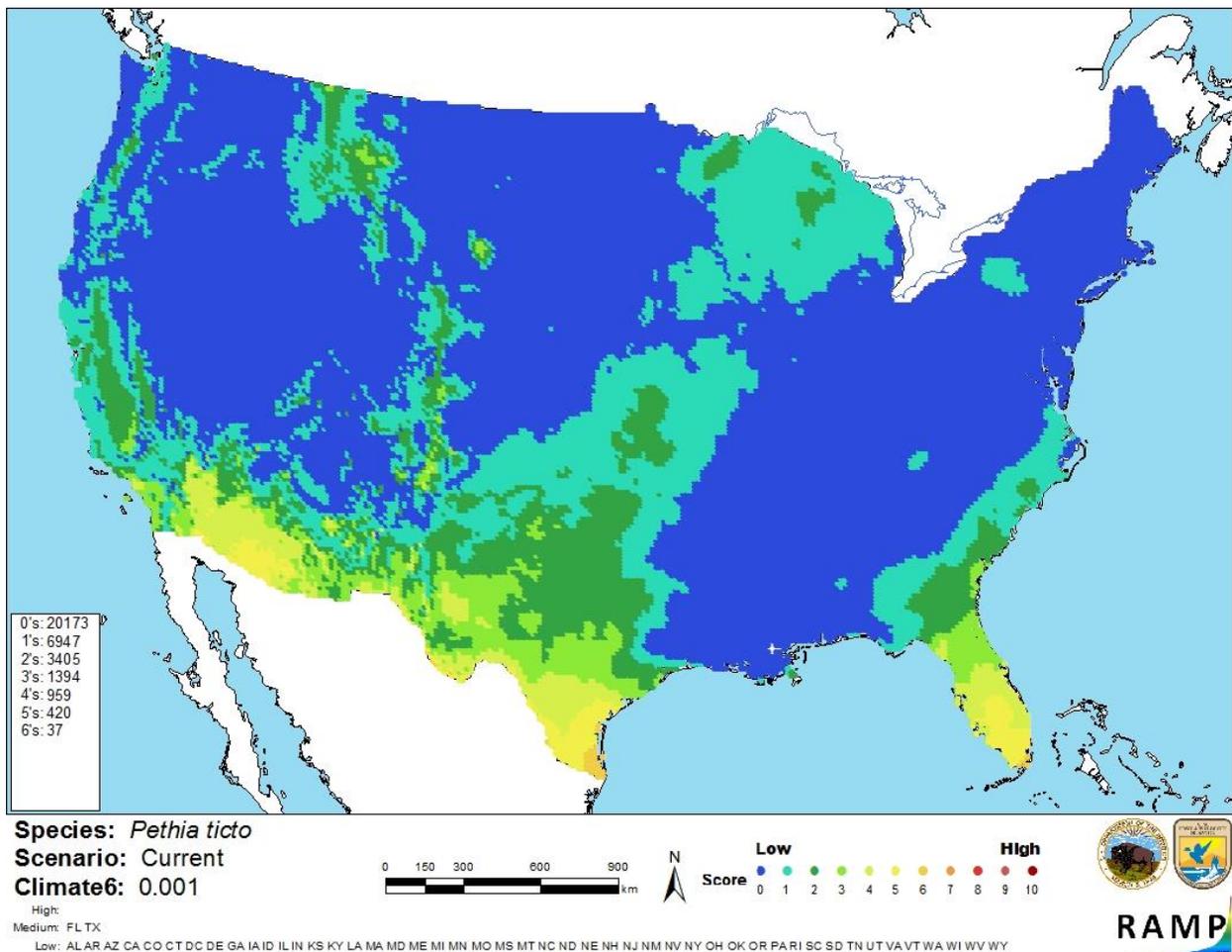
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### Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean distance) was medium in peninsular Florida and along much of the U.S.-Mexican border, with low matches across the remainder of the contiguous U.S. Climate 6 score suggested a low climate match for the contiguous U.S. overall. Scores of 0.005 or less indicate a low match; Climate 6 score for *P. ticto* was 0.001.



**Figure 2.** RAMP (Sanders et al. 2014) source map of the Indian subcontinent and Southeast Asia showing weather stations selected as source locations (red) and non-source locations (gray) for *Pethia ticto* climate matching. Source locations from GBIF (2016).



**Figure 3.** Map of RAMP (Sanders et al. 2014) climate matches for *Pethia ticto* in the contiguous United States based on source locations reported by GBIF (2016). 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
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
$\geq 0.103$	High

## 7 Certainty of Assessment

There is adequate information available on the biology, habitat requirements, and physical description of *Pethia ticto*. This species has never been reported as introduced or established outside of its native range. Because there have been no impacts of the introduction of this species on record, there is no information on which to base a risk assessment. Certainty of this assessment is low.

## 8 Risk Assessment

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### Summary of Risk to the Contiguous United States

*Pethia ticto* is a small freshwater fish native and widespread across Pakistan, India, Nepal, Sri Lanka, Bangladesh, Myanmar and Thailand. This species has no documented history of introduction outside its native range, although it is a popular aquarium fish in Asia. *P. ticto* has a low climate match with the contiguous United States. Overall risk assessment category for this species 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

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**Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 10.**

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## 10 References Quoted But Not Accessed

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**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.**

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