Pool Barb (*Puntius sophore*)
Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, February 2013
Revised, March 2019
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1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2019):

"Asia: Pakistan, India, Nepal, Bangladesh, Myanmar and Yunnan, China [Talwar and Jhingran 1991], Bhutan [Petr 1999] and Afghanistan [Petr 1999]"

From Dahanukar (2010):

"*Puntius sophore* is distributed throughout India, Pakistan, Nepal, Bangladesh, Myanmar, Thailand and Yunnan (China)."

Status in the United States
There are no records of *Puntius sophore* in the wild or in trade in the United States.

Means of Introductions in the United States
There are no records of introduction of *Puntius sophore* in the United States.

Remarks
Both the valid name, *Puntius sophore* and the synonym, *Cyprinus sophore* were used to conduct research for this assessment.

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2 Biology and Ecology
Taxonomic Hierarchy and Taxonomic Standing
From Fricke et al. (2019):

"**Current status:** Valid as *Puntius sophore* (Hamilton 1822)."

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 sophore* (Hamilton, 1822)"

Size, Weight, and Age Range
From Froese and Pauly (2019):

"Maturity: L_m 5.0 […]
Max length : 20.0 cm NG male/unsexed; [Vidthayanon et al. 2005]"

"They remain small in domestic aquaria and become mature at 7 to 8 cm [Talwar and Jhingran 1991]."

Environment
From Froese and Pauly (2019):

"Freshwater; brackish; benthopelagic; pH range: 8.0 - ?; amphidromous [Riede 2004]. […] 22°C - ? [assumed to be water temperature; Edds 2007]; […]"

Climate/Range
From Froese and Pauly (2019):

"Tropical; […] 39°N - 8°N"

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

"Asia: Pakistan, India, Nepal, Bangladesh, Myanmar and Yunnan, China [Talwar and Jhingran 1991], Bhutan [Petr 1999] and Afghanistan [Petr 1999]"

From Dahanukar (2010):

"*Puntius sophore* is distributed throughout India, Pakistan, Nepal, Bangladesh, Myanmar, Thailand and Yunnan (China)."

Introduced
According to Froese and Pauly (2019) *Puntius sophore* has become established in Singapore.

Means of Introduction Outside the United States
Although *Puntius sophore* has been recorded as established outside of its native range, there is no information available on the means of introduction or the impacts it has had.

Short Description
From Lim and Tan (2011):

"Body ovoid in side view, with lateral line piercing 22–27 scales; mouth terminal with no barbel; dorsal fin with short base and located at middle of back, last dorsal spine with smooth hind margin; caudal fin forked with rounded lobes. Body silver on sides with a black blotch on the centre lower part of the dorsal fin; a large black oval blotch on the caudal peduncle; males with pelvic and anal fins red, hyaline in females; operculum reddish."

Pethiyagoda et al. (2012):

“Body stout, standard length about 2.4 times maximum depth, laterally compressed. Dorsal profile of head concave above eye; dorsal profile of body convex, rising steeply from occipital, almost horizontal at dorsal-fin origin. Ventral contour of body convex to anal-fin insertion, almost horizontal at pelvic-fin origin. Dorsal and ventral profiles of caudal peduncle concave to terminal scales on tail base. Caudal peduncle length 1.3 (1.2-1.4) times its depth.

Head short, its length about one-fifth standard length, somewhat compressed laterally. Eyes located forward of centre, superiorly on head, just visible in ventral and dorsal views. Nares dorsolaterally orientated. Mouth U-shaped in ventral aspect, subterminal, small, angle of gape not reaching below anterior nares in lateral aspect. Lips fleshy, entire, adnate to jaws. Upper lip overhanging lower one.”

“Pelvic-fin origin slightly anterior to dorsal-fin origin. Posterior margin of dorsal fin slightly concave, that of anal fin straight. Distal margins of pelvic and pectoral fins convex, rounded. Dorsal-fin with 4 unbranched rays (last one smooth, strong) and 8 branched rays, its origin above ninth lateral-line scale. Anal fin with 3 unbranched and 5 branched rays. Pelvic fin with 1 unbranched and 8 branched rays, not reaching anus. Pectoral fin with one unbranched and 15 branched rays, not reaching pelvic-fin origin. Caudal fin deeply forked, its lobes pointed, with 1+9+8+1 principal rays.

Lateral-line pored scales on body 24 […], plus 1 on caudal-fin base; 4 1/2 scales in transverse line between lateral line and origin of dorsal fin, 4 […] between lateral line and origin of pelvic fin; 1/2 2/1/21/2 scales in transverse line on caudal peduncle; 9 predorsal scales (excluding notched scale at dorsal-fin origin). An axillary scale approximately one-third length of pelvic fin extends backwards from pelvic-fin origin. Dorsal-fin base sheathed by 8 […] scales, anal-fin base by 6 […] scales.”

Biology

From Froese and Pauly (2019):

“Adults inhabit rivers, streams and ponds in plains and submontane regions [Menon 1999]. Collected from a large river with high turbid monsoon flow and with diverse substrate consisting of sand, mud, gravel, pebble, cobble, and boulders [Edds 2007]. A very plentiful shoaling fish.”

Human Uses

From Froese and Pauly (2019):

“Aquarium: public aquariums”

From Dahanukar (2010):

“This barb is considered as having medicinal value in Tamil Nadu.”

From Hossain et al. (2012):

"This fish is a major source of animal protein and micronutrients in the diet of rural small-scale farmers (Roos et al., 2007)."

Diseases

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

Froese and Pauly (2019) list the following diseases for *P. sophore*: Anchor worm Disease, Parasitic infestations (protozoa, worms, etc.); Camallanus Disease, Parasitic infestations (protozoa, worms, etc.); Acanthogyrus Infestation 4, Parasitic infestations (protozoa, worms, etc.); Macrolecithus Disease, Parasitic infestations (protozoa, worms, etc.); Opistholebes Disease, Parasitic infestations (protozoa, worms, etc.); and Steringotrema Disease, Parasitic infestations (protozoa, worms, etc.)."

According to Poelen et al. (2014) *Puntuis sophore* is host to *Lobulovarium longiovatum, Acanthogyrus holospinus, Dactylogyroides tripathii, Dactylogyroides longicirrus, Dactylogyrus brevitignus, Dactylogyrus longiacus, Dactylogyrus orientalis, Dactylogyrus subtilis, Discocapillaria margolisi, Aspidogaster tigarai, Haplorchis yokogawai, Allocreadium handiai, Echinochasmus bagulai, Echinostoma malayanum, Centrocestus formosanus, Haplorchoides mehrai, Haplorchis taichui, Haplorchis pumilio, Neopodocotyle, Orientodiscus, Transversotrema patialense,* and *Acanthogyrus dattai*.

Threat to Humans

From Froese and Pauly (2019):

"Harmless"

3 Impacts of Introductions

Although *Puntius sophore* has been recorded as established outside of its native range, there is no information available on any impacts it has had.

4 Global Distribution

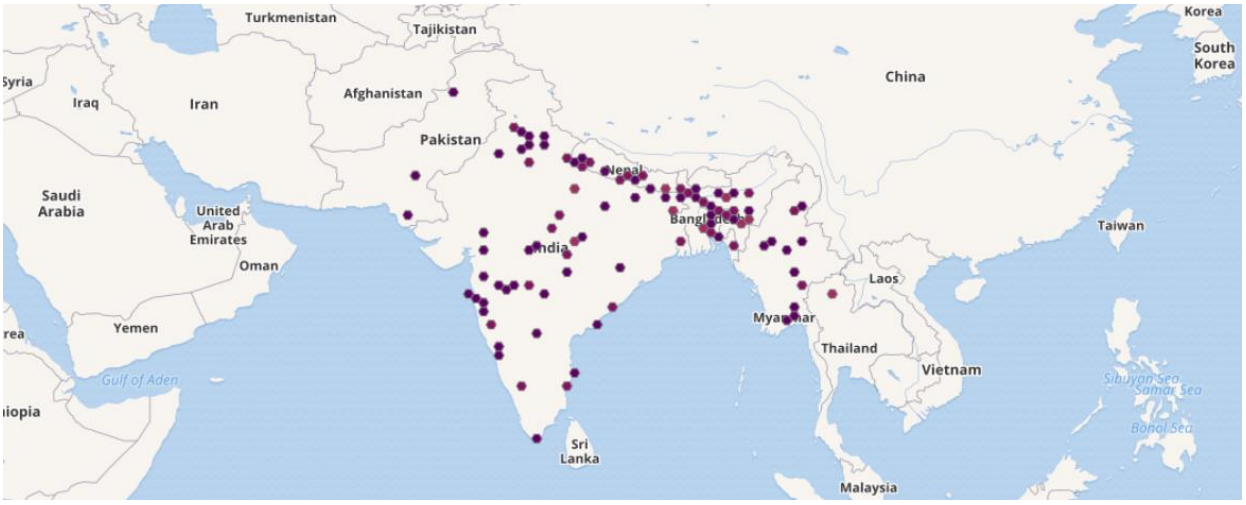

Figure 1. Known global distribution of *Puntius sophore*. Locations are in Pakistan, India, Nepal, Bangladesh, Myanmar, and Thailand. Map from GBIF Secretariat (2019).

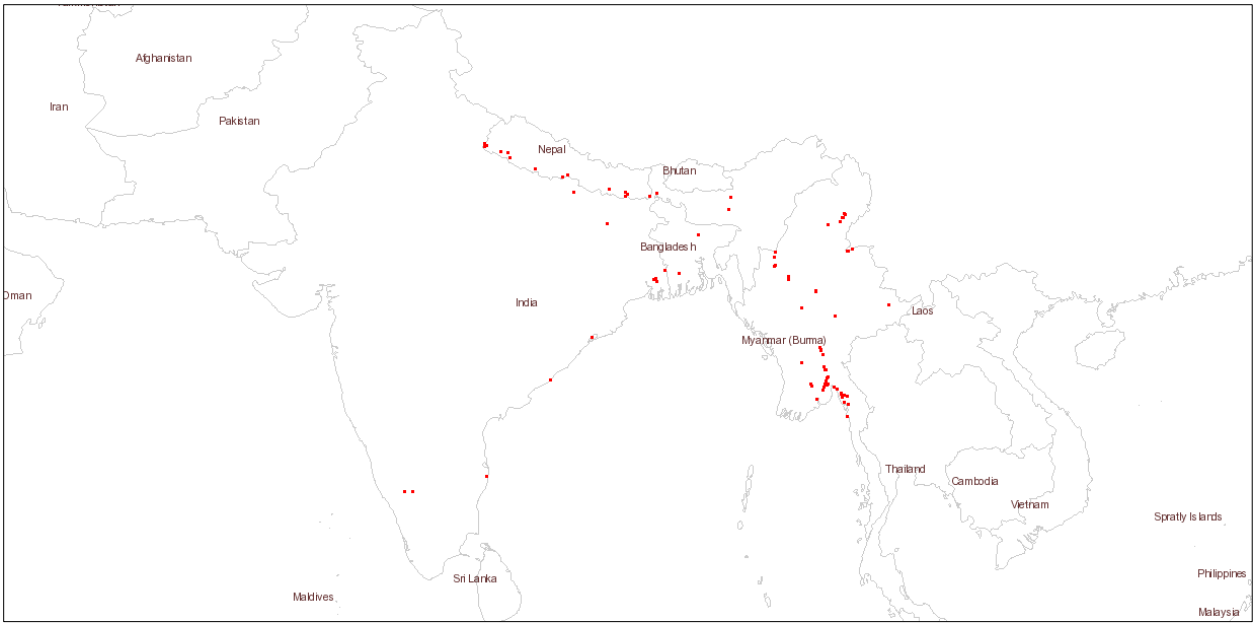

Figure 2. Additional known global distribution of *Puntius sophore*. Locations are in India, Nepal, Bangladesh, and Myanmar. Map from Froese and Pauly (2019).

Georeferenced observations were not found for *Puntius sophore* in Afghanistan, China, Bhutan, or Singapore. However, due to the small geographic area of Singapore, source points can be chosen to represent that population in the climate match.

5 Distribution Within the United States

There are no records of introduction of *Puntius sophore* in the United States.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Puntius sophore* was low for much of the contiguous United States. There were areas of high match in the southwest, including southern California. Southern Texas also had some areas of high match. Areas of medium match included southern Florida, the rest of Texas, and in pockets around the western States. Everywhere else had a low match. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.068, medium (scores greater than 0.005, but less than 0.103 are classified as medium). All States had low individual Climate 6 scores, except Arizona, California, and Texas which had high scores, and New Mexico, Nevada, Oklahoma, and Utah which had medium scores.

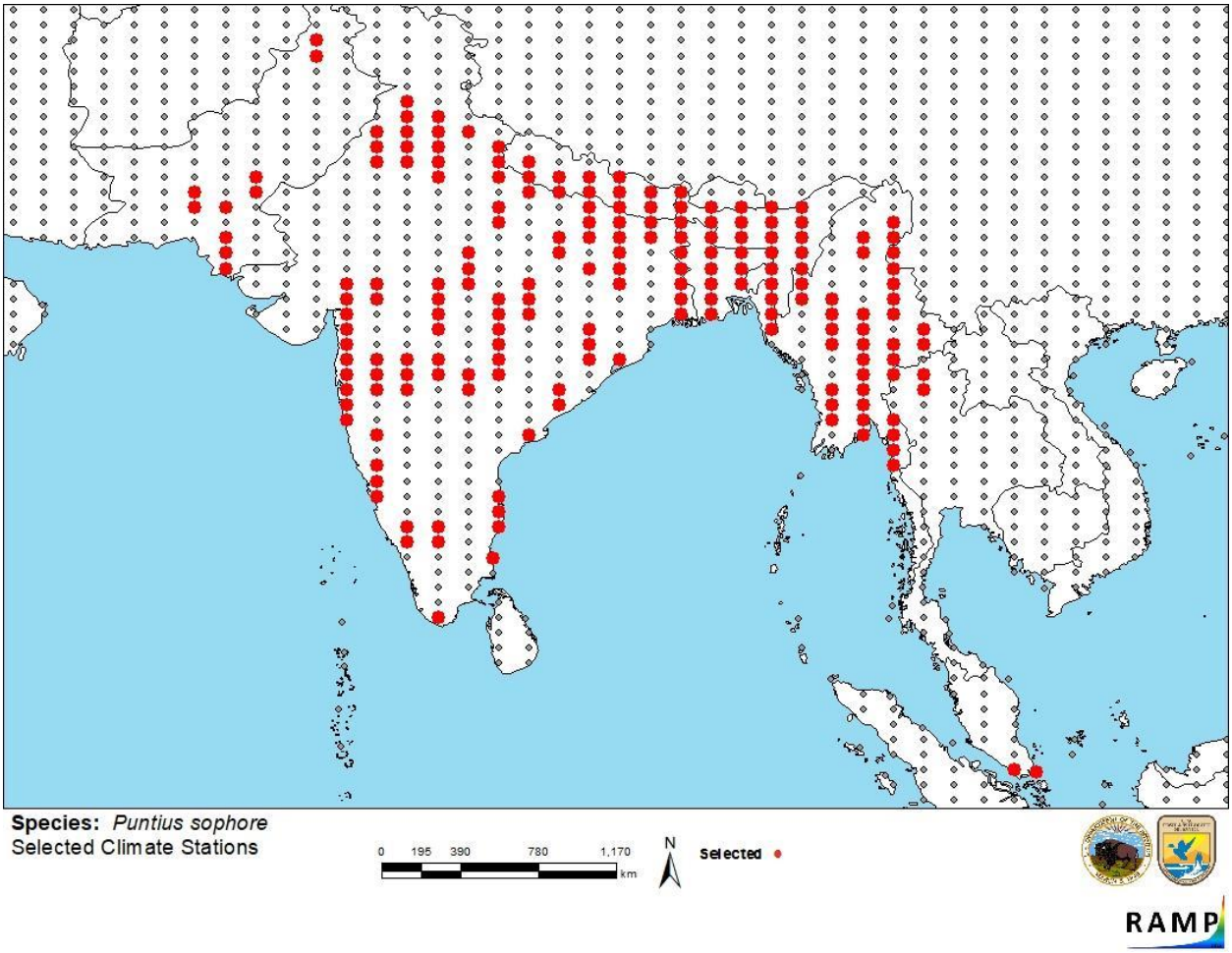

Figure 3. RAMP (Sanders et al. 2018) source map showing weather stations in Asia selected as source locations (red; India, Pakistan, Nepal, Bangladesh, Bhutan, Myanmar, Singapore) and non-source locations (gray) for *Puntius sophore* climate matching. Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves. Source locations from Froese and Pauly (2019) and GBIF Secretariat (2019). Georeferenced observations were not available to use to select source points in Afghanistan or China.

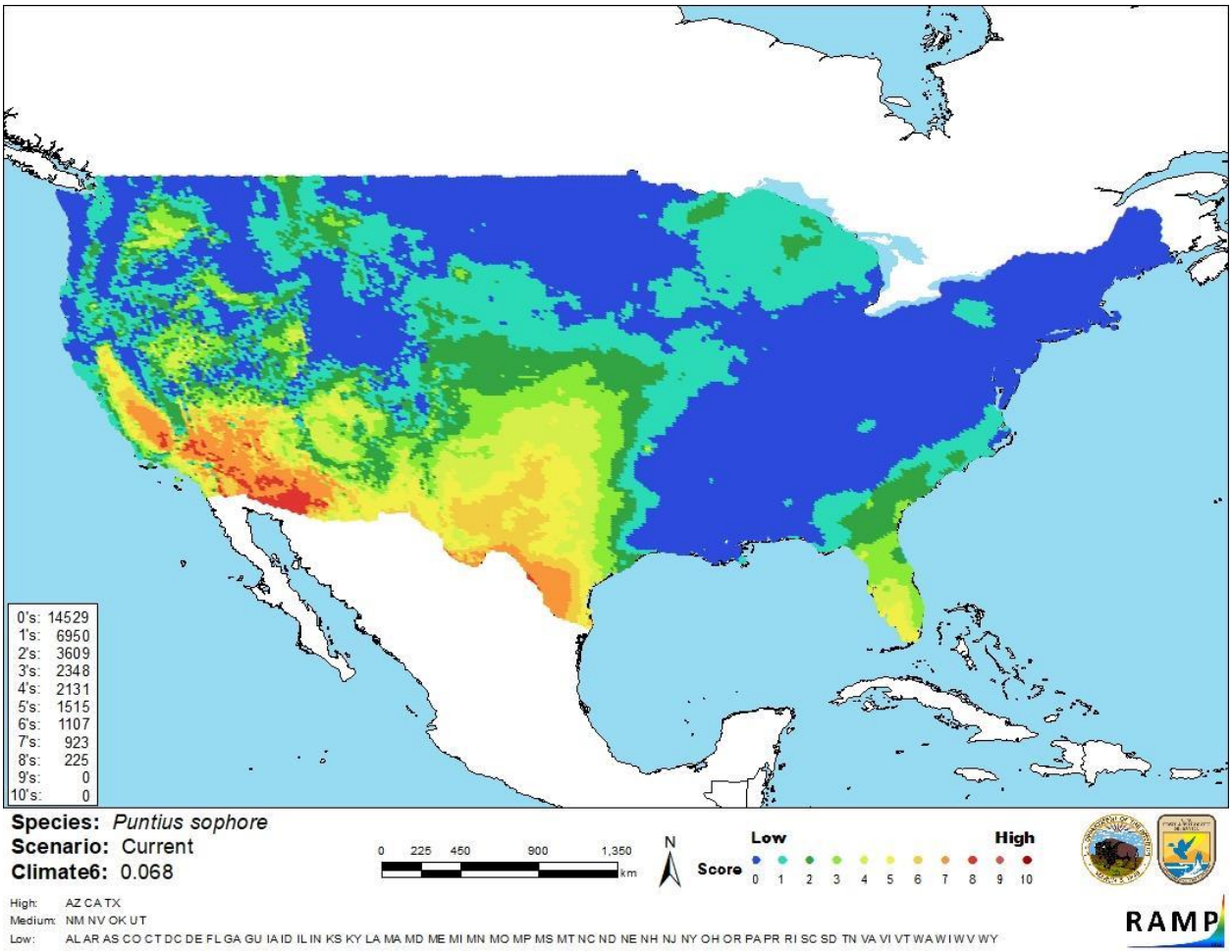

Figure 4. Map of RAMP (Sanders et al. 2018) climate matches for *Puntius sophore* in the contiguous United States based on source locations reported by GBIF Secretariat (2019). 0 = Lowest match, 10 = Highest match.

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 sophore* is low. There was some information available about its environment, but little information on its biology. *Puntius sophore* has been introduced outside of its native range, but there is no information on means of introduction or impact.

8 Risk Assessment

Summary of Risk to the Contiguous United States

The Pool Barb (*Puntius sophore*) is a fish native to Pakistan, India, Nepal, Bangladesh, Myanmar, China (Yunnan Province), Bhutan, and Afghanistan. It is used locally as food, in aquaria, and is reported to have medicinal value. The history of invasiveness is none documented. It has been established outside of its native range in Singapore, but no information is available on method of introduction or impacts. The climate match for the contiguous United States was medium with areas in the southwest and southern Texas having high matches. The certainty of assessment is low due to lack of information. The overall risk assessment category for *Puntius sophore* is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): None Documented**
- **Climate Match (Sec. 6): Medium**
- **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.

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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.

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