1 Native Range and Status in the United States

Native Range
From Froese and Pauly (2019a):


Status in the United States
Systomus sarana has not been found in the wild or in trade in the United States.

Means of Introductions in the United States
Systomus sarana has not been found in the wild in the United States.
Remarks
From Gupta (2015):

“In India it has been reported as endangered while in Bangladesh it has been reported as critically endangered.”

2 Biology and Ecology

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

“Current status: Valid as *Systomus sarana* (Hamilton 1822).”

From Froese and Pauly (2019b):

“Animalia (Kingdom) > Chordata (Phylum) > Vertebrata (Subphylum) > Gnathostomata (Superclass) > […] Actinopterygii (Class) > Cypriniformes (Order) > Cyprinidae (Family) > Barbinae (Subfamily) > *Systomus* (Genus) > *Systomus sarana* (Species)”

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

“Max length: 42.0 cm TL male/unsexed; [Rahman 1989]; max. published weight: 1,400 g [Rahman 1989]”

Environment
From Froese and Pauly (2019a):

“Freshwater; brackish; benthopelagic; potamodromous [Riede 2004]”

Climate/Range
From Froese and Pauly (2019a):

“Tropical”

Distribution Outside the United States
Native
From Froese and Pauly (2011):

Introduced

*Systomus sarana* have not been reported as introduced anywhere outside of its native range.

**Means of Introduction Outside the United States**

*Systomus sarana* have not been reported as introduced anywhere outside of its native range.

**Short Description**

From Froese and Pauly (2019a):

“Dorsal spines (total): 3; Dorsal soft rays (total): 8; Anal spines: 2; Anal soft rays: 5. Body oblong, head, small, barbels 2 pairs. Maxillary pair longer than orbit, rostral pair shorter.”

From Gupta (2015):

“Body is oblong, deep, moderately compressed; dorsal and ventral profiles both are much convex at anterior two-third of the body. Head is fairly small; its length is 4 to 4.7 times in standard length. Eyes are moderate, its diameter 3.5 to 4.5 times in head. Interorbital space is convex. Mouth is moderate; lips thin and without fringes. Lower labial fold is interrupted and no pores are present on the snout. Scales are cycloid in type, moderately large. Lateral line is complete; 3½ to 4 rows of scales between it and the base of the ventral fin, 10 to 11 rows before the dorsal fin. Barbels: Two pairs; the rostral pair about as long as the orbit, the maxillary pair a little longer, sometimes equalling [sic] 1½ diameters of the orbit. Fins: Dorsal fin is short, commencing slightly nearer to the snout than to the base of the caudal fin and opposite the root of the ventral; its last undivided ray is strong osseous and finely serrated posteriorly and with its stiff portion 2/3 as long as the head, the fin is ½ to 2/3 as high as the body, with its upper edge concave. Color: Body is silvery in color, darkest superiorly; opercles are shot with gold; the young have occasionally a dull blotch on the lateral line before the base of the caudal fin. A small dark spot generally present on the body behind the opercle. When the fish is fresh there are sometimes horizontal bands along the rows of scales in the upper half of the body. Barbels are reddish brown. Fins are whitish or yellowish white and are externally stained with gray; caudal, pelvic and anal fins are tipped with red.”

**Biology**

From Dahanukar (2010):

“It breeds during monsoon in running waters amongst submerged boulders and vegetation (Talwar and Jhingran 1991). Spawning occurs in two stages once between May to mid September but prominent in June and the second spawning time in the months of August and September (Chakraborty et al. 2007).”

From Froese and Pauly (2019a):

“Adults occur in rivers, streams, lakes and backwaters. Tolerant of salinity. They form schools in groups of four or five to several dozens [Pethiyagoda 1991]. Feed on aquatic insects, fish, algae
and shrimps. Spawn in running waters among submerged boulders and vegetation [Talwar and Jhingran 1991].”

From Gupta (2015):

“The young and the adult of this fish species are bottom and column dwellers, while fry […] wander in the surface and sub-surface regions [Chondar 1999].”

**Human Uses**
From Froese and Pauly (2019a):

“Fisheries: minor commercial; gamefish: yes; aquarium: commercial”

From Gupta (2015):

“*Systomus sarana* is […] the most popular and favourite food fish among the barb species due to good nutritional value. It is also popular as an aquarium species.”

**Diseases**
*Infection with epizootic ulcerative syndrome is an OIE-reportable disease (OIE 2019).*

According to Froese and Pauly (2019a), *Systomus sarana* can have the following diseases: marcorecithus disease, parasitic infestations, palaeorchis disease, epizootic ulcerative syndrome and viral diseases.

**Threat to Humans**
From Froese and Pauly (2019a):

“Harmless”

### 3 Impacts of Introductions
*Systomus sarana* have not been reported as introduced anywhere outside of its native range.
4 Global Distribution

Figure 1. Known global distribution of *Systomus sarana*. Locations are in Pakistan, India, Sri Lanka, Nepal, Bangladesh, Myanmar, Thailand, and the Philippines. Map from GBIF Secretariat (2019). Location in the Philippines does not represent an established population and will not be used to select source points for the climate match; no scientific literature supports that *S. sarana* is found there.

No georeferenced observations were available in Afghanistan and Bhutan.

5 Distribution Within the United States

*Systomus sarana* has not been reported anywhere within the United States.
6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Systomus sarana* in the contiguous United States is generally low. There are areas of medium match along the southern border with Mexico and in southern Florida, and an area of high match in southeastern California and southern Arizona. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for contiguous United States was 0.008, medium (scores greater than 0.005, but less than 0.103, are classified as medium). All States received low individual Climate 6 scores with the exceptions of Arizona, which received a high score, and California and Florida, which both received medium individual climate scores.

Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in southern Asia selected as source locations (red; India, Pakistan, Nepal, Bangladesh, Myanmar, Thailand, and Sri Lanka) and non-source locations (gray) for *Systomus sarana* 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 *Systomus sarana* 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:

<table>
<thead>
<tr>
<th>Climate 6: Proportion of (Sum of Climate Scores 6-10) / (Sum of total Climate Scores)</th>
<th>Climate Match Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000≤X≤0.005</td>
<td>Low</td>
</tr>
<tr>
<td>0.005&lt;X&lt;0.103</td>
<td>Medium</td>
</tr>
<tr>
<td>≥0.103</td>
<td>High</td>
</tr>
</tbody>
</table>

7 Certainty of Assessment

The certainty of this assessment is low. No introductions of this species have been reported, so impacts of introduction are unknown.
8 Risk Assessment

Summary of Risk to the Contiguous United States

The Olive Barb (*Systomus sarana*) is a freshwater fish, native to Southeast Asia, found in Afghanistan, Pakistan, India, Nepal, Bangladesh, Bhutan, Sri Lanka, Myanmar, and Thailand. *S. sarana* is a popular food and aquarium species. Populations of this species have been declining. This species can be infected with epizootic ulcerative syndrome, which is an OIE-reportable disease. *Systomus sarana* have not been reported as introduced anywhere outside of their native range, leading to an uncertain history of invasiveness. The climate match for the contiguous United States is medium. Most of the contiguous United States had a low climate match while medium to high matches were located in southern Florida and southwestern portions of the country. The certainty of this assessment is low due to lack of information. The overall risk assessment of *Systomus sarana* is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3):** Uncertain
- **Climate Match (Sec. 6):** Medium
- **Certainty of Assessment (Sec. 7):** Low
- **Remarks/Important additional information:** *Systomus sarana* can be infected with epizootic ulcerative syndrome which is an OIE reportable disease. It is also considered endangered in parts of the native range.
- **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.


### 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.


Sidthimunka, A. 1970. A report on the fisheries survey of the Mekong River in the vicinity of the Pa Mong Dam site. Inland Fisheries Division, Department of Fisheries, Bangkok, Thailand.