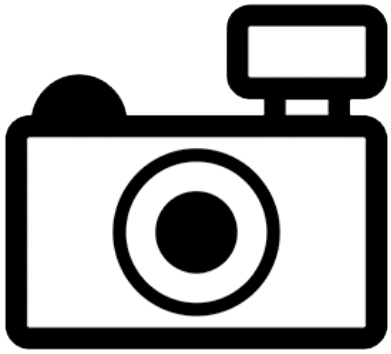
Pearl-spotted Killifish (*Aphanius mento*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, August 2017
Revised, August 2017
Web Version, 11/29/2017



No Photo Available

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2017):

"Asia: Iran, Iraq, Syria, Jordan, Israel, Lebanon and Turkey."

Status in the United States

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

Means of Introductions in the United States

This species has not been reported as introduced or established in the United States, although it may be in trade.

From Seriously Fish (2017):

"You are unlikely to find it on sale in aquatic stores although it may be available via specialist breeders or associations from time-to-time."

Remarks

From Freyhof (2014):

"Synonym(s):
Lebias cypris Heckel, 1843
Lebias mento Heckel, 1843"

"The populations aggregated under this name represent an unresolved species complex and might be split in several different species in future."

From Goren and Rychwalski (1978):

"Successful hybridizations were obtained from ♀ *Aphanius mento mento* x ♂ *Aphanius dispar richardsoni* and from ♂ *A. mento mento* x ♀ *A. dispar richardsoni*, 1-8 offspring from each mating. In normal reproduction of the parental species under the same conditions, about 40-100 young are produced. Attempts to obtain an F_2 and backcross generation failed although the hybrids' behaviour seemed to be normal. The male hybrids looked and behaved like the males of *A. mento* (possessing territories, protecting them, etc.). The reproductive behaviour of *A. dispar* is quite different. During the breeding period the male does not show any territorial behaviour. The female hybrids were similar to females of *A. dispar*. The hybrids of ♂ *A. mento mento* x ♀ *A. dispar richardsoni* were all females. The sex ratio of ♂ *A. dispar richardsoni* x ♀ *A. mento mento* is 1 : 2 (males/females respectively)."

2 Biology and Ecology

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 Acanthopterygii
Order Cyprinodontiformes
Suborder Cyprinodontoidei
Family Cyprinodontidae
Subfamily Cyprinodontinae
Tribe Orestiini
Genus *Aphanius*
Species *Aphanius mento* Heckel, 1843"

"Current Standing: valid"

Size, Weight, and Age Range

From Froese and Pauly (2017):

"Max length : 5.0 cm TL male/unsexed; [Huber 1996]"

From Güçlü and Küçük (2011):

"First maturity length (L_m) was estimated at 2.45 cm for females."

Environment

From Froese and Pauly (2017):

"Freshwater; benthopelagic; non-migratory."

Climate/Range

From Froese and Pauly (2017):

"Subtropical; 10°C - 25°C [Baensch and Riehl 1985], preferred ?"

Distribution Outside the United States

Native

From Froese and Pauly (2017):

"Asia: Iran, Iraq, Syria, Jordan, Israel, Lebanon and Turkey."

Introduced

No introductions of this species have been reported.

Means of Introduction Outside the United States

No introductions of this species have been reported.

Short Description

From Krupp and Schneider (1989):

"The following description is based on specimens from the Jordan River basin: body stout, maximum depth 25.4-34.5 ([mean] = 28.5) %; head length 25.7-30.2 ([mean] = 28.3) % of sl; dorsal fin with 10-14, anal fin with 10-13 rays; 25-28 scales in lateral line series (up to 32 when scales on caudal fin are included in the count); (8) 9-10 (11) gill rakers on lower limb of first gill arch."

"Males grow faster and reach a larger body size than females; in large males the body is relatively higher and the lower jaw projects to a greater extent; fins are larger in males than in females."

"The basic colour of males is light bluish, becoming dark blackish-blue in dominant males during the breeding season […]; head, flanks, dorsal, caudal, anal and pelvic fins with rows of silvery-white dots, fusing into narrow white bars in some populations […]; pectorals translucent. Females are light olive-grey or olive-green dorsally and silvery-white ventrally with irregular grey-brown markings; all fins colourless and translucent."

Biology

From Froese and Pauly (2017):

"Found in shallow water among vegetation, where it feeds on insect larvae, crustaceans, and algae. Breeds during the warmer months of the year. [Krupp and Schneider 1989]."

From Güçlü and Küçük (2011):

"Spawning period was between May and July. The first maturation was found to be at age 1. […] The mean fecundity per individual was found to be 228.48±28.60."

From Krupp and Schneider (1989):

"During the reproductive season large dominant males are territorial and very aggressive towards conspecifics."

Human Uses

From Froese and Pauly (2017):

"Aquarium: commercial"

From Seriously Fish (2017):

"[…] has found greater popularity in the hobby than its relatives."

Diseases

From Aydoğdu et al. (2011):

"*E*[*ustrongylides*] *excisus* larvae were found in the abdominal cavity of *A. mento*. This parasite species has been found in the gut of aquatic birds and oligochaetes."

From Mhaisen et al. (2013):

"*Ascocotyle coleostoma* [Kadhim 2009], *Clinostomum phalacrocoracis* [Kadhim 2009] and *Diplostomum* sp. [Kadhim 2009]."

From Paperna (1964):

"*Podocotyle aphanii* n.sp. from the intestine of *Aphanius mento* […]"

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

Threat to Humans

From Froese and Pauly (2017):

"Harmless"

3 Impacts of Introductions

No introductions of this species have been reported.

4 Global Distribution

Figure 1. Known global distribution of *A. mento*. Map from GBIF (2017).

5 Distribution Within the United States

This species has not been reported in the U.S.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean distance) was high in California, Idaho, eastern Oregon and Washington, and western Nevada. The climate match was medium for the Rocky Mountain region. Low matches occurred across the eastern and central continental U.S. and in the Pacific Northwest. Climate 6 score for the contiguous U.S. was 0.148,

which indicates a high climate match overall. Scores of 0.103 and greater are classified as high match.

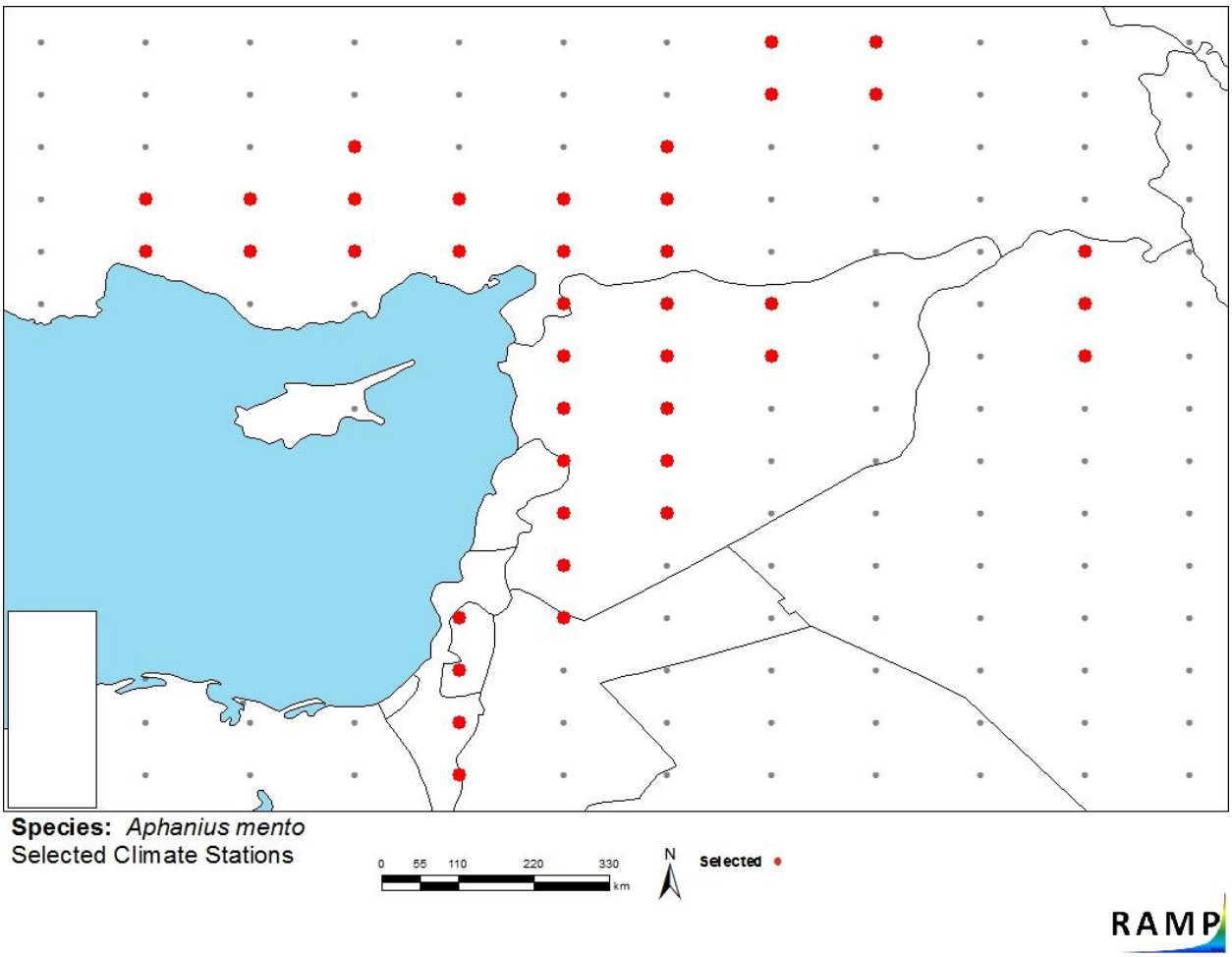


Figure 3. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red) and non-source locations (gray) for *A. mento* climate matching. Source locations from GBIF (2017).

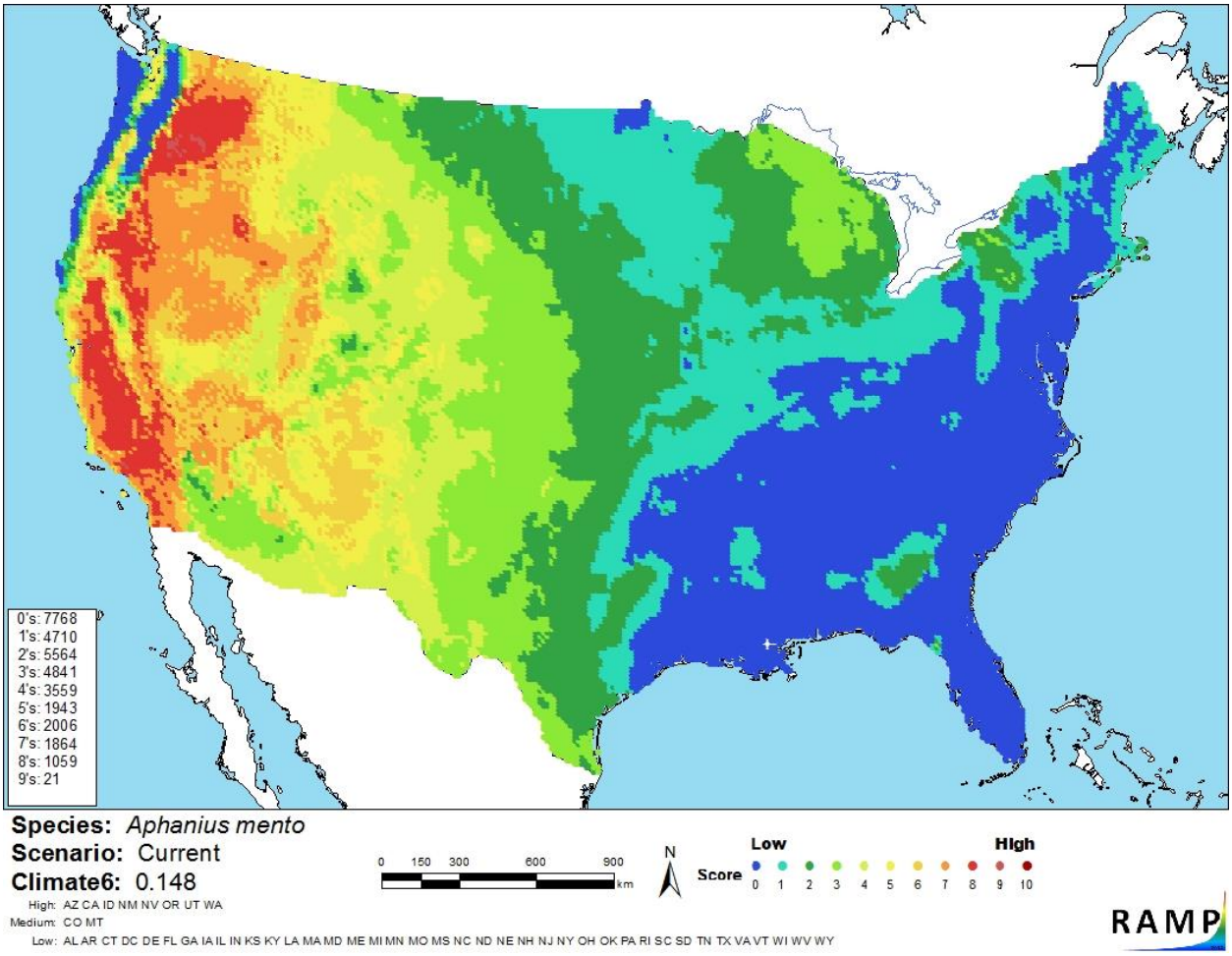


Figure 4. Map of RAMP (Sanders et al. 2014) climate matches for *A. mento* in the contiguous United States bases on source locations reported by GBIF (2017). 0=Lowest match and 10=Highest match.

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
≥ 0.103	High

7 Certainty of Assessment

The biology and ecology of *A. mento* are only moderately well known. *A. mento* has never been reported as introduced outside of its native range, so no information is known about potential impacts of introduction to the U.S. The certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Aphanius mento is native to southern Asia and there are no reports of introductions outside of its native range. It is present, but rare, in the aquarium trade. The species had a high climate match with the contiguous United States; highest match occurred in California and the Rocky Mountains. Without being able to observe introductions outside of its native range it is impossible to know the potential impacts of *A. mento* if introduced to the U.S. The overall risk of this species is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): High**
- **Certainty of Assessment (Sec. 7): Low**
- **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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