

# Chubbyhead Barb (*Enteromius anoplus*, formerly *Barbus anoplus*)

## Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, April 2011  
Revised, October 2016  
Web Version, 12/28/2017



Photo: Etienne van Zyl. Licensed under CC-BY. Available:  
<http://fishbase.org/photos/UploadedBy.php?autoctr=20319&win=uploaded>. (October 2016).

## 1 Native Range and Status in the United States

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### Native Range

From Froese and Pauly (2016):

“[South] Africa: Widely distributed from Limpopo to upland Natal, Transkei and the middle and upper Orange basin, including the Karoo. Absent from the lower Orange. Present in the coastal rivers of the Cape (Olifants, Gourits, Gamtoos, Sundays and Great Fish) but absent from Cape Fold Mt. streams.”

### Status in the United States

No introductions have been reported.

## Means of Introductions

No introductions have been reported.

## Remarks

From Eschmeyer et al. (2016):

“*anoplus*, *Barbus* Weber [M.] 1897 [...] •Valid as *Enteromius anoplus* (Weber 1897) -- (Yang et al. 2015 [...]). Current status: Valid as *Enteromius anoplus* (Weber 1897).”

## 2 Biology and Ecology

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### Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2016):

“Kingdom Animalia  
Subkingdom Bilateria  
Infrakingdom Deuterostomia  
Phylum Chordata  
Subphylum Vertebrata  
Infraphylum Gnathostomata  
Superclass Osteichthyes  
Class Actinopterygii  
Subclass Neopterygii  
Infraclass Teleostei  
Superorder Ostariophysi  
Order Cypriniformes  
Superfamily Cyprinoidea  
Family Cyprinidae  
Genus *Barbus*  
Species *Barbus anoplus* Weber, 1897”

From Eschmeyer et al. (2016):

“*anoplus*, *Barbus* Weber [M.] 1897 [...] •Valid as *Enteromius anoplus* (Weber 1897) -- (Yang et al. 2015 [...]). Current status: Valid as *Enteromius anoplus* (Weber 1897).”

### Size, Weight, and Age Range

From Froese and Pauly (2016):

“Max length : 10.0 cm SL male/unsexed; [Skelton 1993]; 12.0 cm SL (female); max. reported age: 2 years [Skelton 1993]”

## **Environment**

From Froese and Pauly (2016):

“Freshwater; brackish; benthopelagic.”

## **Climate/Range**

From Froese and Pauly (2016):

“Subtropical; 5°C - 22°C [unknown whether referring to air or water temperature], preferred ?; 23°S - 33°S”

## **Distribution Outside the United States**

Native

From Froese and Pauly (2016):

“Africa: Widely distributed from Limpopo to upland Natal, Transkei and the middle and upper Orange basin, including the Karoo. Absent from the lower Orange. Present in the coastal rivers of the Cape (Olifants, Gourits, Gamtoos, Sundays and Great Fish) but absent from Cape Fold Mt. streams.”

Introduced

From Bethune et al. (2004):

“They have been found in pools in the Gaub and the Kuiseb rivers [in Namibia] in 1974.”

## **Means of Introduction Outside the United States**

From Froese and Pauly (2016):

“Transferred as forage for trout by local farmers.”

“Other reason: ornamental”

## **Short Description**

From Desert Fishes Council (2003):

“Member of the Cyprinidae, D III + 7, A III + 5, LL 33-37 scales and scales have numerous radial striations. The primary dorsal ray is both simple and flexible. The common name, chubbyhead barb, is due to the characteristic blunt or rounded head profile. Normally a single pair of barbels. The males are easily recognizable during the breeding season with a brilliant golden breeding dress. The females remain a greyish-greenish hue similar to non-breeding males. In some populations males have a broad dark band along the body.”

## Biology

From Froese and Pauly (2016):

“Favors cooler waters. Occurs in small groups and shoals, in various habitats from small streams to large rivers and lakes. Frequently associates with cover or shelter such as fallen logs, brushwood or marginal vegetation. Feeds on insects, zooplankton, seeds, green algae and diatoms. Oviparous [Breder and Rosen 1966]. Breeds during summer when rivers are swollen after rain and lays adhesive eggs amongst vegetation. Is preyed upon by larger fishes and birds [Bruton et al. 1982; Skelton 1993].”

From Cambray and Bruton (1985):

“Male and female *B. anoplus* reach sexual maturity in one year at about 40 mm fork length. They have a multiple spawning habit with the first spawning in November - January and the second in February - March.”

From Desert Fishes Council (2003):

“Juveniles inhabit sheltered areas such as erosion gullies and vegetated areas in streams. When fish predators are absent it can grow to quite large sizes and even is found in the open waters of lakes and impoundments feeding on zooplankton (Cambray, [1983]). In areas with fish predators when cover, such as logs and vegetation, is present it will be found in their shelter. Due to its cryptic colouration, for most of the year, it survives in the presence of native predators such as the sharptooth catfish, *Clarias gariepinus*. *Barbus anoplus* has a life history style that enables it to colonize habitats of a temporary nature with alternating "booms and busts" in population size.”

## Human Uses

From Froese and Pauly (2016):

“Fisheries: subsistence fisheries; aquarium: commercial”

## Diseases

From Molnár et al. (2004):

“[...] *Barbus anoplus* had small *Goussia carpelli*-like unsporulated or semisporulated oöcysts in the gut. [...] All oöcysts in the intestinal mucus of *B. anoplus* were found in a sporulated stage. [...] the species from *B. anoplus* is described below as a new species [*Goussia anopli*].”

## Threat to Humans

From Froese and Pauly (2016):

“Harmless”

### 3 Impacts of Introductions

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From Froese and Pauly (2016):

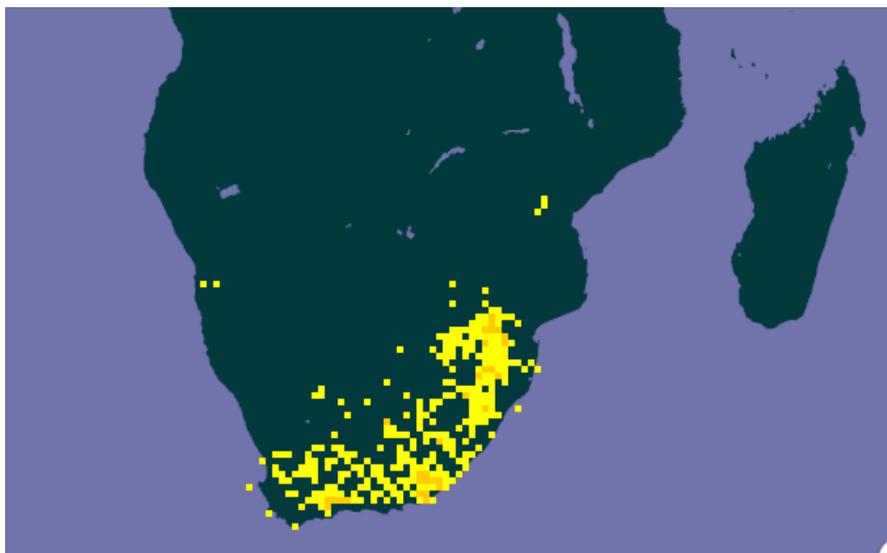
“Significant ecological interactions: unknown  
Significant socio-economic effects: unknown  
[...] May lead to genetic contamination of local form (loss of large sized fish).”

From Bethune et al. (2004):

“*Barbus anoplus*, the chubbyhead barb is a minor, detrimental, translocated species indigenous to South Africa. [...] Although, considered detrimental elsewhere, these [in Namibia] were most probably temporary populations as even the deeper isolated pools in these ephemeral rivers do not last very long and there are no indigenous minnows that could have been adversely affected.”

### 4 Global Distribution

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**Figure 1.** Known global established locations of *Enteromius anoplus* in South Africa, Lesotho, Swaziland, and Namibia (GBIF 2016). Points in Mozambique were not used in climate matching because of inaccurate location.

### 5 Distribution Within the United States

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This species has not been reported in the US.

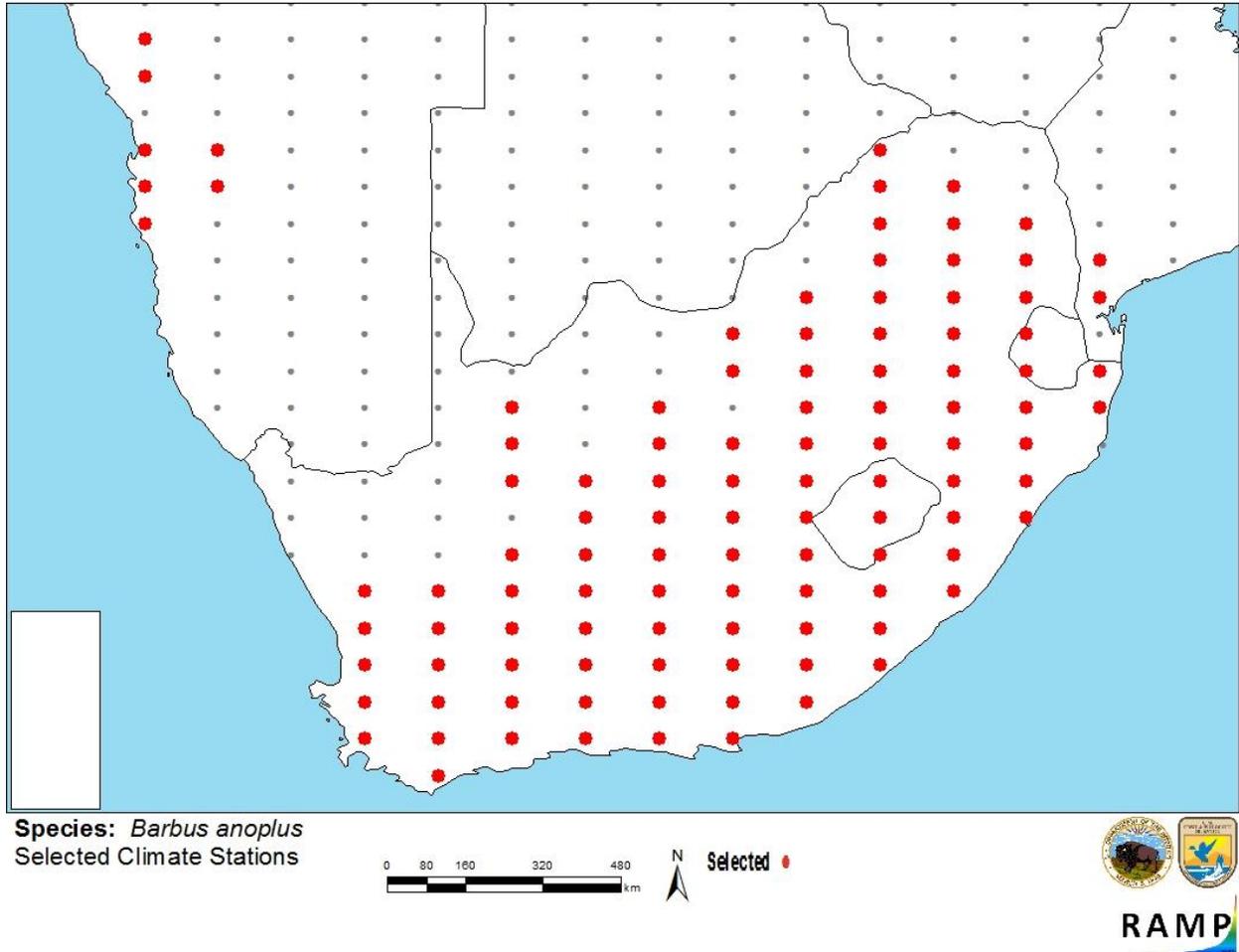
### 6 Climate Matching

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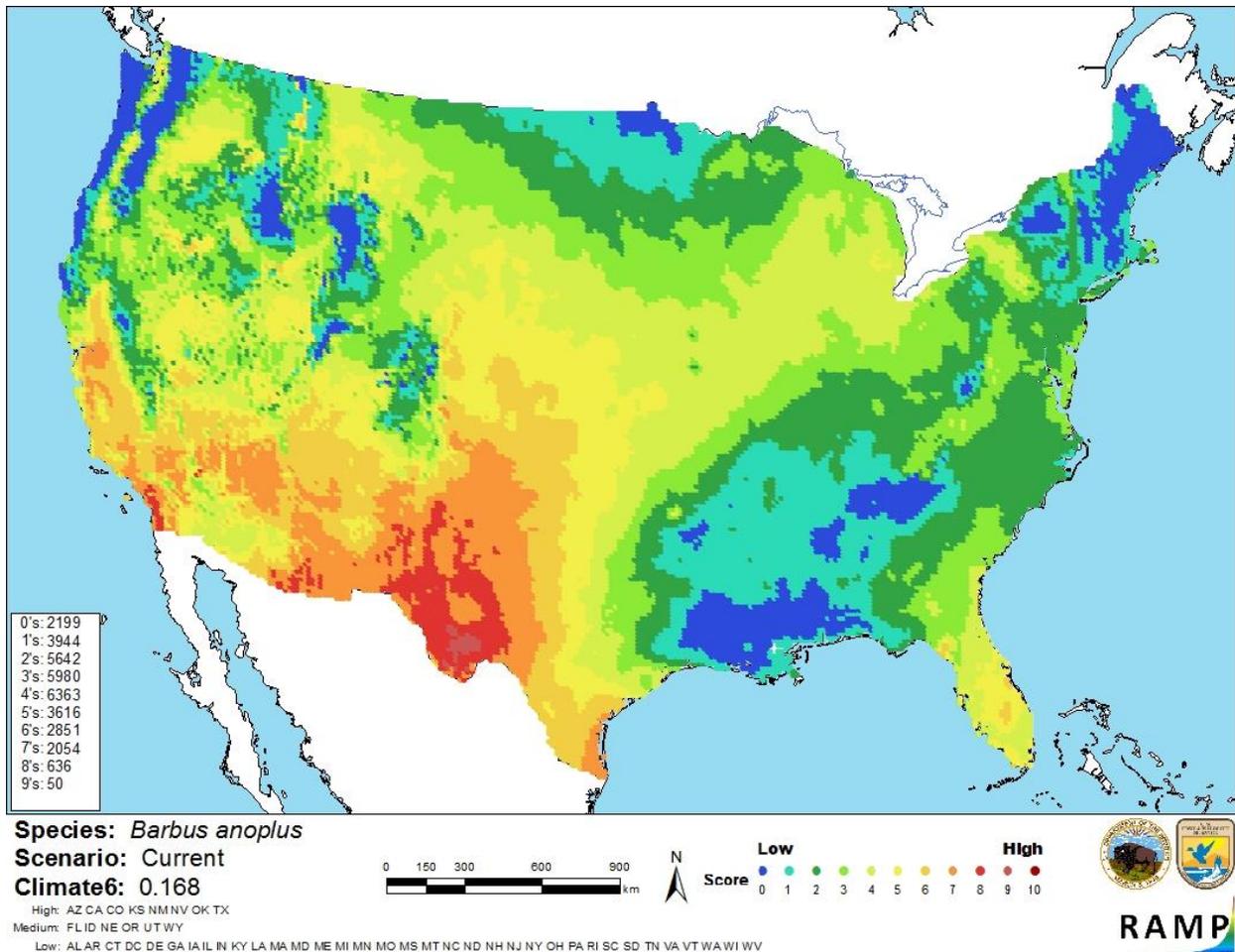
#### Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) was high in parts of the Southwest and Southern California. Medium matches were found in central Florida

and the Central Plains, and were patchily distributed throughout the West. Low matches were found in the North-central and northern Gulf Coast regions of the U.S., in parts of the Pacific Northwest, and in the Northeast. Climate6 score indicated that the contiguous U.S. has a high climate match. The range of scores for a high climate match is 0.103 and greater; Climate6 score of *E. anoplus* is 0.168.



**Figure 2.** RAMP (Sanders et al. 2014) source map of southern Africa showing weather stations selected as source locations (red) and non-source locations (gray) for *E. anoplus* climate matching. Source locations from GBIF (2016).



**Figure 3.** Map of RAMP (Sanders et al. 2014) climate matches for *E. anoplus* in the contiguous United States based on source locations reported by GBIF (2016). 0= Lowest match, 10=Highest match. Counts of climate match scores are tabulated on the left.

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

Information is available on the biology and distribution of *E. anoplus*. However, little information is available on its one known introduction outside of its native range and what, if any, ecological or economic impacts that introduction may have caused. Certainty of this assessment is low.

## 8 Risk Assessment

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### Summary of Risk to the Contiguous United States

*Enteromius anoplus* (formerly *Barbus anoplus*) is a cyprinid species native to South Africa, where it is widely distributed. The species was introduced to Namibia as trout forage. Ecological and economic impacts of this introduction are largely unknown, although one group of authors has suggested that the introduction has not been detrimental to native species. No other introductions have been reported. Climate match for the contiguous U.S. is high for this species, with highest match in the southwestern part of the country. Overall risk posed by *E. anoplus* is uncertain.

### Assessment Elements

- **History of Invasiveness: None Documented**
- **Climate Match: High**
- **Certainty of Assessment: 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.**

Bethune, S., M. Griffin, and D. Joubert. 2004. National review of invasive alien species of Namibia. Final Report to Southern Africa Biodiversity Support Programme. Directorate of Environmental Affairs Discussion Document.

Cambray, J. A., and M. N. Bruton. 1985. Age and growth of a colonizing minnow, *Barbus anoplus*, in a man-made lake in South Africa. *Environmental Biology of Fishes* 12(2):131-141.

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Molnár, K., A. Avenant-Oldewage, and C. Székely. 2004. A survey of coccidian infection of freshwater fishes in South Africa, with the description of *Goussia anopli* n. sp. (Apicomplexa: Eimeriidae). *Systematic Parasitology* 59:75-80.

Sanders, S., C. Castiglione, and M. Hoff. 2014. Risk Assessment Mapping Program: RAMP. U.S. Fish and Wildlife Service.

## 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.**

Breder, C. M., and D. E. Rosen. 1966. Modes of reproduction in fishes. T.F.H. Publications, Neptune City, New Jersey.

Bruton, M. N., P. B. N. Jackson, and P. H. Skelton. 1982. Pocket guide to the freshwater fishes of southern Africa. Centaur Publishers, Cape Town, South Africa.

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Yang, L., T. Sado, M. V. Hirt, E. Pasco-Viel, M. Arunachalam, J. Li, X. Wang, J. Freyhof, K. Saitoh, A. M. Simons, M. Miya, S. He, and R. L. Mayden. 2015. Phylogeny and polyploidy: resolving the classification of cyprinine fishes (Teleostei: Cypriniformes). *Molecular Phylogenetics and Evolution* 85:97-116.