

Coosa Shiner (*Notropis xaenocephalus*)

Ecological Risk Screening Summary

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1 Native Range and Status in the United States

Native Range

From Nico et al. (2011):

“*Notropis xaenocephalus* is native to the Coosa and Tallapoosa river drainages (Mobile Bay basin), southeastern Tennessee, northwestern Georgia, and eastern Alabama (Page and Burr 1991).”

From Froese and Pauly (2011):

“North America: Coosa and Tallapoosa River systems (Mobile Bay drainage) in southeastern Tennessee, northwestern Georgia and eastern Alabama in the USA.”

Status in the United States

From Nico et al. (2011):

“This species is known from, and probably was introduced into, the Chestatee River (Chattahoochee River drainage) in north **Georgia** (Lee et al. 1980 et seq.).”

Means of Introductions in the United States

From Nico et al. (2011):

“Unknown; possible bait bucket release.”

Remarks

From Nico et al. (2011):

“Lee et al. (1980 et seq.) depicted the Chestatee River record on their dot distribution map, but these authors did not provide any additional details. Based on unpublished files, originally gathered to generate the Atlas account and map, the site is identified as Chestatee River near Tate bridge, Lumpkin County, Georgia. That record is apparently based on a collection deposited at the University of Georgia (Dahlberg and Scott 1971a). In their list of freshwater fishes known from Georgia, Dahlberg and Scott (1971a) recorded *Notropis xaenocephalus* from both the Alabama and Chattahoochee river drainages. However, Dahlberg and Scott (1971a, 1971b) apparently did not consider it to be introduced to the Chattahoochee. In their summary table on fishes found in the southeastern United States, Swift et al. (1986) listed this species as native to the Coosa and Cahaba river drainages, but they did not make note of its occurrence in the Chattahoochee drainage.”

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From Eschmeyer et al. (2017):

“*xaenocephalus*, *Hybopsis* Jordan [D. S.] 1877:334 [Annals of the Lyceum of Natural History of New York v. 11 (nos 11-12) (art. 29) [...]] Tributary of Etowah River, near Rome, Floyd County, Georgia, U.S.A. Lectotype: USNM 20116. Paralectotypes: ANSP 19828-29 (2), 19830-33 (4), 19834-36 (3); MCZ 24394 (1); CAS-SU 3875 (1); UF 115513 [ex Butler Univ. 45 and 46] (34), 165617 [ex Butler Univ. 45] (4), 173839 [ex Butler Univ. 45 and 46] (1); USNM 164968 [ex USNM 17886] (1), 164969 [ex USNM 20116] (1). Type catalog: Gilbert 1978:89 [...], Böhlke 1984:95 [...], Gilbert 1998:165 [...], Gilbert 2009:159 [...]. Lectotype selected by Suttikus & Raney 1955:30 [...]. Gilbert 2009:159 [...] reidentified UF 165617 and 173839.

•Synonym of *Notropis taxanus* (Girard 1856) -- (Ross et al. 2001:222 [...]). •Valid as *Notropis xaenocephalus* (Jordan 1877) -- (Gilbert 1978:89 [...], Lee et al. 1980:325 [...], Page & Burr 1991:146 [...], Boschung 1992:57 [...], Etnier & Starnes 1993:234 [...], Mettee et al. 1996:287 [...], Gilbert 1998:165 [...], Fuller et al. 1999:126 [...], Nelson et al. 2004:76 [...], Boschung & Mayden 2004:257 [...], Scharpf 2005:33 [...], Page & Burr 2011:276 [...], Page et al. 2013:76 [...]). **Current status:** Valid as *Notropis xaenocephalus* (Jordan 1877).”

From ITIS (2014):

“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 *Notropis* Rafinesque, 1818
Species *Notropis xaenocephalus* (Jordan, 1877)”

Size, Weight, and Age Range

From Froese and Pauly (2011):

“Max length: 7.9 cm TL male/unsexed; [Page and Burr 1991]; common length: 5.2 cm TL male/unsexed; [Hugg 1996]”

From Jolly and Powers (2008):

“Sexual size dimorphism was detected, with mean SL for females and males 47.7 (SD = 7.18) and 44.4 (SD = 6.55) mm, respectively (P < 0.001).”

“The above results allow us to conclude that *N. xaenocephalus* live to a maximum age of approximately three years,”

Environment

From Froese and Pauly (2011):

“Freshwater”

Climate/Range

From Froese and Pauly (2011):

“Freshwater; benthopelagic. Temperate; 35°N - 32°N”

Distribution Outside the United States

Native

The native range of *Notropis xaenocephalus* lies entirely inside the United States. See Section 1 for a full description.

Introduced

No records of *Notropis xaenocephalus* introductions outside the United States were found.

Means of Introduction Outside the United States

No records of *Notropis xaenocephalus* introductions outside the United States were found.

Short Description

From Jolly and Powers (2008):

“[...] is distinguished from other minnows within its range by its terminal mouth, large eye, and robust body.”

From Alabama Department of Conservation and Natural Resources (2016):

“*Notropis xaenocephalus* has a compressed body form with a rounded snout slightly overhanging the mouth. The eye is large generally exceeding snout length. A distinct lateral band extends from the snout to the tail, thinning along the caudal peduncle and expanding near the tail into a distinct quadrate caudal spot. The clean yellowish stripe above the lateral band extends from the gill opening to the tail, while the scales along the back are well pigmented.”

Biology

From Roy et al. (2005):

“Coosa shiner (*Notropis xaenocephalus*), an invertivore,”

From Jolly and Powers (2008):

“Little is known of the biology of *N. xaenocephalus* other than a spawning season from April to July as indicated by collections of tuberculate specimens during these months (Boschung and Maiden 2004).”

“[...] increase feeding and growth during spring, spawn from May to June, and feed primarily on aquatic and terrestrial insects.”

From Froese and Pauly (2011):

“Occurs in clear, gravel-bottomed pools and runs, but common in spring-fed streams [Page and Burr 1991]. Also inhabits small creeks and rivers [Etnier and Starnes 1993].”

Human Uses

Information on human uses of *Notropis xaenocephalus* was not available.

Diseases

Information on diseases of *Notropis xaenocephalus* was not available.

Threat to Humans

From Froese and Pauly (2011):

“Harmless”

3 Impacts of Introductions

From Nico et al. (2011):

“Unknown”

4 Global Distribution

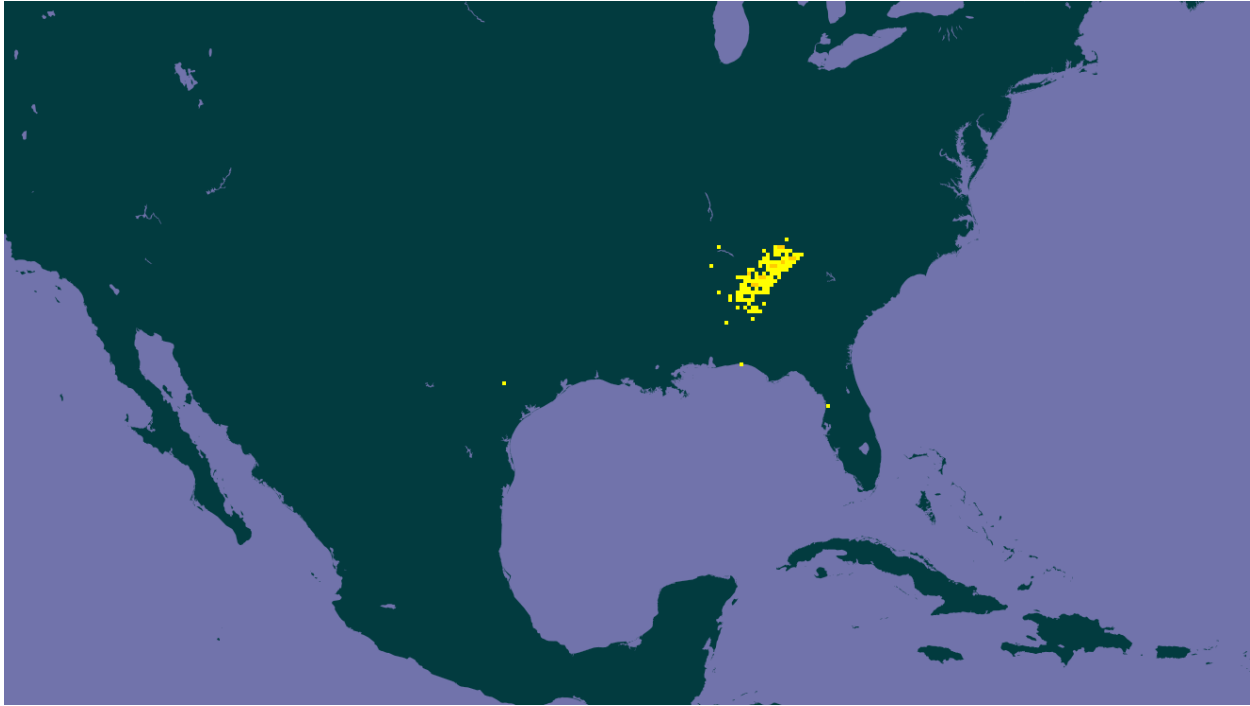


Figure 1. Known global distribution of *Notropis xaenocephalus* in the southeastern United States as reported by GBIF Secretariat (2016).

The location in Texas was verified to be an observation of the correct species but from 1950 (GBIF Secretariat 2016). As there was no other record to corroborate an established population there, the observation was not used as a source location for the climate match.

The described location and the given coordinates of the observation along Alabama's Gulf Coast did not match (GBIF Secretariat 2016) and it was not used as a source location for the climate match. The locations in Florida were determined to be from an actual population of *Notropis xaenocephalus* without discrepancies in the coordinates (GBIF Secretariat 2016); these locations were used as source points in the climate match.

5 Distribution Within the United States



Figure 2. Known US distribution of *Notropis xaenocephalus* as reported by Nico et al. 2011.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match was high in a centralized area of the southeast, including a broad area in and around Tennessee, and much of Florida. The match was medium for much of the Atlantic Coast, and the rest of the south. It was low everywhere else. The areas of highest climate match are those that comprise the native range of *Notropis xaenocephalus*. RAMP does not provide the ability to remove the native range of a species from the climate matching results. Areas outside the native range of the species had a medium to low match. The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous U.S. was 0.154, high. The following states outside the native range of *N. xaenocephalus* had individually high climate scores: Arkansas, Connecticut, Delaware, Florida, Indiana, Kentucky, Louisiana, Massachusetts, Mississippi, New Jersey, North Carolina, Rhode Island, South Carolina, Tennessee, Texas, and West Virginia. Alabama and Georgia, the native range of the species, also had individually high climate scores.

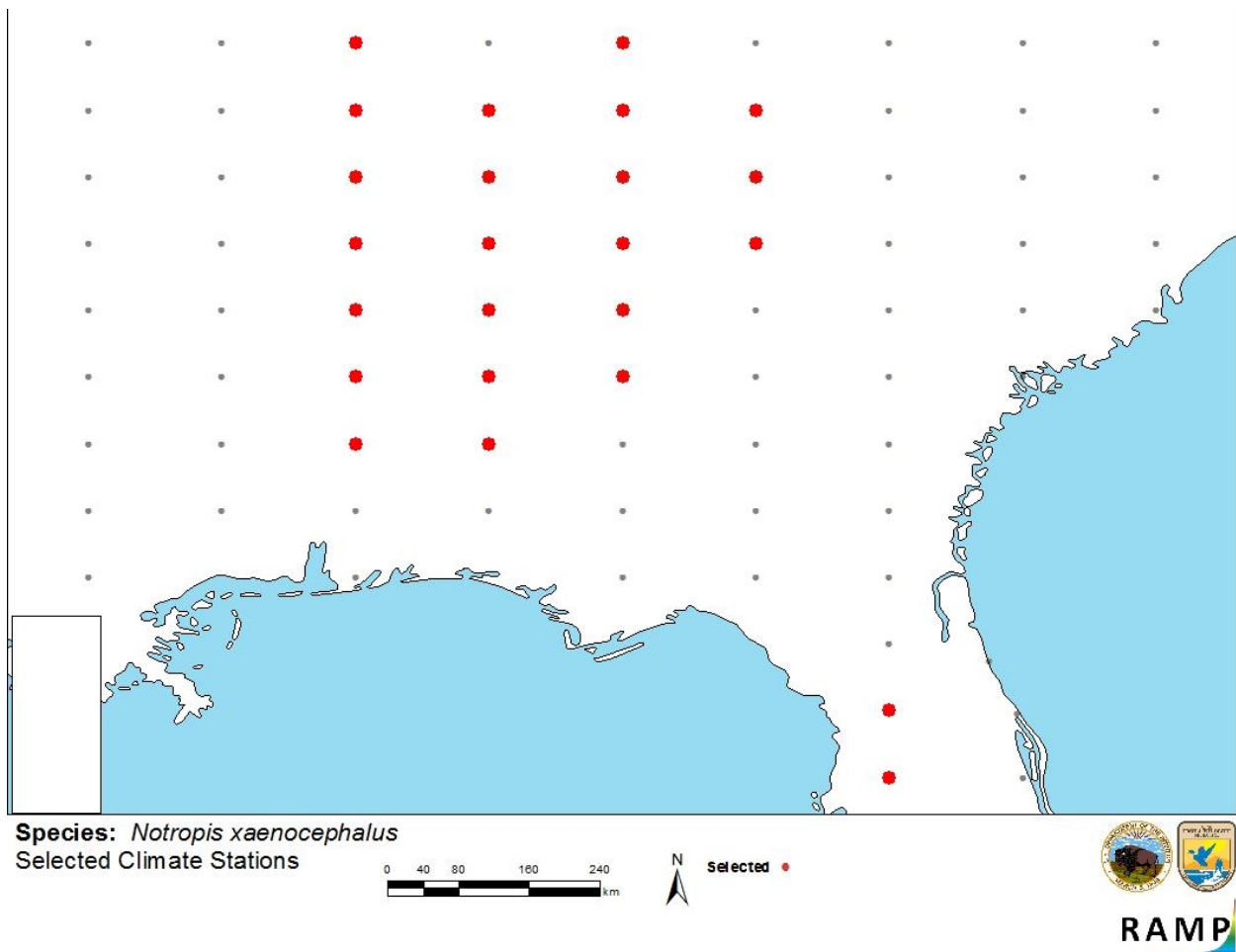


Figure 3. RAMP (Sanders et al. 2014) source map of southeastern United States showing weather stations selected as source locations (red) and non-source locations (grey) for *Notropis xaenocephalus* climate matching. Source locations from Nico et al. (2011) and GBIF Secretariat (2016).

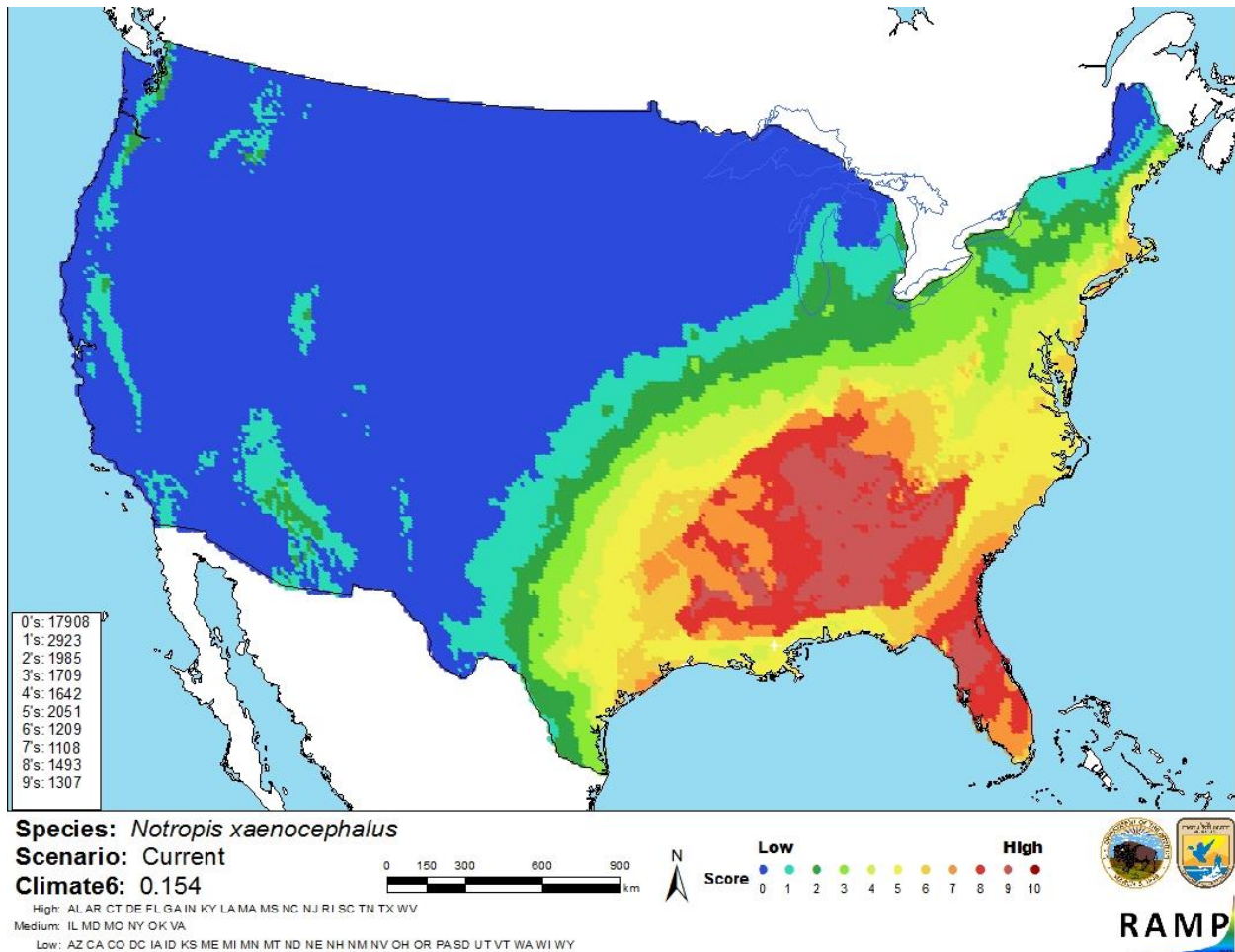


Figure 4. Map of RAMP (Sanders et al. 2014) climate matches for *Notropis xanocephalus* in the contiguous United States based on source locations reported by Nico et al. (2011) and GBIF Secretariat (2016). 0 = Lowest match, 10 = Highest match.

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
$0.000 \leq X < 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

7 Certainty of Assessment

The certainty of this assessment is medium. The information available about *Notropis xanocephalus* was very limited. There was a lack of information available about potential impacts of invasions. The one potential introduction recorded is just outside the native range of the species. It was not stated definitively that the population was the result of an introduction, only that the possibility existed.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Notropis xaenocephalus is native to the United States and not found outside of the United States. The history of invasiveness for *Notropis xaenocephalus* is uncertain. One potential record of introduction outside the native range in the U.S. was found, but the record was not conclusive. *Notropis xaenocephalus* had a high climate match. Within its native range, it occupies only a small region of the potential habitable range indicated by the climate match. The areas of high climate match were centered strongly on the native range. The certainty of assessment is medium. The overall risk assessment category is uncertain. There is potential for this species to survive outside its native range but it is unknown how likely an introduction is or if there would be any ecological impacts.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): High**
- **Certainty of Assessment (Sec. 7): Medium**
- **Remarks/Important additional information** The native range of *Notropis xaenocephalus* is wholly contained within the contiguous United States.
- **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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