

Gulf Coast Pygmy Sunfish (*Elassoma gilberti*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, August 2017

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Photo: *Elassoma gilberti* male in breeding colors. Erica Wieser. Available: <http://fishbase.org/photos/UploadedBy.php?autoctr=11811andwin=uploaded> (August 9, 2017).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2017):

“North America: USA, Florida (Snelson et al. 2009)”

From Snelson et al. (2009):

“*Elassoma gilberti* is found in stream systems draining into the Gulf of Mexico from the panhandle of Florida and extreme southwestern Georgia south through the western portion of the north-central Florida peninsula.”

Status in the United States

From Snelson et al. (2009):

“*Elassoma gilberti* is found in stream systems draining into the Gulf of Mexico from the panhandle of Florida and extreme southwestern Georgia south through the western portion of the north-central Florida peninsula. The western-most drainages occupied in the panhandle are the Choctawhatchee and several smaller stream systems that empty into Choctawhatchee Bay. The species is common in the Florida portion of the Choctawhatchee system but is not yet known from Alabama (Boschung and Mayden 2004). In the Apalachicola drainage, the species is found in tributaries to both the Chipola and Apalachicola systems, with a few records from extreme southwestern Georgia. The species is found in the small Whiskey Creek and New drainages to the east of the Apalachicola and is common in the Florida portions of the Ochlockonee drainage further east. Böhlke and Rohde (1980) plotted a record from the Georgia portion of the Ochlockonee drainage, but supporting specimens have not been located. The species was not reported from the Georgia portion of the Ochlockonee drainage by Swift et al. (1977). East and south of the Ochlockonee, the species is found in all major and some minor drainages south through the Suwannee (discussed in more detail below). The next Gulf drainage south of the Suwannee is the Waccasassa; although material is very limited from this drainage, the [preopercular pore] count of 4-4 in 12 of 14 specimens is consistent with *E. gilberti* [...] A single specimen is known from Homosassa Springs Run in Citrus County, south of the Withlacoochee drainage. The [preopercular pore] count is 4-4, consistent with *E. gilberti*.”

Means of Introductions in the United States

This species is native to the United States (Snelson et al. 2009).

Remarks

Elassoma gilberti and *Elassoma okefenokee* “are almost identical or broadly overlapping in meristic, morphometric, and color features (Snelson et al. 2009).” The two species were identified as being separate species in 2009 (Snelson et al. 2009). The morphometric characters by which the two species are distinguished are discussed under the “Short Description” section found below.

From Snelson et al. (2009):

“The distinction of [*E. gilberti* and *E. okefenokee*] is supported by molecular data. Eight fixed differences (of 553 bp assayed) at the mitochondrial 16S rRNA locus and 12 fixed differences (of 583 bp assayed) found at the nuclear S7 locus differentiated the two species. Phylogenetic analyses using these molecular characters supported monophyletic clades that contained haplotypes and alleles found uniquely in *E. gilberti* and *E. okefenokee*, respectively.”

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From NCBI (2017):

“Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii
Class Actinopteri
Infraclass Teleostei
Order Centrarchiformes
Family Elasmomatidae
Genus *Elassoma* Jordan, 1877 – pygmy sunfishes
Species *Elassoma gilberti*, Snelson, Krabbenhoft and Quattro, 2009”

From Eschmeyer et al. (2017):

“Current status: Valid as *Elassoma gilberti*”

Size, Weight, and Age Range

From Froese and Pauly (2017):

“Max length : 2.5 cm SL male/unsexed; (Snelson et al. 2009)”

From Snelson et al. (2009):

“Average adult body size 22.1 mm SL for males, 22.0 mm SL for females. The largest male measured was 25.5 mm SL, the largest female 26.3 mm SL.”

Environment

From Froese and Pauly (2017):

“Freshwater; pelagic”

From Snelson et al. (2009):

“All species of *Elassoma* [...] prefer springs, swamps, ditches, or slow moving streams with abundant submerged vegetation.”

Climate/Range

From Froese and Pauly (2017):

“Subtropical, preferred ?; 31°N - 30°N, 83°W - 84°W”

From NatureServe (2017):

“Range includes North American Gulf Coastal Plain drainages of Florida and southern Georgia, from the Homosassa Springs Run River, central Florida, to the Choctawhatchee Bay, including the lower Suwannee River drainage (Snelson et al. 2009, Page and Burr 2011).”

Distribution Outside the United States

Native

No known native range outside the United States.

Introduced

No known introductions outside the United States.

Means of Introduction Outside the United States

No known introductions outside the United States.

Short Description

From Snelson et al. (2009):

“*Elassoma gilberti* is distinguished from its close relative *E. okefenokee* by possessing four pores in the preopercular (PO) canal on each side of the head and usually seven anal fin rays. *Elassoma okefenokee* has three PO pores and usually eight anal fin rays. *Elassoma gilberti* has slightly less deep body and slightly smaller dorsal and anal fins than *E. okefenokee*. Breeding females of *E. gilberti* often have blue dashes below and behind the eye, which are lacking in female *E. okefenokee*. Otherwise, the two species are almost identical or broadly overlapping in meristic, morphometric, and color features.”

“Body laterally compressed, with greatest depth at dorsal fin origin. The head is moderately compressed. The anterior profile is narrowly rounded; the mouth is terminal, with the lips projecting slightly beyond the snout tip. All fins are broadly rounded in posterior profile except the pelvics, which are pointed.”

“Males have much longer dorsal, anal, and pelvic fins than females, with little or no overlap in proportional size. The differences in fin size are most pronounced during the breeding season (March through early May), but are evident in adults at all times of the year. Females also have proportionately greater preanal length than males.”

Biology

From NatureServe (2017):

“Habitat includes swamps, heavily vegetated sloughs, and small sluggish streams, usually over mud (Page and Burr 2011).”

Human Uses

Searches of hobbyist websites such as jonahsaquarium.com, nanfa.org, theaquariumwiki.com, and plantedtank.net indicate that *E. gilberti* is used in the United States pet trade.

Diseases

None reported. No OIE-reportable diseases have been documented for this species.

Threat to Humans

From Froese and Pauly (2009):

“Threat to humans: Harmless”

3 Impacts of Introductions

There are no known introductions outside of the native range.

4 Global Distribution

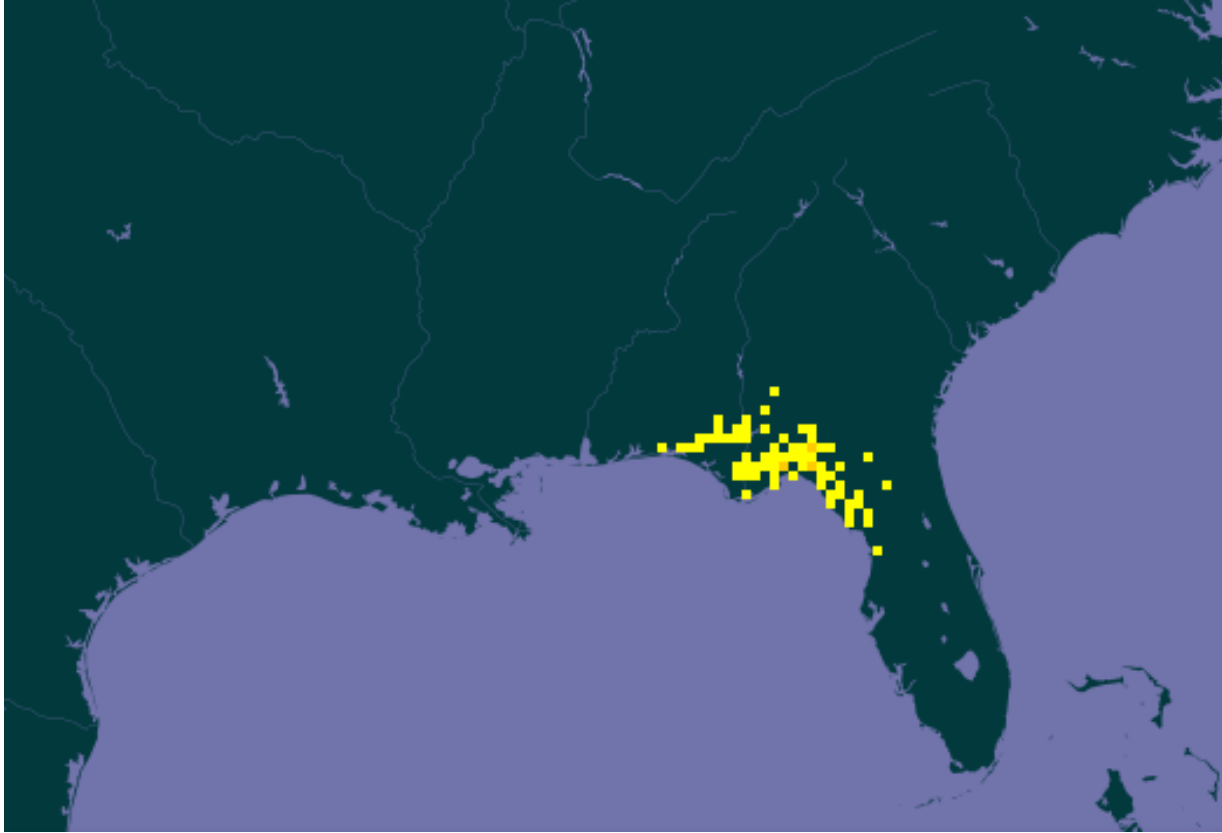


Figure 1. Known distribution of *E. gilberti*, reported from the United States (southern Georgia and northwestern Florida). Map from GBIF (2017).

5 Distribution Within the United States

See Section 4: Global Distribution, above.

6 Climate Matching

Summary of Climate Matching Analysis

E. gilberti is native to stream systems draining into the Gulf of Mexico from Florida and southwestern Georgia. Therefore, the highest climate match is in these areas, further extending along the western Gulf coastline and Atlantic coastline to the northeast. Climate match levels decrease as you move northwest across the contiguous United States.

The Climate 6 score (Sanders et al. 2014, 16 climate variables, Euclidean distance) for the United States was 0.146 which is high.

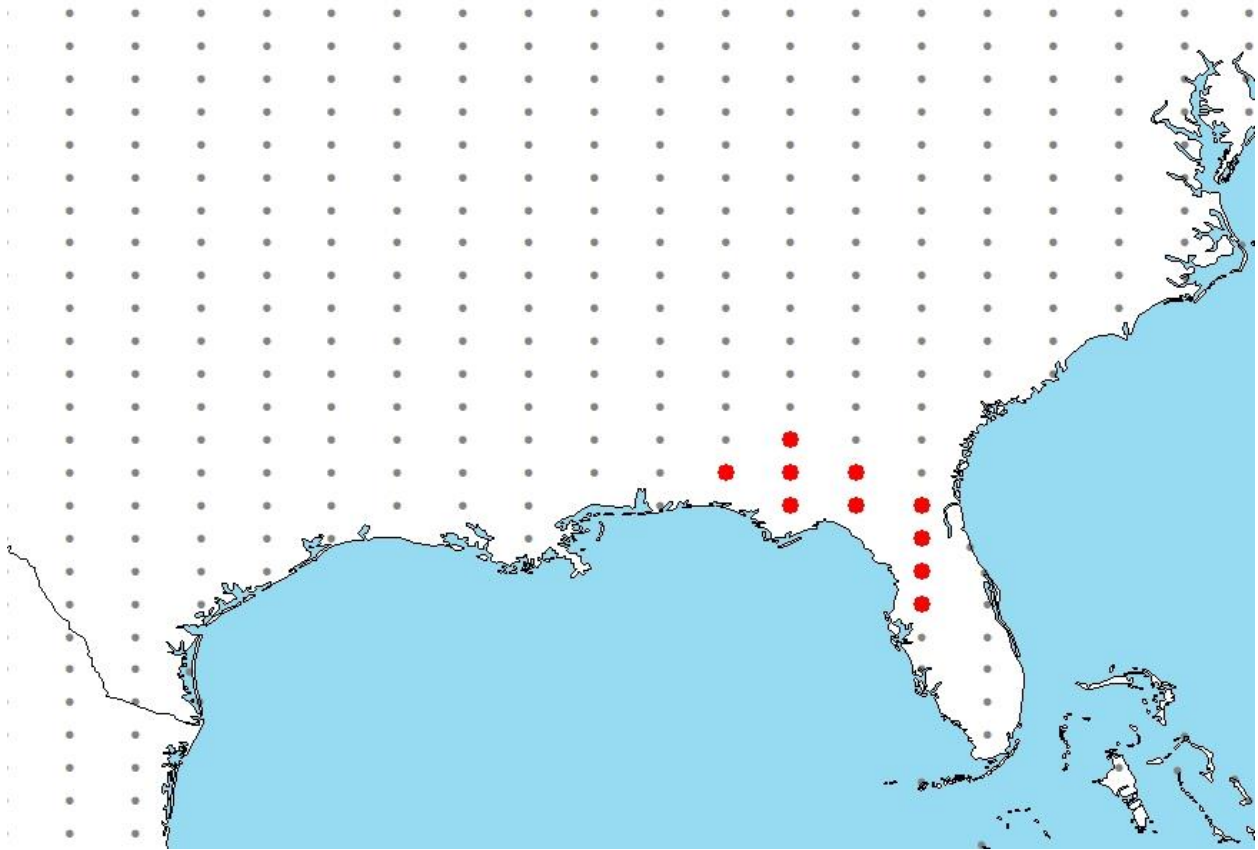


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red; Georgia and Florida, United States) and non-source locations (gray) for *E. gilberti* climate matching. Source locations from GBIF (2017).

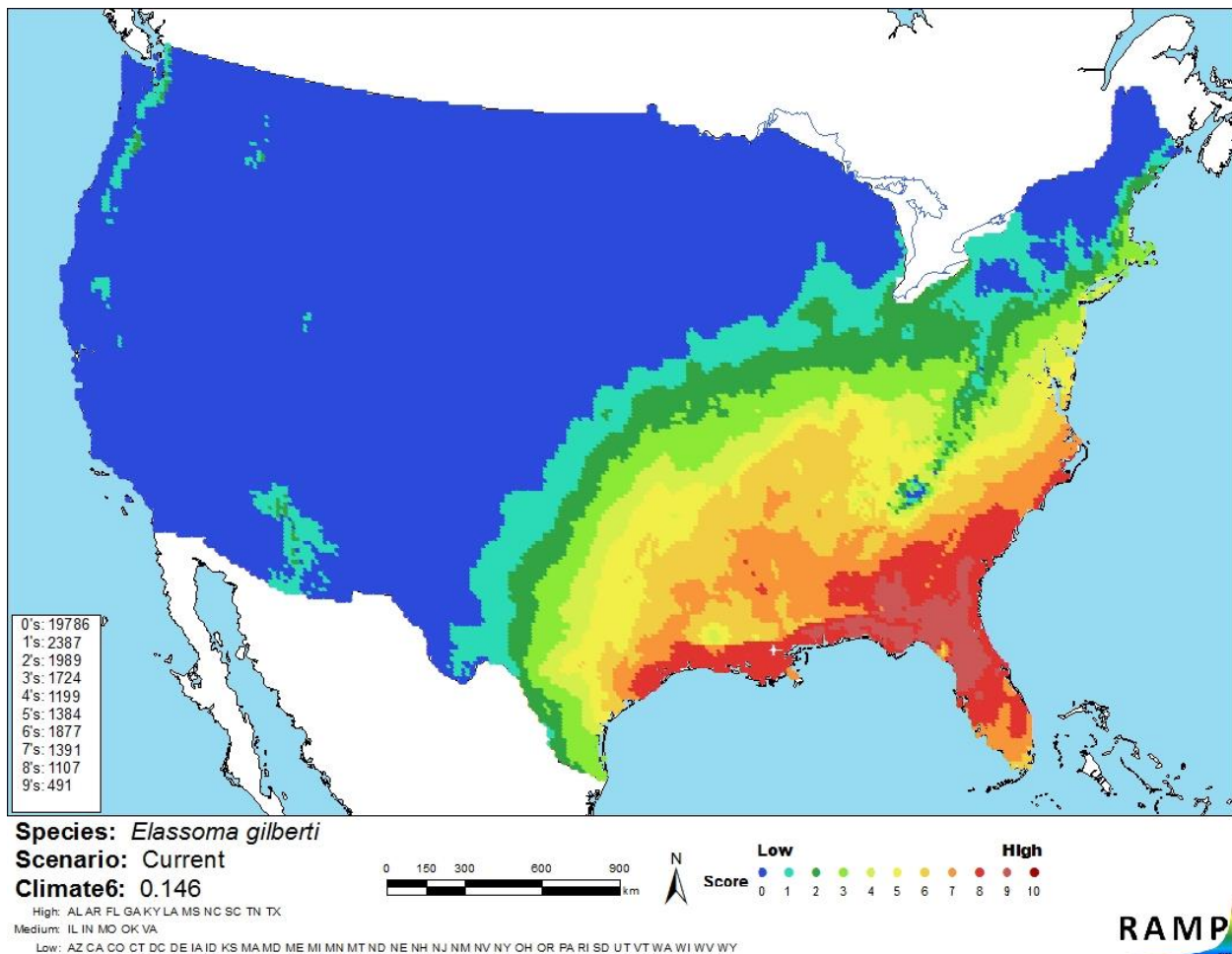


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *E. gilberti* in the contiguous United States based on source locations reported by GBIF (2017). 0= Lowest match, 10=Highest match. Counts of climate match scores are tabulated on the left.

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
≥ 0.103	High

7 Certainty of Assessment

Information found on *E. gilberti* primarily addresses how to differentiate it from other *Elassoma* species, namely *E. okefenokee*, and establishes it as a separate species (Snelson et al. 2009, Eschmeyer et al. 2017, Froese and Pauly 2017). Other relevant information was difficult to locate, likely due to the relatively recent discovery and delineation of this species in the year 2009 (Snelson et al. 2009). No information was found addressing the potential impacts from

introduction. Given the close relationship *E. gilberti* shares with *E. okefenokee*, further research of the *E. okefenokee* species could provide some insight into the potential impacts and behaviors *E. gilberti* might demonstrate. However, given the limited information that is available on this species, the certainty of assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

E. gilberti is a relatively newly delineated species of sunfish native to Florida and southwestern Georgia. Its history of invasiveness is uncertain as the species is not known to be introduced or established outside of its native range. *E. gilberti* is native to the United States, and has a high climate match in the southeastern U.S. Match strength gradually decreases when moving away from these areas and is low in the northern and western United States. However, there is no information available concerning potential impacts from introduction, and little information on the biology of this species which was only recently recognized (Snelson et al. 2009). Given all factors, the overall risk assessment for *E. gilberti* 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.

Eschmeyer, W. N., R. Fricke, and R. van der Laan (eds). 2017. Catalog of Fishes. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (August 2017).

Froese, R., and D. Pauly, editors. 2017. *Elassoma gilberti* Snelson, Krabbenhoft & Quattro, 2009. FishBase. Available: <http://www.fishbase.org/summary/Elassoma-gilberti.html>. (August 2017).

GBIF (Global Biodiversity Information Facility). 2017. GBIF backbone taxonomy: *Elassoma gilberti* Snelson, Krabbenhoft and Quattro, 2009. Global Biodiversity Information Facility, Copenhagen. Available: <http://www.gbif.org/species/5852306>. (August 2017).

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- Sanders, S., C. Castiglione, and M. H. Hoff. 2014. Risk Assessment Mapping Program: RAMP. US Fish and Wildlife Service.
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- Page, L.M., H. Espinosa-Pérez, L.T. Findley, C.R. Gilbert, R.N. Lea, N.E. Mandrak, R.L. Mayden and J.S. Nelson. 2013. Common and Scientific Names of Fishes from the United States, Canada, and Mexico, 7th edition. American Fisheries Society Special Publication No. 34.
- Wieser, E. 2017. Photo of *Elassoma gilberti*. FishBase. Available: <http://www.fishbase.org/photos/ThumbnailsSummary.php?Genus=Elassoma&Species=gilberti#>. (August 2017).

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.

- Böhlke, J.E., and F.C. Rohde. 1980. *Elassoma okefenokee* Böhlke, Okefenokee pygmy sunfish. In: D.S. Lee et al., eds. Atlas of North American Freshwater Fishes. Publication 1980-12, North Carolina Biological Survey, North Carolina State Museum of Natural History, Raleigh, NC.
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- Swift, C., R.W. Yerger, and P.R. Parrish. 1977. Distribution and natural history of the fresh and brackish water fishes of the Ochlockonee River, Florida and Georgia. Bulletin of the Tall Timbers Research Station, No. 20.