

Carolina Pygmy Sunfish

Elassoma boehlkei

Contributor (2005): Jason Bettinger (SCDNR)
Reviewed and Edited (2013): Mark Scott, Andrew R. Gelder, and M. Troy Cribb [SCDNR]

DESCRIPTION



Taxonomy and Basic Description

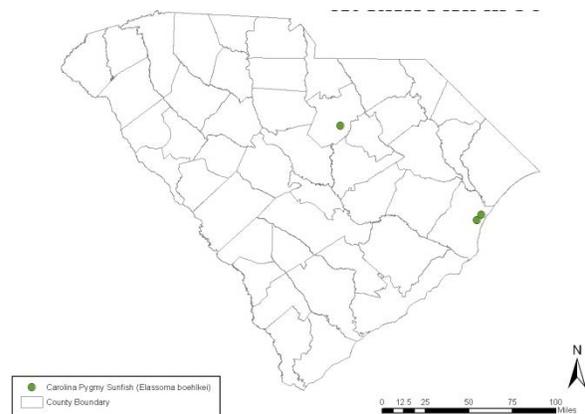
The Carolina Pygmy Sunfish is a member of the family Elassomatidae; this family of small secretive fishes contains 6 known species, all of which are placed in the genus *Elassoma*. The ellassomatids are found only in the Southeastern United States (Rohde et al. 1994). Carolina Pygmy Sunfish range in length from 20 to 32 mm (0.8 to 1.3 in.). As with other members of the genus *Elassoma*, the Carolina Pygmy Sunfish lacks a lateral line, has a relatively large eye, an upturned mouth, and a rounded caudal fin. Males of the species display alternating blue and black bars along their sides. The bars on the females alternate between dark brown and light brown (Rohde et al. 1994).

Status

The Carolina Pygmy Sunfish has received legal status as a federal species of concern, and listed as imperiled on the global scale (G2) and critically imperiled in South Carolina and North Carolina (S1) (NatureServe 2013). It is considered threatened in South Carolina and North Carolina, the only two states where it occurs. It was identified as a species vulnerable to imperilment in a recent assessment of southeastern freshwater fishes (Warren et al. 2000). The Carolina Pygmy Sunfish was considered threatened in a recent assessment of North American freshwater fishes (Jelks et al. 2008).

POPULATION SIZE AND DISTRIBUTION

Only a few populations of Carolina Pygmy Sunfish have been identified in South Carolina. One population exists in Big Pine Tree Creek in the Santee River Basin near Camden, South Carolina. A few populations are known from the Waccamaw River with one or two populations in the upper Waccamaw River in Horry County, South Carolina. Another population is known to occur in the ditches of abandoned rice fields near Georgetown, South Carolina. The only other known occurrences for this species are in North Carolina where two population centers have been identified in the upper Waccamaw River drainage. The range for Carolina Pygmy Sunfish in North Carolina is



restricted to approximately 38.85 km² (15 mi.²) of the Waccamaw River drainage (NatureServe 2013).

When found, the Carolina Pygmy Sunfish is often abundant, and the status of the population is currently believed to be stable. Increased survey efforts in the Waccamaw and Santee drainages will likely lead to the discovery of additional populations (F. Rohde, pers. comm.). The Carolina Pygmy Sunfish was not collected at any randomly selected wadeable stream sites in the South Carolina Stream Assessment (2006-2011).

HABITAT OR NATURAL COMMUNITY REQUIREMENTS

The Carolina Pygmy Sunfish inhabits slow-moving acidic waters of ponds, ditches, and streams in the coastal plain. This species is generally associated with abundant aquatic vegetation and shallow water (Rohde et al. 1994).

CHALLENGES

Although the Carolina Pygmy Sunfish is often locally abundant and believed to be currently stable, its limited distribution is cause for concern. The isolation of this species makes it extremely vulnerable to development, pollution, and habitat alterations. Conservation efforts within South Carolina are critical to the global conservation of the species.

CONSERVATION ACCOMPLISHMENTS

Riverbanks Zoo currently has a propagation and maintenance program of representative populations of Carolina Pygmy Sunfish.

South Carolina Stream Assessment data have facilitated the calculation of standardized abundance (density) estimates for this species at multiple spatial strata including statewide, river basin, level-IV ecoregion, and “ecobasin” (ecoregion x river basin). These estimates, for the first time, provide an objective measure of current population status that will serve as a baseline for following future population trends and gauging the effectiveness of conservation actions.

Educational materials have been developed in order to raise public awareness of nongame species and their ecological importance to the natural history of South Carolina’s aquatic habitats, including:

- The Reel Art program creates a topic for secondary school students and judges the artists’ submissions (e.g. a list of the Piedmont Fishes of SC to select from as subjects for drawing or painting).
- We compiled information and photographs for the development of nongame fish description web pages which are currently in development.
- We developed the Blackwater River Guide and interactive Powerpoint.
 - <http://www.dnr.sc.gov/education/pdf/BlackwaterInteractivePoster.pdf>
 - <http://www.dnr.sc.gov/education/pdf/BlackwaterRivEdGuide.pdf>
- We developed and printed the Fish Species of Concern Coloring Book (2009).
 - <http://www.dnr.sc.gov/aquaticed/pdf/SCFishesofConcernColoringBook.pdf>

CONSERVATION RECOMMENDATIONS

- Use South Carolina Stream Assessment decision-support GIS modeling tools to identify levels and spatial distributions of critical habitat factors to sustain the species in geographic areas of interest.
- Use South Carolina Stream Assessment decision-support GIS modeling tools to identify priority regions and watersheds at greatest risk of decline in stream integrity.
- Describe life history and habitat requirements for the Carolina Pygmy Sunfish.
- Conduct genetic assessments to determine appropriate taxonomy for the Carolina Pygmy Sunfish.
- Protect critical habitats for the Carolina Pygmy Sunfish from future development and further habitat degradation by following Best Management Practices and protecting and purchasing riparian areas.
- Promote land stewardship practices through educational programs both within critical habitats with healthy populations and in other areas that contain available habitat for the Carolina Pygmy Sunfish.
- Encourage responsible land use planning.
- Consider this species' needs when participating in the environmental permit review process.
- Continue to develop educational materials in order to raise public awareness of nongame fish species and their ecological importance to the natural history of South Carolina's aquatic habitats.
- Educate off-road motor vehicle operators of the negative effects of crossing streams at multiple locations and using stream bottoms as trails.

MEASURES OF SUCCESS

Determining the distribution, life history, habitat needs, and Southeastern population structure and trends would represent a measure of success for this species. Methods that protect water quality are also likely to protect this species and others. In the event that more protective BMPs are implemented, population studies of this species could assist in determining the effectiveness of those measures.

LITERATURE CITED

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