

Piedmont Darter

Percina crassa

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



DESCRIPTION

Taxonomy and Basic Description

The Piedmont Darter is a member of the family Percidae. The Piedmont Darter and Blackbanded Darter are the only representatives in the genus *Percina* found in South Carolina.

The absence of tubercles in breeding Piedmont Darter males places this darter in the subgenus *Alvordius*. The specific name *crassa* means “thick” and refers to the rather stocky appearance of this species (Kuehne and Barbour 1983). The Piedmont Darter is a moderate-sized darter ranging in adult length from 68 to 90 mm (2.7 to 3.5 in.) (Rohde et al. 1994). The fish has a general brown color with 7 to 9 vertically elongated oval blotches joined by a mid-lateral band. A caudal spot is usually diffuse and vertically elongated (Kuehne and Barbour 1983). The Piedmont Darter has a black chin bar, black breast spot, and a large black teardrop below the eye. The first dorsal fin has a black edge, a tan band below, a yellow interior, and vertical black markings below the lower portion of each spine (Rohde et al. 1994). Chin, throat, and breast are lightly stippled in females and more heavily so in males.

Status

Warren et al. (2000) classified the Piedmont Darter as currently stable. The Piedmont Darter is not ranked (SNR) in North Carolina or South Carolina (NatureServe 2013). Globally, it is apparently secure (G4) (NatureServe 2013).

POPULATION SIZE AND DISTRIBUTION

The Piedmont Darter is found primarily from northwestern to southeastern North Carolina and in north central South Carolina. The northern extreme of its range extends into a small portion of southwestern Virginia (Rohde et al. 1994). The Piedmont Darter is frequently documented in stream surveys; however, the true abundance of the species is unknown. Based on South Carolina Stream Assessment (2006-2011) data, the mean statewide density estimate for Piedmont Darter in wadeable streams was 0.02 (95% confidence interval: 0.004 – 0.03) per 100 m².

HABITAT OR NATURAL COMMUNITY REQUIREMENTS

The Piedmont Darter is found in clean, moderate to large streams with a sand to cobble substrate. Though a riffle dweller, this darter does not seem to favor extremely strong currents (Kuehne and Barbour 1983; Rohde et al. 1994).

CHALLENGES

Although the Piedmont Darter is currently considered stable, conservation efforts within South Carolina are critical to their global conservation. Approximately one third of the global distribution of Piedmont Darters occurs in South Carolina. Within the State, destruction of stream riffle habitat caused by land development, deforestation, loss of riparian cover, siltation, and hydrologic alterations like channelization and impoundments could jeopardize this species.

CONSERVATION ACCOMPLISHMENTS

South Carolina Stream Assessment (2006-2011) 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 of Piedmont Darters.

- Identify streams with healthy Piedmont Darter populations and intact critical habitat in the upper Santee and Pee Dee drainages. Protect these areas, once identified.
- Protect critical habitats from future development and further habitat degradation by following Best Management Practices (BMPs) 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.
- 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 species and their ecological importance to the natural history of South Carolina's aquatic habitats.
- Educate 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. In the event that more protective BMPs are implemented, population studies of this fish could assist in determining the effectiveness of those measures.

LITERATURE CITED

- Kuehne, R.A. and R.W. Barbour. 1983. *The American darters*. University Press of Kentucky. Lexington, Kentucky. 177 pp.
- NatureServe. 2013. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: March 26, 2013).
- Rohde, F.C., R.G., Arndt, D.G. Lindquist and J.F. Parnell. 1994. *Freshwater Fishes of the Carolinas, Virginia, Maryland, and Delaware*. The University of North Carolina Press. Chapel Hill, North Carolina. 222 pp.
- Warren, M.L., Jr., B.M. Burr, S.J. Walsh, H.L. Bart, Jr., R.C. Cashner, D.A. Etnier, B.J. Freeman, B.R. Kuhajda, R.L. Mayden, H.W. Robison, S.T. Ross and W.C. Starnes. 2000. Diversity, distribution, and conservation status of the native freshwater fishes of the southern United States. *Fisheries* 25(10):7-31.