

Carolina Fantail Darter*Etheostoma brevispinum*

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**DESCRIPTION****Taxonomy and Basic Description**

The Carolina Fantail Darter is a member of the family Percidae. This diverse family contains approximately 150 species of darters, all of which are found in rivers, lakes, swamps and springs of North America (Kuehne and Barbour 1983). The Carolina Fantail Darter belongs to the genus *Etheostoma*, the largest genus of North American fishes. The Carolina Fantail Darter is the only South Carolina representative of the subgenus *Catonotus*. The species *E. brevispinum*—identified from Virginia, North Carolina, and South Carolina—has been recently elevated from subspecies status and named Carolina Fantail Darter (Blanton and Schuster 2008). The adult Carolina Fantail Darter ranges from 45 to 95 mm (1.8 to 3.7 in.) in total length (Jenkins and Burkhead 1994). As is typical of other members of the subgenus *Catonotus*, the Carolina Fantail Darter has a deep caudal peduncle, frenum, closely set pelvic fins, and broadly joined gill membranes. Additionally, this fish is characterized by a spiny dorsal fin comprised of 7 spines with enlarged tips. The Carolina Fantail Darter usually has 7 dark bars on the side set against a light body coloration (Page and Burr 1991; Rohde et al. 1994).

Status

The Carolina Fantail Darter is considered globally secure (G5) but critically imperiled (S1) in South Carolina (NatureServe 2013). Warren et al. (2000) listed the global status of Carolina Fantail Darter as currently stable within its range. The Carolina Fantail Darter has received legal status as a fish of concern in South Carolina.

POPULATION SIZE AND DISTRIBUTION

The Carolina Fantail Darter is endemic to the Piedmont and Blue Ridge sections of the upper Pee Dee and Santee River drainages in South Carolina, and populations occur in at least one sub-drainage in the upper Savannah River system (Warren et al. 2000; Blanton and Schuster 2008).

The Fantail Darter complex is widespread and common in eastern North America, and *E. brevispinum* is considered secure in North Carolina. Based on South Carolina Stream Assessment (2006-2011) data, the mean statewide density estimate for the Carolina Fantail Darter in wadeable streams was 0.004 (95% confidence interval: 0.001 – 0.006) per 100 m².

HABITAT OR NATURAL COMMUNITY REQUIREMENTS

The Carolina Fantail Darter inhabits gravel or rubble riffles in creeks and small- to medium-sized rivers where stronger currents exist. Rocky substrates are important to its benthic feeding habits and spawning behavior.

CHALLENGES

The Carolina Fantail Darter is currently stable throughout its range. The limited distribution of this species within South Carolina makes it vulnerable to impacts from land development, deforestation, loss of riparian cover, siltation, and hydrologic alterations (i.e. channelization and impoundment construction). Because of its limited distribution within South Carolina, such habitat alteration could extirpate it from the State.

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 for Carolina Fantail Darters.
- Identify and protect areas with healthy populations and intact critical habitat for the Carolina Fantail Darter.

- Promote land stewardship practices through educational programs both within critical habitats with healthy populations and in other areas that contain available habitat.
- Consider this species' needs when participating in the environmental permit review process.
- Encourage responsible land use planning.
- 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.

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. Genetic resolution of the status of this species will allow for more specific management protocols.

LITERATURE CITED

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