Common Name: HOLIDAY DARTER

Scientific Name: *Etheostoma brevirostrum* Suttkus and Etnier

Other Commonly Used Names: none

Previously Used Scientific Names: none

Family: Percidae

Rarity Ranks: G2/S2

State Legal Status: Endangered

Federal Status: none

Description: The holiday darter is a small species reaching 58 mm (2.3 in) total length and characterized by an extremely blunt snout and brilliant green and red-orange coloration in breeding males. The sides are marked with 8-10 dark blotches, becoming green bars interspersed with red on breeding males. There are eight dorsal saddles, and the first dorsal fin has a red window anteriorly (not evident in specimen show at bottom of account). In breeding males, the dorsal fins have blue marginal bands and broad red submarginal bands. Males also have a red band on the blue-green anal fin. A dark bar extends below each eye. The holiday darter is a complex of several cryptic species that are currently under investigation. All remarks in this account are pertinent to these new species, but the distribution will undoubtedly change to reflect the existence of several isolated and spatially restricted species deserving protection. The specimen shown above is from Shoal Creek, Alabama. A male and female from the Amicalola Creek system are pictured at the bottom of this account.

Similar Species: The holiday darter belongs to the subgenus *Ulocentra*, commonly known as snubnose darters. Two other snubnose darters occur in the upper Coosa River basin: the Coosa darter (*E. coosae*) and Cherokee darter (*E. scotti*). The holiday darter

can be distinguished from the Coosa and Cherokee darters in having a more blunt snout and a red band appearing over bluish or gray pigment in the second dorsal fin and anal fin in breeding males. Because color patterns in breeding males are the main diagnostic characteristics, it can be difficult to distinguish these species outside of the spawning season in places where they co-occur. The holiday darter can be distinguished easily from the more common speckled darter (*E. stigmauem*) in having eight dorsal saddles compared to the speckled darter's six hourglass-shaped saddles.

Habitat: Holiday darters are found in small- to medium-sized streams with relatively steep gradient. They often inhabit moderate to swift currents, but can be found in slower pools and along stream margins where the substrata is composed of gravel, cobble and sand. Holiday darters often occur in depths of approximately 30 cm (11.8 in).

Diet: Aquatic invertebrates.

Life History: Spawning occurs in the Etowah from April-May at 10-17^{o}C. Breeding males follow or chase females in runs and pools adjacent to riffles. Females look for suitable spawning sites on vertical faces of large cobble, bedrock, or other clean and stable substrate, such as large pieces of wood. Once she has found a suitable spot, the female pecks at the spawning location with her mouth, possibly to further clean the area before the egg is attached. The female then positions her body vertically over the substrate and the male mounts her. A single egg is released at each spawn. The egg is given no further acknowledgement by the pair, though the same cobble or substrate may be used repeatedly.

Survey Recommendations: Holiday darters can be collected using kick-seine methods, with or without the use of a backpack electrofisher, or they may be observed by snorkeling.

Range: The holiday darter is endemic to the upper Coosa River system of Georgia, Alabama, and southeastern Tennessee. The holiday darter, as currently described, actually represents a species complex made up of as many as five genetically and morphologically distinct forms that merit description as new species. In Alabama, one form of the holiday darter is known from the type locality in Shoal Creek and the Choccolocco Creek systems in Calhoun and Cleburne Counties. In Georgia four different forms of the holiday darter occur. These are in the upper portion of the Conasauga system, the upper Coosawattee system, and the upper Etowah River system. In the Etowah system, two forms occur: one in the upper Etowah River and its direct tributaries, and the other in Amicalola Creek and its tributaries. Check the Fishes of Georgia Webpage for a watershed-level distribution map.

Threats: As with the Cherokee darter, potential threats to the holiday darter are habitat loss due to excess silt and sediment runoff, reduced water quality and stream impoundment. The holiday darter is a montane species, and poor riparian management practices, including inadequate implementation of Forestry Best Management Practices (BMPs), pose a significant threat to the species. Sedimentation may also result from

failure to control erosion from construction sites and bridge crossings. Holiday darters require clean cobble or other stable substrate for spawning, thus excess sediment could inhibit spawning success. Stream degradation results from increased stormwater runoff from developing urban and industrial areas.

Georgia Conservation Status: Holiday darters can be locally abundant where they occur in the Etowah and Conasauga River systems. Less is known about the status of the Coosawattee population. Cryptic diversity within this species conservatively requires that each of the four forms that occur within Georgia be independently evaluated by managers until further work formally establishing unique species can be completed.

Conservation and Management Recommendations: Conserving populations of the holiday darter species complex depends on maintaining or improving habitat quality in streams: eliminating sediment runoff from land disturbing activities, such as roadway and housing construction and logging activities, maintaining forested buffers along stream banks, eliminating inputs of contaminants, such as fertilizers and pesticides, and maintaining natural patterns of stream flow. Watershed clearing and urban development can lead to unnaturally flashy stormwater runoff that alters temperature regimes, scours stream channels, and reduces groundwater recharge resulting in lower baseflow conditions. Infiltrating and slowly releasing stormwater runoff from developed areas is an important element in protecting stream habitats for fishes and other aquatic organisms. The holiday darter and other fishes that similarly depend on riffle habitats and clean spawning substrate are especially vulnerable to streamflow depletion because habitats with swift currents that flush fine sediment are diminished at low flows. Impounding streams should be a last resort for developing water supplies in areas where the holiday darter species complex occurs. Technical guidance on how to minimize the impacts of development on sensitive fishes is available through the Etowah HCP website.

Selected References:

Anderson, G. B. 2009. Confronting incomplete detection to address questions about distribution and reproductive season for four imperiled stream fishes. Master of Science thesis, University of Georgia, Athens. 94pp.

Boschung, H. T. and R. L. Mayden. 2004. Fishes of Alabama. Smithsonian Institution, Washington D.C. 736pp.

Etnier, D. A. and W.C. Starnes. 1993. The fishes of Tennessee. Univ. Tennessee Press, Knoxville. 681pp.

Johnston, C. E. and J. R. Shute. 1997. Observational notes on the spawning behavior of the blue shiner (*Cyprinella caerulea*) and the holiday darter (*Etheostoma brevirostrum*), two rare fishes of the Conasauga River, Georgia and Tennessee. Proc. Southeastern Fishes Council 35:1-2.

Lee, S. L., C. R. Gilbert, C. H. Hocutt, R. E. Jenkins, D. E. McAllister, and J. R.Stauffer.

1980. Atlas of North American fishes. North Carolina State Mus. Nat. Hist. 867pp.

Mettee, M. F., P. E. O'Neil and J. M. Pierson. 1996. Fishes of Alabama and the Mobile Basin. Oxmoor House, Birmingham. 820pp.

Page, L. M. and B. M. Burr. 1991. A field guide to freshwater fishes of North America north of Mexico. Houghton Mifflin, Boston. 432pp.

Suttkus, R. D. and D. A. Etnier. 1991. *Etheostoma tallapoosae* and *E. brevirostrum*, two new darters, subgenus *Ulocentra*, from the Alabama River drainage. Tulane Stud. Zool. Bot. 28: 1-24.

Author of Account: Byron J. Freeman and Megan Hagler

Date Compiled or Updated:
B. Freeman, 1999: original account
K. Owers, Jan, 2009: Added picture, updated status and ranks, added fish atlas link, converted to new format, minor edits to text
M. Hagler, July 2009: update original account
Z. Abouhamdan, April 2016: updated links

Male holiday darter collected from the Amicalola Creek system

Female holiday darter collected from the Amicalola Creek system.