

SPECIES ACCOUNTS

Source: Endangered and Threatened Species of the Southeastern United States (The Red Book) FWS Region 4 -- As of 11/92

SNAIL DARTER

(*Percina (Imostoma) tanasi*)

FAMILY: Percidae

STATUS: On October 9, 1975, this species was officially classified in the Federal Register as endangered. On July 5, 1984, the snail darter was reclassified to threatened.

DESCRIPTION: The snail darter is a member of the subgenus *Imostoma* with characteristics most similar to the closely related stargazing darter (*Percina uranida*). Distinguishing characteristics of this fish are as follows: (1) modal number of anal fin rays 12; (2) pectoral and pelvic fins short and rounded; and, nuptial males with pelvic fin tubercles confined to the four median rays. The general body color is variable from brown to olive, sometimes blanch, with a dorsal saddle pattern often strongly evident. Maximum size is approximately 89 millimeters or 3.5 inches.

REPRODUCTION AND DEVELOPMENT: Based on studies conducted in the Little Tennessee River, the spawning period is estimated to occur from mid-winter through mid-spring, and to take place in the shallower shoal areas over large, smooth gravel. Water temperature during this period ranges from 5 to 16 degrees Centigrade. Multiple spawns are suspected. Hatching takes place in about 18 to 20 days, with the larvae then drifting with the current to nursery areas farther downstream. After a nursery period of 5 to 7 months, the juvenile darters begin to migrate back to the upstream spawning areas, where they spend the remainder of the lives. About one-fourth of the darters reach sexual maturity in their first year, and the remainder during the second year. The maximum lifespan seems to be 4 years. Food items of larger snail darters include both aquatic insects and snails, but the snails form the bulk of the diet. The diet of snail darters below about 45 millimeters standard length

has not been studied.

RANGE AND POPULATION LEVEL: The snail darter was discovered August 1973 in the lower Little Tennessee River, Loudon County, Tennessee, by Dr. David A. Etnier. After further collections and study, Dr. Etnier published his findings in January 1976, indicating the snail darter to be a new species of percid fish. Before the construction of various impoundments, this fish probably was abundant in the main channel of the Tennessee River and possibly ranged from the Holston, French Broad, Lower Clinch, and Hiwassee Rivers, and downstream in the Tennessee drainage to northern Alabama.

Snail darter Critical Habitat in the Little Tennessee River was completely eliminated in 1979 by the closure of Tellico Dam. There is some evidence, however, that immediately downstream in the Tennessee River (headwater of Watts Bar Reservoir) a viable population still remains in the 5- to 10-mile stretch of riverine habitat below Fort Loudon Dam. Another population, quite likely of natural origin, was discovered by Dr. Etnier in November 1980, in South Chickamauga Creek between creek mile 5.6 in Tennessee (Hamilton County) and creek mile 19.3 in Georgia (Catoosa County). Subsequent 1981 and 1982 surveys in the Tennessee River drainage have revealed snail darters in Sewee Creek (Meigs County), and a few darters have also been taken from the Tennessee River mainstream just below Chickamauga and Nickajack Dams, the Sequatchie River (Tennessee), and Paint Rock River (Alabama). The remaining distribution has resulted from transplants. Since 1975, snail darters have been transplanted in the following Tennessee Rivers: Hiwassee (Bradley and Polk Counties); Nolichucky (Coke/Greene Counties); Holston (Knox County); and Elk (Giles County). The Nolichucky transplant work was discontinued early, and there has been no definite evidence of a surviving population. In 1988, snail darters were found in the French Broad River upstream from its confluence with the Holston River. The population's status is unknown but occurrences probably stem from the Holston River transplants.

The population in the Little Tennessee River was variously estimated at 5,000 to 20,000 prior to the onset of detrimental impacts from the construction of Tellico Dam. Adequate snail darter population estimates in upper Watts Bar Reservoir (main

channel Tennessee River below Tellico Dam) have not been made. Snail darters transplanted to the Hiwassee River in 1975 and 1976 had produced an estimated population of 2,500 by 1979. Darters transplanted to the Nolichucky River in 1975 apparently did not survive. From December 1978 through November 6, 1979, a total of 104 darters from the Hiwassee and 427 from the Little Tennessee were transplanted to the Holston River near Mascot. In July 1980, a total of 425 snail darters, previously removed from the Tellico project area were stocked into the Elk River. The South Chickamauga Creek population is estimated at 200 to 400. The Sewee Creek population has not been accurately assessed, but possibly numbers a few thousand. The populations in the Paint Rock River and the Sequatchie River are undoubtedly very small as only a few specimens have ever been taken.

HABITAT: In the Little Tennessee River, mature snail darters were known only from portions of gravel shoals in the main channel of the river. Fish were found in the swifter portions of shoals over clean gravel substrate in cool, low-turbidity water. The juveniles utilized downstream nursery sites located in the Tennessee River (Watts Bar Reservoir headwater). The snail darters discovered in South Chickamauga Creek in 1980 also utilize gravel shoal habitat, but the stream itself is much smaller, has lower water quality in some portions, and gets much warmer in the summer. Sewee Creek, where a substantial snail darter population was discovered in April 1991, apparently has good overall water quality and habitat similar to South Chickamauga Creek.

CRITICAL HABITAT: Critical habitat was designated in the Little Tennessee River when the species was listed as endangered in 1975. After a Federal law was passed exempting the proposed filling of Tellico Reservoir from Endangered Species Act protection, the dam destroyed this darter's entire critical habitat area. When the species was downlisted to threatened in 1984, the Little Tennessee River was officially removed from Endangered Species Act protection as snail darter critical habitat.

REASONS FOR CURRENT STATUS: The Little Tennessee River was the snail darter's only known spawning habitat when the species was listed as endangered. Although no populations now exist in the Little

Tennessee River, the proposed and subsequent construction of Tellico Dam sparked reintroduction efforts and population surveys. New populations were either discovered or started in the main stem Tennessee River and in six of its tributaries. After Dr. Etnier's discovery of the South Chickamauga Creek population in November of 1980, and his later find of a single specimen in the lower Sequatchie River, the Tennessee Valley Authority and the U.S. Fish and Wildlife Service initiated new studies in 1981 to better determine the species' range. This research uncovered the Sewee Creek population and a few darters were also collected at several other locations, including the Sequatchie and Paint Rock Rivers. Because several new populations had either been discovered or established, the Snail Darter Recovery Team met with Fish and Wildlife Service biologists to recommend the following actions: (1) Downlist the species from endangered to threatened; (2) Keep the species on the Federal list; and (3) Retain requirements for a Federal permit to collect snail darters if downlisting to threatened occurs. All three recommendations were adopted, and the species was downlisted to threatened in July 1984. Recovery team members voted not to delist the species because the viability of its populations is still unknown.

MANAGEMENT AND PROTECTION: The Snail Darter Recovery Team recommends that there should be at least five separate viable populations to eliminate the threat of extinction. The transplant work conducted to date, along with the other discovered populations, may be sufficient enough to eventually achieve this objective and provide a basis for completely removing the snail darter from the Federal List of Endangered and Threatened Wildlife.

REFERENCES:

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- Starnes, Wayne C. 1977. The Ecology and Life History of the Endangered Snail Darter, *Percina*

(*Imostoma*) *tanasi* Etnier).

Ph.D. dissertation. Univ. Tennessee, Knoxville. 144 pp.