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PROCEEDINGS

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A STATUS REPORT ON THE OKALOOSA DARTER IN NORTHWEST FLORIDA

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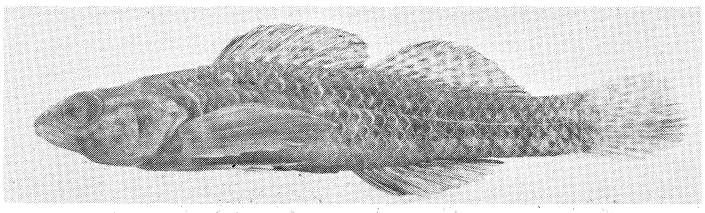
The Okaloosa darter, *Etheostoma okaloosae* (Fowler), is endemic to a portion of the Florida Panhandle in Okaloosa and Walton Counties. It was placed on the list of endangered species in the 4 June 1973 issue of the Federal Register (vol. 38, no. 106) because of the concern over habitat destruction and possible competition from the brown darter, *Etheostoma edwini* (Hubbs and Cannon).

Following its description by Fowler (1941, Proc. Acad. Nat. Sci. Phila. 92:227-244), the Okaloosa darter was virtually unknown until 1960 when Yerger (1960, Bull. Assoc. SE Biol. 7:41) resurrected the name from the synonymy of *Etheostoma swaini* (Jordan) where it had been relegated by Bailey, Winn and Smith (1954, Proc. Acad. Nat. Sci. Phila. 106:109-164). Collette and Yerger (1962, Tulane Stud. Zool. 9:213-230) subsequently redescribed the species and provided systematic, ecological and distributional data on it as well as on *Etheostoma edwini*, the only other member of the subgenus *Villora.* In 1974, Crittenden (1974, U.S. FWS, Atlanta, mimeo.) completed a status report on *Etheostoma okaloosae.* Currently, a recovery team consisting of five members is preparing a recovery plan for the species.

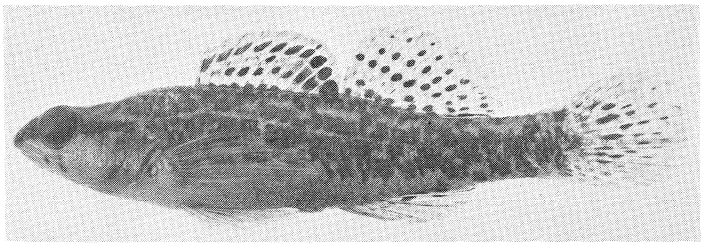


Etheostoma okaloosa **(male)**

The range of the Okaloosa darter is limited to six streams which drain approximately 115,000 acres in the region surrounding Niceville and Valparaiso, Florida. Most of the range lies within the boundaries of Eglin Air Force Base (EAFB) except for about 12,000 privately owned acres surrounding Boggy and Rocky Bayous. Elevations in this vicinity rise to 90 meters, and the high sandhills scattered throughout the area are covered with pine and scrub oak. Most of the land in EAFB is undeveloped except for scattered military installations, roads and areas devoted to forestry practices. The creek flood plains are largely undisturbed except by occasional road crossings, small man-made impoundments, and a few beaver dams.

Extensive field collections by Yerger and associates in the 1950's and early 1960's indicated that the blackbanded darter, *Percina nigrofasciata* (Agassiz), was the only other darter coinhabiting these streams with the Okaloosa darter.

In 1964, W. Mike Howell collected the first specimens of the brown darter from within the range of the Okaloosa darter in Swift Creek at the Florida Highway 20 bridge. Subsequently, Mettee (1970, unpubl. M.S. thesis, Univ. AL) reported two additional stations (one each in Rocky and Swift Creeks) where the two congeners occurred together. Between 1970 and 1974, Mettee found populations of the brown darter at two new sites, one each in Rocky and Swift Creeks. These discoveries brought the total number of brown darter localities within the range of the Okaloosa darter to five. Crittenden (op. cit.) confirmed the presence of the brown darter at all five sites. To determine what impact, if any, the brown darter might have on the Okaloosa darter and to assist the darter recovery team in defining the critical habitat of the latter species, the U.S. Fish and Wildlife Service funded Crittenden and Mettee to conduct a one-year study, beginning in 1975, on this endangered darter.

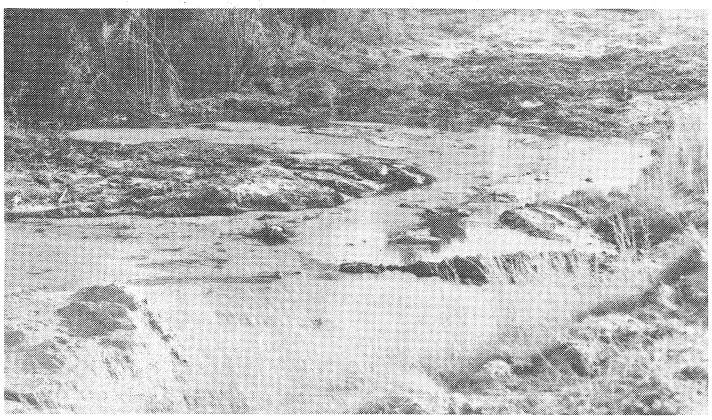


Etheostoma edwini **(male)**

Two factors — possible biological competition and habitat destruction — pose potential threats to the continued existence of *Etheostoma okaloosae.* As of May, 1976, the brown darter (*E. edwini*) was known from 13 sites within the range of the Okaloosa darter: three sites on Swift Creek below the Okaloosa Walton Junior College (OWJC) lake which was constructed in 1968; nine sites from the headwaters to the southernmost tributaries of Rocky Creek; and one site at the mouth of a small but separate stream which drains directly into Rocky Bayou south of the mouth of Rocky Creek.

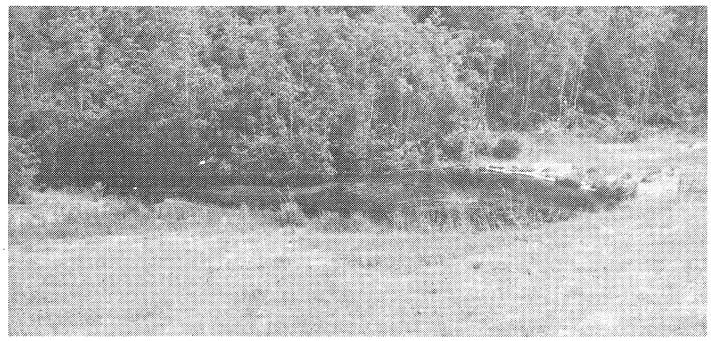
The streams occupied by the Okaloosa darter are characterized as small to moderate in width, varying in

depth from one or two centimeters to a maximum of two meters, with slow to swift current, clear water and predominantly sandy substrate. The Okaloosa darter is most frequently collected around submergent and emergent vegetation along the stream margins and around clumps of aquatic vegetation that frequently occur in midstream at moderate to shallow depths. Because of the limited quantities of preferred habitat available in these streams, the brown darter is also collected from these areas as well as from silty backwater areas not normally occupied by the Okaloosa darter.



Tom's Creek on Florida Highway 85. Okaloosa Co. Fla. April 1971

Because the amount of preferred habitat available to both Okaloosa and brown darters is relatively limited within the range of the endangered form, it is possible that one species might outcompete the other due to a shortage of food, space or a combination of these factors. Data obtained from University of Alabama and Florida State University museum records shows that between the period of 1950-1960 and 1975, the numbers of the Okaloosa darter markedly decreased at the three Swift Creek stations below OWJC lake. During the same period, the numbers of the brown darter taken at these stations gradually increased. Similar data for sites of sympatric occurrence in the Rocky Creek system are being compiled by Crittenden and Mettee.



Tom's Creek on Florida Highway 85. July 1976

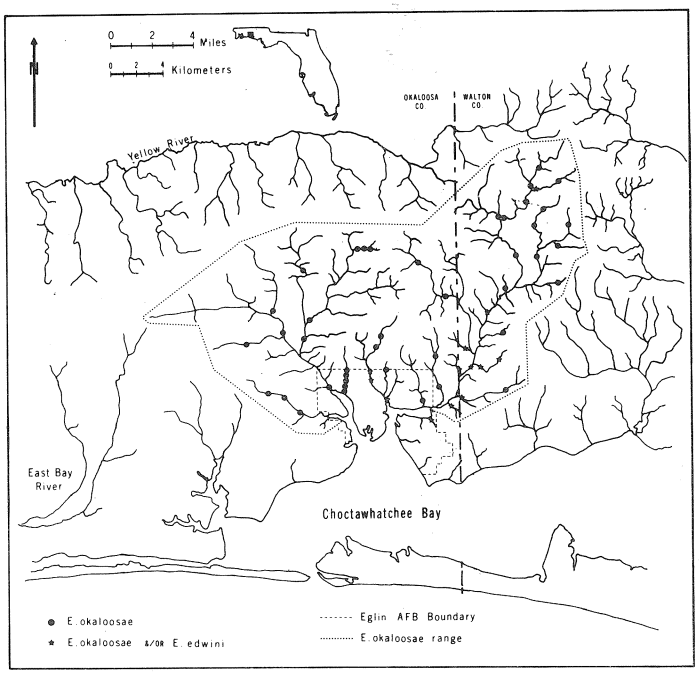
Temporary and permanent habitat destruction pose serious threats to the maintenance of continuous populations of the Okaloosa darter within its relatively small natural range. Impoundments alter the natural environment by reducing water flow, increasing water depth and thereby changing other water quality parameters. The Okaloosa darter has never been collected from any still-water impoundments. However, specimens have been taken from moderate current around vegetation in the lower ends of partially impounded areas formed by road culverts that serve to constrict stream flow.

Habitat destruction associated with bridge construction over Okaloosa darter streams temporarily affect darter populations adversely. Pre- and post-construction data are available for one site on Tom's Creek, a stream containing only the Okaloosa darter and one site on Swift Creek, a stream where both Okaloosa and brown darter are known to occur. The Tom's Creek site (Florida Highway 85) involved the conversion of a two-lane to a double two-lane highway with the installation of box-type culverts in 1971-72. Since construction was completed, the area has returned to a comparatively natural state and the Okaloosa darter has reinvaded the area. On Swift Creek, the two-lane highway (Florida Highway 285) was widened to form a four-lane highway also with box culverts in 1973. The situation is complicated here, however, because the brown darter was present with the Okaloosa darter before construction actually began.

Little Rocky Creek (Type Locality) on Florida Highway 285. Okaloosa Co., Fla. July 1976

During their study, Crittenden and Mettee did not collect any Okaloosa darters at the Highway 285 site; however, 66 specimens of the brown darter were taken in four collections. It is impossible to say if habitat destruction or competition is responsible for the lack of the Okaloosa darter at this site. Its absence probably is the result of the combined effects of both factors acting concurrently and that the brown darter's habitat preference is closer to that of the disturbed conditions. Thus, if numerous sites are undergoing habitat destruction simultaneously, the main population (which is relatively small) of the Okaloosa darter will be so fragmented that conceivably it could be replaced by the competitive brown darter.

In late 1976 or early 1977, a new stretch of highway will be completed which will serve to bypass the cities of Niceville and Valparaiso thereby providing a direct evacuation route north for coastal residents in the event of a hurricane or other major disaster. Two Okaloosa darter streams, Tom's Creek and Turkey Creek, have been bridged by this highway. Project construction was



preceded by several months of hearings and testimony on the possible adverse effects of habitat disruption on the populations of the Okaloosa darter.

Another current highway improvement project involves expansion of the two-lane facilities of Florida Highway 85 north across Juniper (Ten-mile) Creek to a double two-lane road. Both this project and the evacuation project involve habitat destruction. These sites (habitat recovery and darter populations) will be monitored regularly by Crittenden and Mettee pending second-year funding of their studies.

Bulletin: Snail Darter Decision

On 26 July 1976 the Sixth Circuit Court of Appeals issued an order halting construction on the Tellico Dam. The injunction was lifted on 4 August in a revised ruling ". . . the evidence is now clear that the only conduct which would result in destruction of the fish is closure of the dam." Additional hearings will be held in October.

Membership Climbs to 123

The membership of SFC has almost doubled since the last issue of Proceedings. New members and their addresses will be included in this next issue.

News Notes . . .

Roanoke Fauna Supported

The Sunday edition of the Roanoke Times (18 April 1976), Virginia, published a fine feature article on diversity and endemism of the fish fauna of the upper Roanoke River drainage. The article was instigated when Bob Jenkins, Roanoke College, appeared at a Salem City Council meeting the previous week to inform Council that protection of the warm water fauna should be assured. Salem has been planning a multi dam project for the South Fork Roanoke system, which is perhaps the best stronghold of the upper Roanoke fauna, and which harbors good populations of two species proposed for threatened status nationally: orange-fin madtom, *Noturus gilberti;* Roanoke logperch, *Percina rex.*

Snail Darter Print

A limited edition collectors print of *Percina tanasi* provides undivided funds for the legal defense of the snail darter against the accelerated construction efforts of TVA and for the preservation of a unique and beautiful riverine ecosystem. The 8" x 10" print, limited to 2000 copies, is by Delores Roberson, a noted wildlife artist, whose paintings have appeared in Stupka's *Birds of the Smoky Mountains.* The project is sponsored by the Tennessee Endangered Species Committee. Copies are $10. Help a good cause by sending your subscription to P.O. Box 8590, U.T. Station, Knoxville, TN 37916.

Snail Darter Case Appealed

Following a full hearing in regards to the status of the snail darter, TVA, and the Endangered Species Act in Knoxville on 28, 29 April, the court ruled in favor of the defendants, TVA. The decision has been appealed to the U. S. Court of Appeals in Cincinnati. Meanwhile, work continues on the Tellico Dam on the Little Tennessee River. Testifying for the plaintiffs were Dave Etnier, John Ramsey, Wayne Starnes, and Jim Williams. In addition, depositions were made by Herb Boschung and Royal Suttkus.

Widespread Opposition Voiced To Tombigbee Work

The Mobile District of the Corps of Engineers held a public hearing in Demopolis, Alabama, on 29 June over their update plans for the lower Tombigbee River. New freight estimates for the Tenn-Tom Waterway will necessitate down stream "improvements": new locks, 16 cutoffs and a general widening of the lower river. The proposals were met with widespread opposition from environmentalist groups, land owners, railroads and black activists.

Membership Renewals

At the April 1976 meeting in New Orleans it was decided that renewal of membership would be effective on May 15; however, members joining since February 1976 are considered paid through 15 May 1977.

Committees

Committee assignments for the coming year are:
Nominating Committee: Mike Howell, Bob Jenkins, Ralph Yerger.
Resolutions Committee: Bob Cashner, Don Scott, Wayne Starnes.
Publicity Committee: Ray Bouchard, Bob Cashner.
Arrangements Committee: Carter Gilbert.
Special Committee on Area Designation: Ray Bouchard, John Cooper, Bob Kuehne.