

Freshwater mussels, crayfish, and endemic fish fauna in the Eastern and Central United States have experienced serious population declines during the past several decades. A large percentage of the original fauna is now either extinct, federally-listed, or under consideration for federal protection. No other U.S. faunal group has been so decimated. The watersheds of Tennessee along with most major river systems in the United States have experienced a significant decline in diversity and density of its aquatic animal populations. The cause of the problem resulted and continues to result from sedimentation and non-point source pollution loading stemming from intense development, severe stream bank erosion and uncontrolled livestock access to the rivers, lack of sufficient buffer zones, poor agricultural practices, etc.

Our objective for this project was to assist local landowners or municipalities in the implementation of BMPs across multiple counties and improve water quality as it pertains to the federally threatened slackwater darter (*Etheostoma boschungii*). Areas which were targeted were all permanent and intermittent streams with flowing water from December to June, which are within the Cypress and Middle Cypress Creek watersheds identified as Critical Habitat for the slackwater darter. Practices slated to be implemented were riparian restoration, livestock exclusion fencing, alternate watering systems, limited creek access and crossings, blockage removal resulting in fish passage issues, tree and other vegetative plantings, etc.



The first project identified was a culvert system over Middle Fork Cypress Creek which had created a fish passage barrier. It limited the ability of slackwater darters to enter into know spawning habitat. The U.S. Fish and Wildlife Service, in cooperation with the Wayne County Highway Department and the Buffalo/Duck RC and D Council, removed the existing culvert system, which had been compromised by a recent flood and installed a new embedded box culvert system. The new box culvert now allows slackwater darters and many other fish species, to pass and better utilize

headwater spawning areas. In all, over 21 miles of stream habitat was restored upon completion of this project. This effort also serves as a demonstration project to assist in establishing additional partnerships with other landowners in this watershed.

