Southern creekmussel (*Strophitus subvexus*) 102 mm (4 inches). Chewacla Creek, Lee Co., Alabama. Photo by Jason Wisniewski, GA DNR. Specimen provided by the Auburn University Museum courtesy of Dr. Brian Helms.

Common Name: SOUTHERN CREEKMUSSEL (NO LONGER RECOGNIZED AS OCCURING WITHIN THE STATE OF GEORGIA)

Scientific Name: *Strophitus subvexus* Conrad

Other Commonly Used Names: none

Previously Used Scientific Names: none

Family: Unionidae

Rarity Ranks: G3/SNA

State Legal Status: Endangered (Until rescinded by DNR board revision)

Federal Legal Status: none

Description: Thin, compressed to variably inflated shell, oval to elliptical in shape. Anterior margin broadly rounded. Posterior margin typically rounded to slightly pointed or truncate. Ventral margin is broadly rounded but occasionally straight. Hingeline straight, occasionally with a slight wing. Umbos slightly elevated above hingeline. Posterior ridge is angular near

umbo to broadly rounded posterioventrally. Periostracum typically yellow to brown in adults. Left and right valve each with one rudimentary, low pseudocardinal tooth. Lateral teeth absent. Umbo cavity shallow. Nacre typically white.

Similar Species: Alabama creekmussel (*Strophitus connasaugaensis*). The southern creekmussel strongly resembles the Alabama creekmussel and may be the same species in the eastern Mobile River basin. The southern creekmussel can be distinguished from the Alabama creekmussel by the former typically having higher umbos and a more prominent posterior ridge. Additionally, the ventral margin of the southern creekmussel tends to be straight to broadly rounded whereas that of the Alabama creekmussel tends to be straight or arcuate.

Habitat: Sandy and muddy substrates in small creeks to large rivers. Often found in backwaters and streams with little or no flow but also found in areas with moderate flow.

Diet: The diets of unionids are poorly understood but are believed to consist of algae and/or bacteria. Some studies suggest that diets may change throughout the life of a unionid with juveniles collecting organic materials from the substrate though pedal feeding and then developing the ability to filter feed during adulthood.

Life History: Gravid females have been found from February through March. The Alabama hog sucker (*Hypentelium etowanum*), longear sunfish (*Lepomis megalotis*), redeye bass (*Micropterus coosae*), largemouth bass (*M. salmoides*), largescale stoneroller (*Campostoma oligolepis*), Alabama shiner (*Cyprinella callistia*), and creek chub (*Semotilus atromaculatus*), blackspotted topminnow (*Fundulus olivaceus*), channel catfish (*Ictaluris punctatus*), redspot darter (*Etheostoma artesiae*), Tuskaloosa darter (*E. douglasi*), redfin darter (*E. whipplei*), and the blackbanded darter (*Percina nigrofasciata*) all transformed glochidia successfully, with the Alabama hog sucker and Tuskaloosa darter producing the most juveniles per fish.

Survey Recommendations: Surveyors should consider sampling during periods when female individuals are spawning or brooding as this species may have higher detection rates during this period. However, since basic life history information for many of Georgia's unionids is lacking, sampling during periods when closely related species are spawning or brooding my increase probability of detection.

Range: Historically known from the Mobile River basin in Alabama and Mississippi, west to the extreme lower Mississippi River. Historically widespread throughout range but becoming restricted to a few waters in Alabama and Mississippi. In the Mobile River basin of Georgia, the southern creekmussel had appeared to be restricted to Rock Creek, a tributary to the Conasauga River. However, upon review of museum records, Williams et al. (2008) concluded that the specimens of the southern creekmussel from Georgia were actually the Alabama creekmussel. The southern creekmussel had also been reported from the Apalachicola River basin in southwest Georgia, southeast Alabama, and the panhandle of Florida. However, further review of museum specimens suggest that these individuals are the rayed creekshell and restricts the southern creekmussel to the Mobile River basin of Alabama (Williams et al. 2008).

Threats: Excess sedimentation due to inadequate riparian buffer zones, development, and agriculture covers suitable habitat and could potentially suffocate mussels. Poor agricultural practices may also cause eutrophication and degrade water quality. Industrial effluent as well as sewage treatment plant discharges may also be degrading water quality.

Georgia Conservation Status: The southern creekmussel is not known from any state or federal lands in Georgia. Unlike terrestrial species, the occurrence of an aquatic species on state or federal lands may not eliminate habitat degradation due to the influences of upstream and downstream disturbances.

Conservation and Management Recommendations: The southern creekmussel should be removed from the state endangered species list as it is not historically known from waters within the boundaries of the state of Georgia.

Selected References:

Brim Box, J. and J.D. Williams. 2000. Unionid mollusks of the Apalachicola Basin in Alabama, Florida, and Georgia. Alabama Museum of Natural History Bulletin 21. 143 pp.

Haag, W.R., and M.L. Warren, Jr. 1997. Host fish and reproductive biology of six freshwater mussel species from the Mobile Basin, U.S.A. Journal of the North American Benthological Society 16: 576-585.

Vaughn C.C. and C.C. Hakenkamp. 2001. The functional role of burrowing bivalves in freshwater ecosystems. Freshwater Biology 46: 1431-1446.

Williams, J.D., A.E. Bogan, and J.T. Garner. 2008. Freshwater mussels of Alabama and the Mobile Basin in Georgia, Mississippi, and Tennessee. The University of Alabama Press, Tuscaloosa.

Author of Species Account: Jason Wisniewski

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