



Alabama moccasinshell (*Medionidus acutissimus*) 47 mm (1 $\frac{7}{8}$ inches). Conasauga River, Bradley Co., Tennessee. Photo by Jason Wisniewski, GA DNR. Specimen provided by the McClung Museum courtesy of Gerry Dinkins.

Common Name: ALABAMA MOCCASINSHELL

Scientific Name: *Medionidus acutissimus* Lea

Other Commonly Used Names: none

Previously Used Scientific Names: none

Family: Unionidae

Rarity Ranks: G2/S1

State Legal Status: Threatened

Federal Legal Status: Threatened

Description: Shell profile is subrhomboidal to elliptical in outline. Shell is rather delicate with a maximum length of approximately 55 mm (2 $\frac{1}{4}$ inches). Anterior margin broadly rounded while posterior margin is pointed and terminates near the posteroventral margin. Ventral margin is straight to slightly arcuate. Umbos positioned anterior of the middle of the valves and elevated slightly above the hingeline. Posterior ridge is sharply developed with well developed corrugations present on the posterior slope. The periostracum dull to glossy and yellow to green with fine irregularly shaped dark rays radiating from the umbo to the margin of the shell.

Pseudocardinal teeth are short and triangular while lateral teeth are slightly curved. Umbo cavity shallow. Nacre color varies from white to salmon.

Similar Species: Coosa moccasinshell (*Medionidus parvulus*). The Alabama moccasinshell and Coosa moccasinshell may be difficult to distinguish from one another. However, the Alabama moccasinshell typically has more pointed posterior terminus as well as a more angular posterior ridge than Coosa moccasinshell.

Habitat: Typically occupies medium streams to large rivers with gravel substrates and swift flowing shoal areas.

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 through pedal feeding and then developing the ability to filter feed during adulthood.

Life History: Females brood glochidia between the months of October and June. Host fishes are attracted by fluttering modified mantle flaps. Glochidia successfully transformed on the blackspotted topminnow (*Fundulus olivaceus*), Tuskaloosa darter (*Etheostoma douglasi*), redbfin darter (*E. whipplei*), blackbanded darter (*Percina nigrofasciata*), saddleback darter (*P. vigil*), Gulf darter (*E. swaini*), speckled darter (*E. stigmaeum*), Johnny darter (*E. nigrum*), southern sand darter (*Ammocrypta meridiana*), and naked sand darter (*A. beanie*). Additionally, the redspot darter (*Etheostoma artesia*) and Mobile logperch (*Percina kathae*) were primary hosts, while the rock darter (*E. rupestre*) served as a secondary host.

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 may increase probability of detection.

Range: This species is endemic to the Mobile Basin of Alabama, Georgia, Mississippi, and Tennessee as well as the Escambia, Choctawhatchee, and Yellow Rivers of Alabama. Historically known from the Alabama, Tombigbee, Black Warrior, and Coosa River systems. In Georgia, this species appears to be restricted to the Conasauga River and several of its tributaries.

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 Alabama moccasinshell 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: Minimizing sedimentation in the Conasauga River and its tributaries is a key component to conserving the Alabama moccasinshell. Restoration of riparian buffers will stabilize banks, providing clean gravel and sand substrates for the species. If habitat degradation can be minimized, reintroduction/augmentation of the Alabama moccasinshell populations should be explored in order to re-establish viable populations of the species. However, prior to initiating any reintroduction/augmentation projects for the Alabama moccasinshell, the effective population size of this species should be examined to ensure that these actions would not negatively affect the genetic integrity of the population.

Selected References:

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.

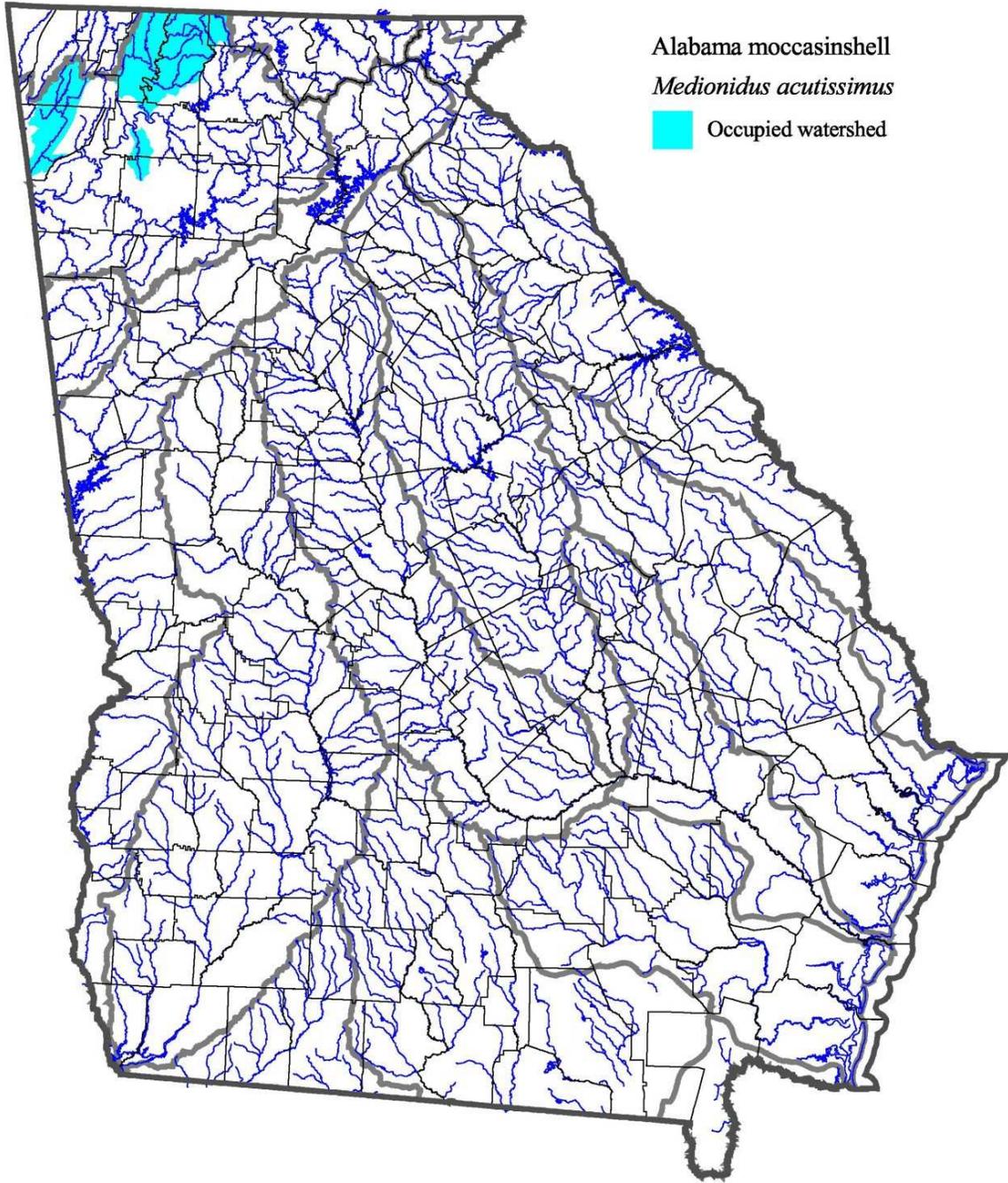
Haag, W.R. and M.L. Warren, Jr. 2003. Host fishes and infestation strategies of freshwater mussels in large Mobile Basin streams, U.S.A. *Journal of the North American Benthological Society*. 22: 78-91.

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

Date Compiled or Updated: September 2008



Watersheds (Huc 10) with known occurrences. Streams, county lines, and major river basin boundaries are also shown. Map generated from GADNR (Nongame Conservation Section) data on January 2009.