Alabama spike (*Elliptio arca*) 57 mm (2¼ inches). Sipsey River, Alabama. Photo by Jason Wisniewski, GA DNR. Specimen provided by the McClung Museum courtesy of Gerry Dinkins.

Common Name: ALABAMA SPIKE

Scientific Name: *Elliptio arca* Conrad

Other Commonly Used Names: none

Previously Used Scientific Names: none

Family: Unionidae

Rarity Ranks: G2G3Q/S1

State Legal Status: Endangered

Federal Legal Status: none

Description: Typically compressed to moderately inflated shell, elliptical or elongate in shape. Maximum length is approximately 90 mm (3.5 inches). Anterior margin is broadly rounded while posterior margin is typically rounded to biangulate. Ventral margin relatively straight to slightly arcuate. Posterior ridge sharply angular to round in larger individuals. Umbos slightly projecting above hingeline. Periostracum typically dark brown to black in adults. Juveniles may be yellow to green with fine rays near the umbo. Left valve with two, triangular, stumpy pseudocardinal teeth and two low, and straight lateral teeth. Right valve with one low, serrated

pseudocardinal tooth and one, typically high, straight, and long lateral tooth. Umbo cavity typically shallow and wide. Nacre variable but typically bluish white to salmon.

Similar Species: Delicate spike (*Elliptio arctata*). The Alabama spike can be distinguished from the delicate spike by the former typically having a thicker, heavier shell and longer length. The Alabama spike is typically more inflated and has heavier teeth.

Habitat: Gravel or sand shoals in medium sized creeks to large rivers. Occasionally found in sand-bottomed runs with slow, steady current. Rarely found in slack water or silt.

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: Females were found releaseing glochidia from June through July. Primary glochidial hosts are the redspot darter (*Etheostoma artesiae*) and blackbanded darter (*Percina nigrofasciata*).

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: Endemic to the Gulf Slope drainages in Alabama, Georgia, Mississippi, and Tennessee. Historically widespread throughout its range but becoming restricted to a few river systems in Alabama, Mississippi, and Georgia. In Georgia, the Alabama spike appears to be restricted to the Oostanaula River. Although two collections of single specimens of the Alabama spike were made from the mainstem Coosawattee and Conasauga rivers in 1997 and 1998, respectively, few recent collections of live individuals have been made, suggesting that this species may be extremely rare or extirpated from these rivers.

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 degraded water quality. Incompatible dam operations on the Coosawattee River are thought to be a reason for the possible extirpation of this species from the river.

Georgia Conservation Status: The Alabama spike 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: Changing the operations of Carters Reservoir was identified as a high priority management need for the restoration of the Alabama

spike to the Coosawattee River. Irregular flow regimes coupled with cold hypolimnetic discharges are believed to have caused the decline of the species in the Coosawattee and Oostanaula rivers. Minimizing the impacts of sedimentation within the Conasauga River may improve existing habitat within the river and provide suitable areas for reintroduction/ augmentation of the species. Surveys should be done to assess the abundance and distribution of the Alabama spike in the Upper Coosa River Basin.

Selected References:

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.

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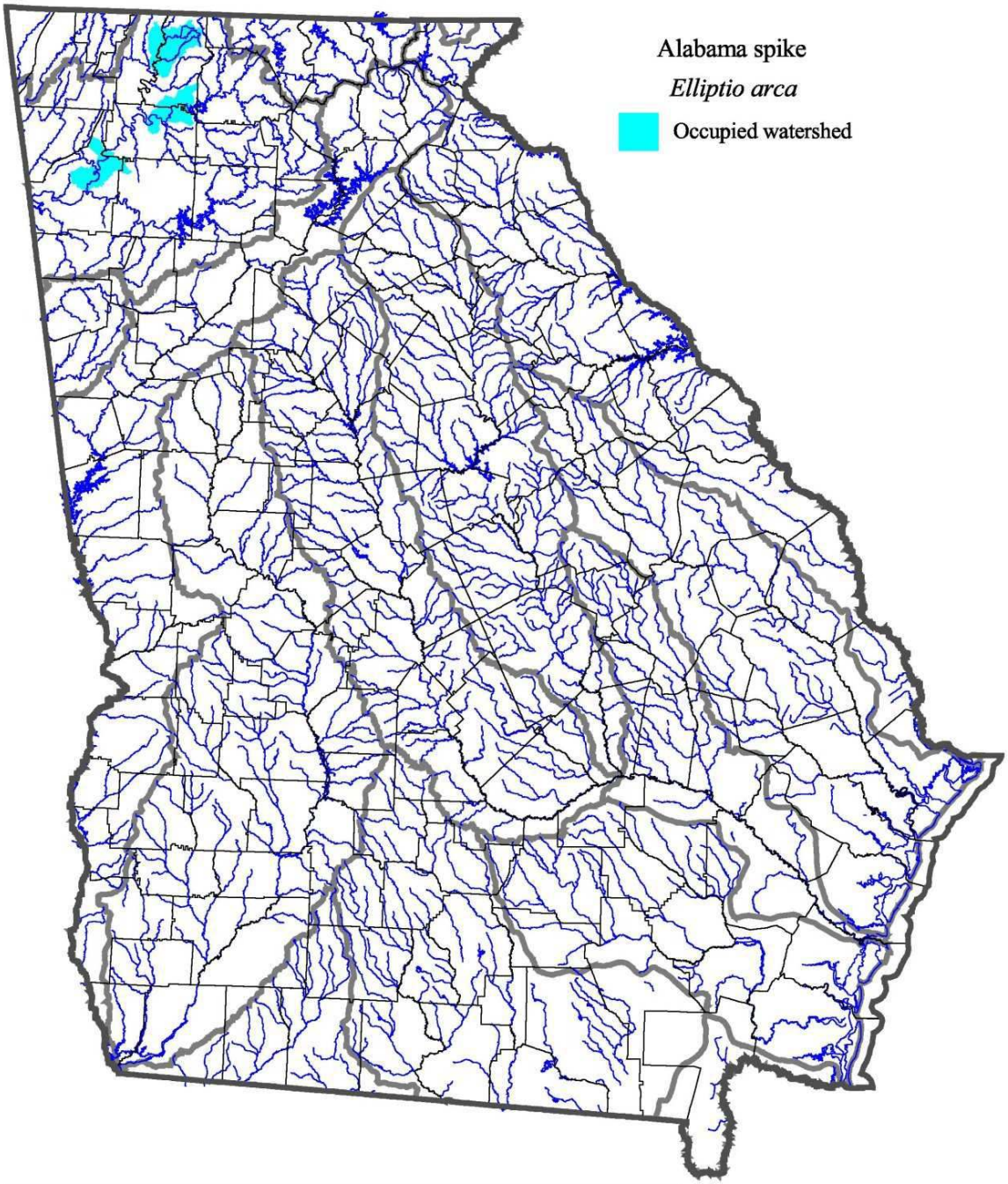
Date Compiled or Updated: September 2008



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 26, 2009.