



Delicate spike (*Elliptio arctata*) 64 mm (2½ inches).
Mill Creek, Baker Co., Georgia. Photo by Jason
Wisniewski, GA DNR. Specimen courtesy of Gerry
Dinkins.

Common Name: DELICATE SPIKE

Scientific Name: *Elliptio arctata* Conrad

Other Commonly Used Names: none

Previously Used Scientific Names: none

Family: Unionidae

Rarity Ranks: G2G3Q/S1S3

State Legal Status: Endangered

Federal Legal Status: none

Description: Typically compressed to moderately inflated shell, elliptical or elongate in shape. Maximum length is approximately 3.5 inches (90 mm). 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: Alabama spike (*Elliptio arca*). The delicate spike can be distinguished from the Alabama spike by the former typically having a thinner shell and shorter length. Furthermore, the delicate spike is typically more inflated and has heavier teeth.

Habitat: Gravel or sand shoals in medium to large rivers. Occasionally found in sand-bottomed runs with slow, steady current. Usually found adjacent to or underneath large boulders or limestone bedrock in center channel; 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 through pedal feeding and then developing the ability to filter feed during adulthood.

Life History: The life history of this species is poorly understood, but females are believed to brood glochidia in the spring or summer. Glochidial hosts are unknown.

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: Historically widespread from the Apalachicola River Basin west to the Pearl River in Mississippi, but becoming more restricted throughout its range. Within Georgia, the delicate spike historically occurred in the Mobile and Apalachicola River basins, above and below the Fall Line. It currently appears to be extremely rare or extirpated in the Mobile River basin of Georgia. Only three recent collections of live individuals have been made and few shells have been collected despite extensive sampling in the Conasauga, Coosawattee, and Oostanaula rivers. In the Apalachicola River basin, this species appears to be restricted to the Flint River and its tributaries. The delicate spike has also been reported from the Atlantic Slope of Georgia, but this report may be of a different or unrecognized species.

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. Incompatible dam operations on the Coosawattee River may be affecting downstream unionids. Excessive agriculture water pumping in the Lower Flint River basin may be affecting individuals occupying smaller streams prone to drying during periods of extreme drought.

Georgia Conservation Status: The delicate 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: Examination of the basic life history was identified as a top research priority needed for the conservation of this species during the 2005 Georgia Wildlife Action Plan. Understanding the basic life history of this species will provide the foundation upon which all other research and conservation actions should be built. The taxonomy of the delicate spike should also be investigated to determine if individuals collected from the Apalachicola River basin and Atlantic Slope drainages are similar to those from the Mobile Basin.

Selected References:

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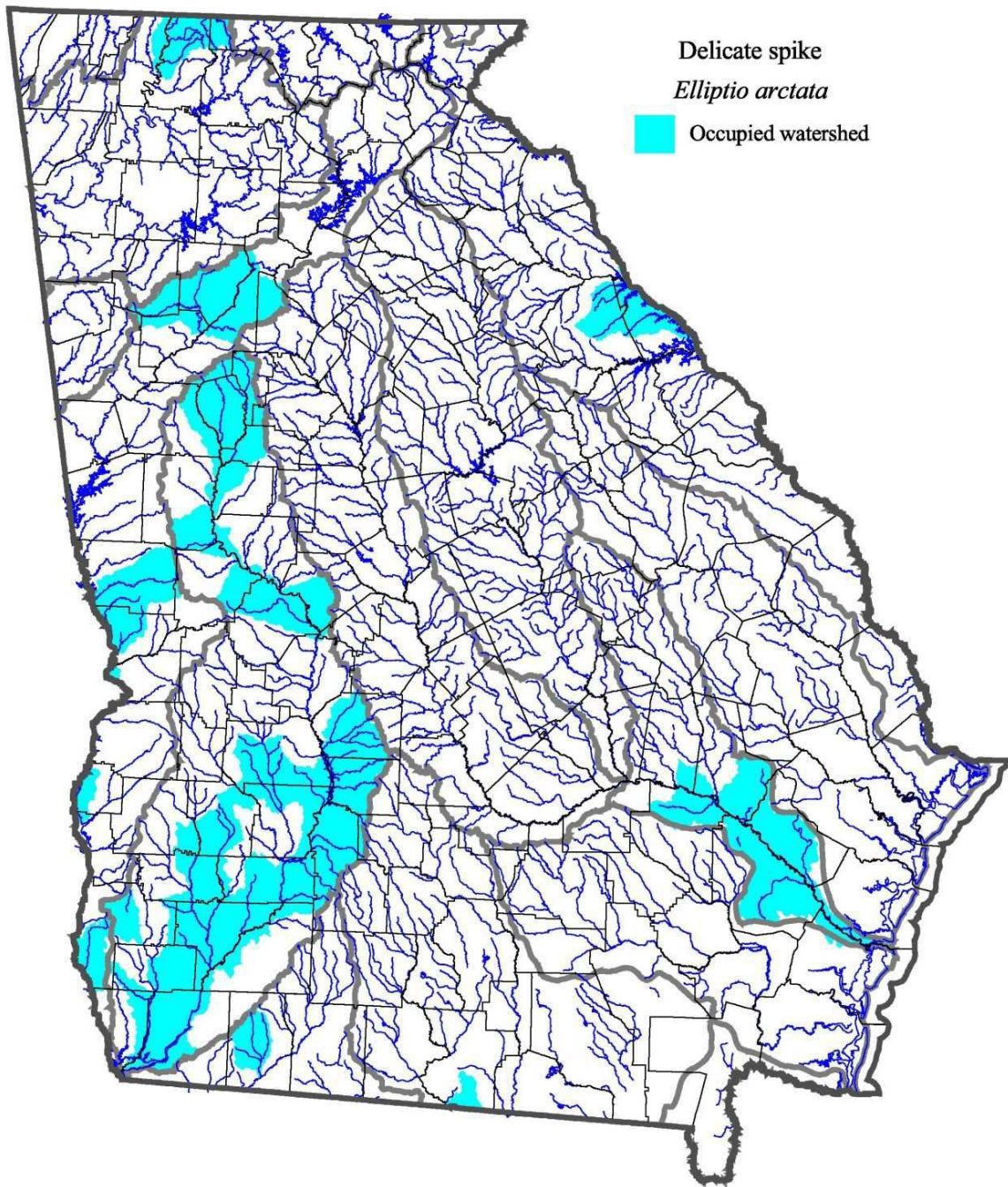
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Williams, J.D., A.E. Bogan, and J.T. Garner. 2008. Freshwater mussels of Alabama and the Mobile Basin in Georgia, Mississippi, and Tennessee. The University of Alabama Press, Tuscaloosa.

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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.