Inflated spike (*Elliptio purpurella*) 48 mm (1⅞ inches). Spring Creek, Miller Co., Georgia. Photo by Jason Wisniewski, GA DNR.

Common Name: INFLATED SPIKE

Scientific Name: *Elliptio purpurella* Lea

Other Commonly Used Names: none

Previously Used Scientific Names: none

Family: Unionidae

Rarity Ranks: G2/S2

State Legal Status: Threatened

Federal Legal Status: none

Description: Shell is small, inflated, and elliptical or elongate in shape. Maximum length is approximately 65 mm (2.6 inches). Anterior margin is broadly rounded while posterior margin is typically rounded or truncated. Ventral margin is relatively straight to slightly arcuate. Umbos project slightly above hingeline. Posterior ridge rounded and flattens posterioventrally. Periostracum typically green to dark brown or black in adults. Often with broad green rays present. Left valve with two triangular pseudocardinal teeth and short, straight lateral teeth. Umbo cavity typically shallow and wide. Nacre typically purple or white.

Similar Species: Delicate spike (*Elliptio arctata*), Gulf slabshell (*Elliptio fumata*), and Gulf spike (*Elliptio pullata*). The inflated spike can be distinguished from the delicate spike, Gulf

slabshell, and Gulf spike by the former being relatively more inflated than the other species. The inflated spike typically has a slightly arcuate outline whereas Gulf slabshell and Gulf spike often have a straight to broadly rounded ventral margin and sometimes the presence of a wing and more pointed posterior terminus.

Habitat: Sand and limestone shoals in medium sized creeks to large rivers. Occasionally found in sand-bottomed runs with slow, steady current; sometimes found in clay-bottomed streams.

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: The life history of this species has been poorly studied. Surveys conducted during the early 1990's checked 369 individuals between the months of May and September but failed to find any gravid females. Furthermore, no gravid individuals have been observed during sampling in the lower Flint River basin during the months of May through October.

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 Apalachicola River basin of Alabama and Georgia. Historically present in the Chattahoochee, Chipola, and Flint basins of Alabama and Georgia, but not the Apalachicola River or its smaller tributaries. The inflated spike appears to be limited in its distribution throughout the lower Flint River basin, but often occurs in relatively high abundance when present. An additional population may also exist in the Ochlockonee River in Georgia. However, the taxonomy of these specimens should be examined before extending the range of the inflated spike into the Ochlockonee River basin.

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. Excessive agriculture water pumping in the lower Flint River basin appears to stress the aquatic resources of the basin in periods of extreme drought.

Georgia Conservation Status: The inflated 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 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. Investigating the effects of groundwater withdrawals on the distribution and abundance of rare species in the lower Flint River basin was also identified as a high priority research need for this species.

Selected References:

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

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Author of Species Account: Jason Wisniewski

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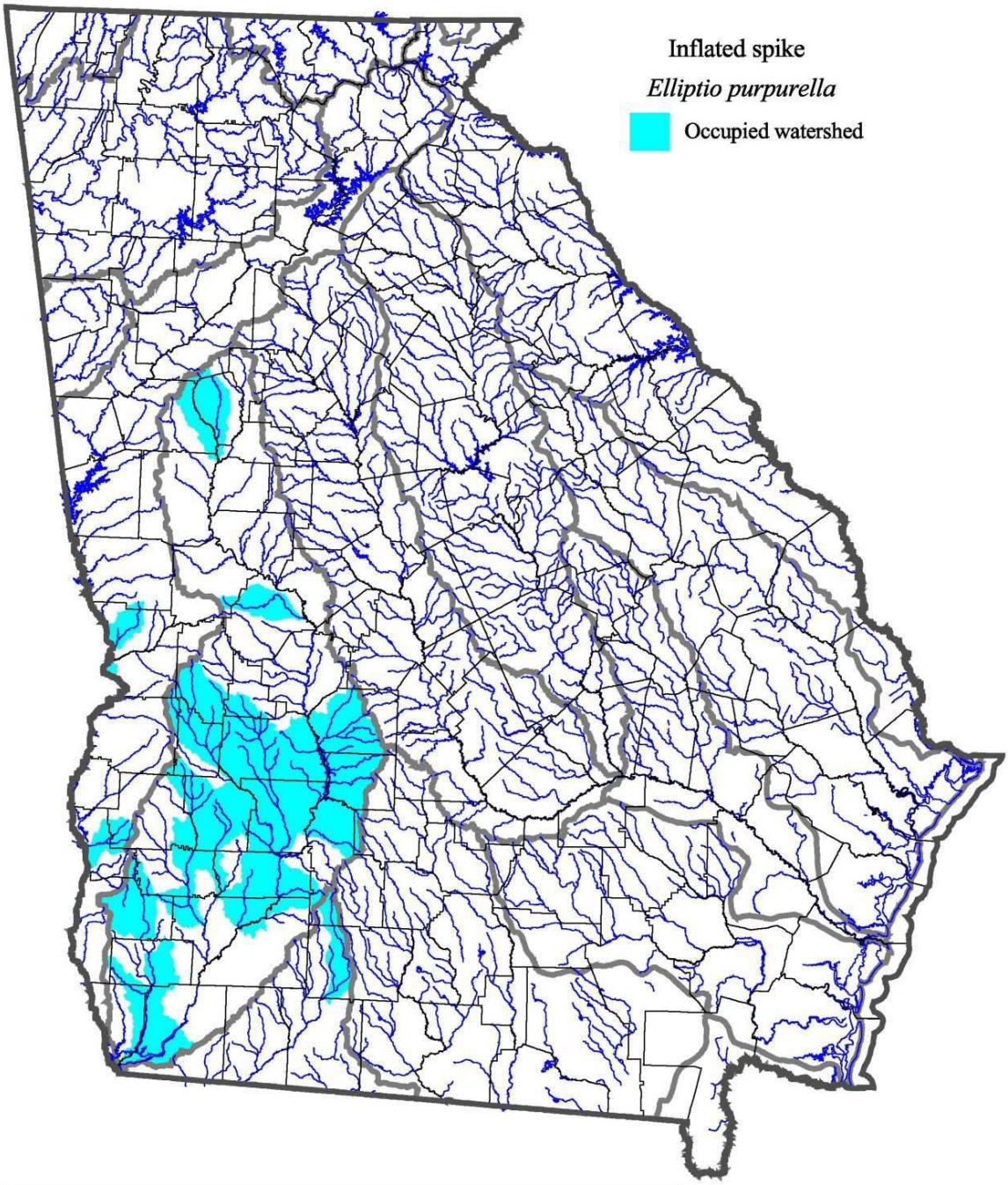

Watersheds (Huc 10) with known occurrences. Streams, county lines, and major river basin boundaries are also shown. Map generated from GADNR (Nongame Conservation Section) data on January 2009.