



Altamaha arc mussel (*Alasmidonta arcula*) 60 mm (2½ inches). Altamaha River, Wayne Co., Georgia. Photo by Jason Wisniewski. GA DNR.

Common Name: ALTAMAHA ARCMUSSEL

Scientific Name: *Alasmidonta arcula* Lea

Other Commonly Used Names: none

Previously Used Scientific Names: none

Family: Unionidae

Rarity Ranks: G1/S1

State Legal Status: Threatened

Federal Legal Status: none

Description: Shell is delicate, inflated, often with distinct concentric sculpturing near the umbo. Rarely exceeds 80 mm (3¼ inches) in length. Umbos are elevated above the hingeline and positioned centrally to slightly anterior of the triangulate shell. Adults typically have brown to yellow periostracum with dark rays. Posterior ridge is sharp and straight. Right valve has one delicate pseudocardinal tooth and a short, delicate lateral tooth. Left valve has one to two

delicate, serrated pseudocardinal teeth with lateral teeth absent or reduced. Beak cavity is shallow and nacre is typically white or iridescent.

Similar Species: None.

Habitat: Typically found in sloughs, oxbows, or depositional areas in large creeks to large rivers with silt, mud, and/or sand substrates. The Altamaha arc mussel is associated with a wide range of substrates from coarse sand to medium silt, but this species was most commonly found in fine sand. In 2007, surveys of the Altamaha River found individuals most frequently occupying areas with gently sloping banks, often times with low hanging willows and soft mud. Individuals were less frequently encountered in other habitats, but were sometimes found in coarse sand and gravel substrates in pools of 2 - 3 meters (6 - 9 feet) deep.

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: Little is known about the life history of the Altamaha arc mussel. Several animals with partially filled gills have been observed in late May and October. The host fish for the Altamaha arc mussel is unknown although glochidia have successfully transformed on the eastern mosquitofish. However, the mosquitofish is not considered to be a primary host as it is unlikely that these species would interact under natural conditions.

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 believed to be endemic to the Lower Altamaha River basin including the Ochopee, Ocmulgee, and Little Ocmulgee rivers. One relict shell was collected in 1993 from Turkey Creek (Oconee River), Laurens County. Within the Ocmulgee River, the upstream extent of the known population is near the mouth of House Creek, Ben Hill County. However, recent genetic and conchological analyses of specimens collected from the Ogeechee River in 2004 suggest that this species is also *Alasmidonta arcula* (A. Bogan, North Carolina State Museum of Natural Sciences, personal communication; J. William, personal communication). Furthermore, 2 live *Alasmidonta* sp. were collected during a 2006 survey of the Savannah River downstream of the city of Augusta. These individuals strongly resemble the Altamaha arc mussel and are awaiting confirmation through genetic analysis.

Threats: Excess sedimentation due to inadequate riparian buffer zones cover suitable habitat and could potentially suffocate mussels. Direct and indirect competition by the introduced flathead catfish may be reducing native mussel populations through direct consumption of mussels and their host fishes. All-terrain vehicles may also impact this species within the Ochopee River.

Georgia Conservation Status: The Altamaha arc mussel is known from the Altamaha and Ocmulgee rivers, which border several state owned lands in Georgia. These lands are Moody Forest Natural Area, Griffin Ridge Wildlife Management Area (WMA), Big Hammock WMA, Bullard Creek WMA, Horse Creek WMA, and Flat Tub WMA. However, 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. Riparian buffers should be protected to avoid unnecessary bank erosion as this species often is found in shallow areas near the water's edge. Minimizing impacts of all terrain vehicles near waterways will also prevent crushing individuals of this species and other mollusks occupying edge water habitats.

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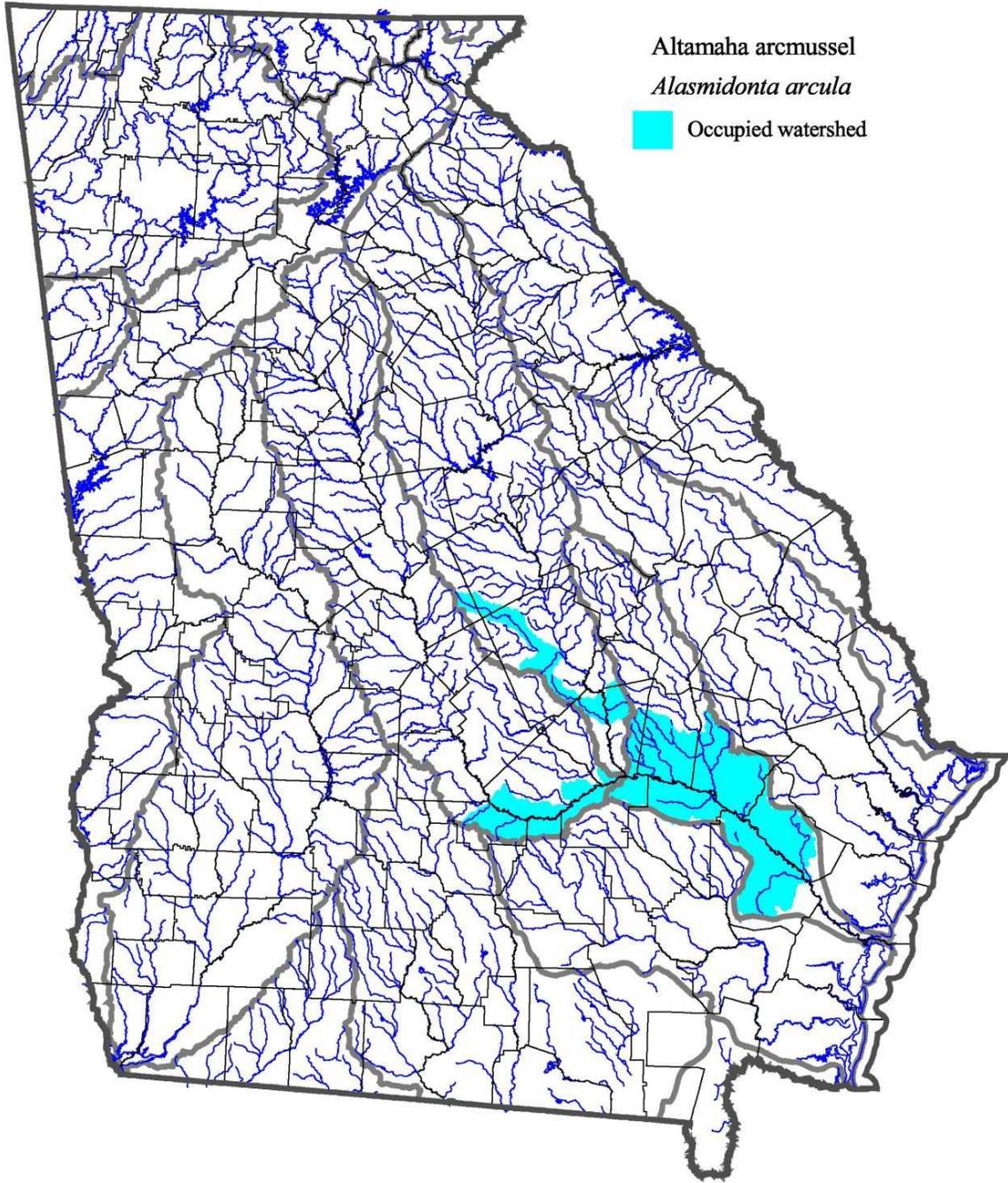
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Watersheds (Huc 10) with known occurrences. Streams, county lines, and major river basin boundaries are also shown. Map generated from GADNR (Nongame Conservation Section) data on January 2009.