Purple bankclimber (*Elliptoideus sloatianus*) 157 mm (6⅛ inches). Apalachicola River, Gadsen Co., Florida. Photo by Jason Wisniewski, GA DNR. Specimen provided by the McClung Museum courtesy of Gerry Dinkins.

Common Name: PURPLE BANKCLIMBER

Scientific Name: *Elliptoideus sloatianus* Lea

Other Commonly Used Names: none

Previously Used Scientific Names: none

Family: Unionidae

Rarity Ranks: G2/S2

State Legal Status: Threatened

Federal Legal Status: Threatened

Description: Shell is thick and heavy and quadrate to rectangular in profile with a maximum length of approximately 8.1 inches (205 mm). Posterioventral margins biangulate. Ventral margins typically straight to slightly arcuate. Posterior ridge prominent dorsally, but flattens ventrally. Periostracum of larger, adult individuals dark brown to black with sculpturing present on most of shell with prominent sculpturing on the last two thirds of the shell. Young individuals typically have shiny yellow to light brown periostacum. Umbo typically elevated above

hingeline slightly, but often eroded. Left valve with two heavy pseudocardinal teeth and two lateral teeth. Right valve with one pseudocardinal tooth. Umbo cavity typically shallow and nacre color white with a purple hue present outside of the pallial line.

Similar Species: Washboard (*Megalonaias nervosa*). The purple bankclimber can be distinguished from the washboard by the former having a rectangular outline, more prominent posterior slope, and purple nacre near the shell margin.

Habitat: Typically occupies small to large rivers with moderate current and sandy to silty substrates.

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: Mature glochidia of the purple bankclimber were collected in early February through mid-April. Successful transformation of glochidia occurred in 14 - 21 days on the eastern mosquitofish (*Gambusia holbrooki*), guppy (*Poecilia reticulata*), and blackbanded darter (*Percina nigrofasciata*). However, although these three fishes all successfully transformed glochidia, they are not considered primary hosts as transformation rates on the guppy and blackbanded darter were less than 50%. Furthermore, the guppy is a species that is not native to North America and could not serve as a host unless introduced into waters with the purple bankclimber. While the eastern mosquitofish does occur with the purple bankclimber, the probability of this fish encountering glochidia is low since the fish typically occupies pool habitats with little current.

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. A complete survey of the mainstem Chattahoochee, Flint, and Ochlockonee Rivers is needed to better understand the current distribution and abundance of the species in Georgia.

Range: Historically known from the Apalachicola-Chattahoochee-Flint Rivers basin and Ochlockonee River of Alabama, Florida, and Georgia. Fossil records indicate that the purple bankclimber historically occurred in the Suwannee River in Florida. This species is currently known from the Apalachicola, Flint, Chattahoochee, and Ochlockonee River systems with the best populations likely occurring in the Flint River from Decatur County upstream to approximately Upson County.

Threats: Insufficient water flow in the lower Flint River basin may be impacting undiscovered populations that occur in some creeks in the basin. Excess sedimentation due to inadequate riparian buffer zones covers 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.

Georgia Conservation Status: The purple bankclimber is not known to occur on any state properties 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 current distribution and abundance should also be investigated by surveying the mainstem Chattahoochee, Flint, and Ochlockonee rivers in Georgia.

Selected References:

Brim Box, J. and J.D. Williams. 2000. Unionid mollusks of the Apalachicola basin in Alabama, Florida, and Georgia. Alabama Museum of Natural History Bulletin 21. 143 pp.

O'Brien, C.A. and J.D. Williams. 2002. Reproductive biology of four freshwater mussels (Bivalvia: Unionidae) endemic to the eastern Gulf Coastal Plain drainages of Alabama, Florida, and Georgia. American Malacological Bulletin 17: 147-158.

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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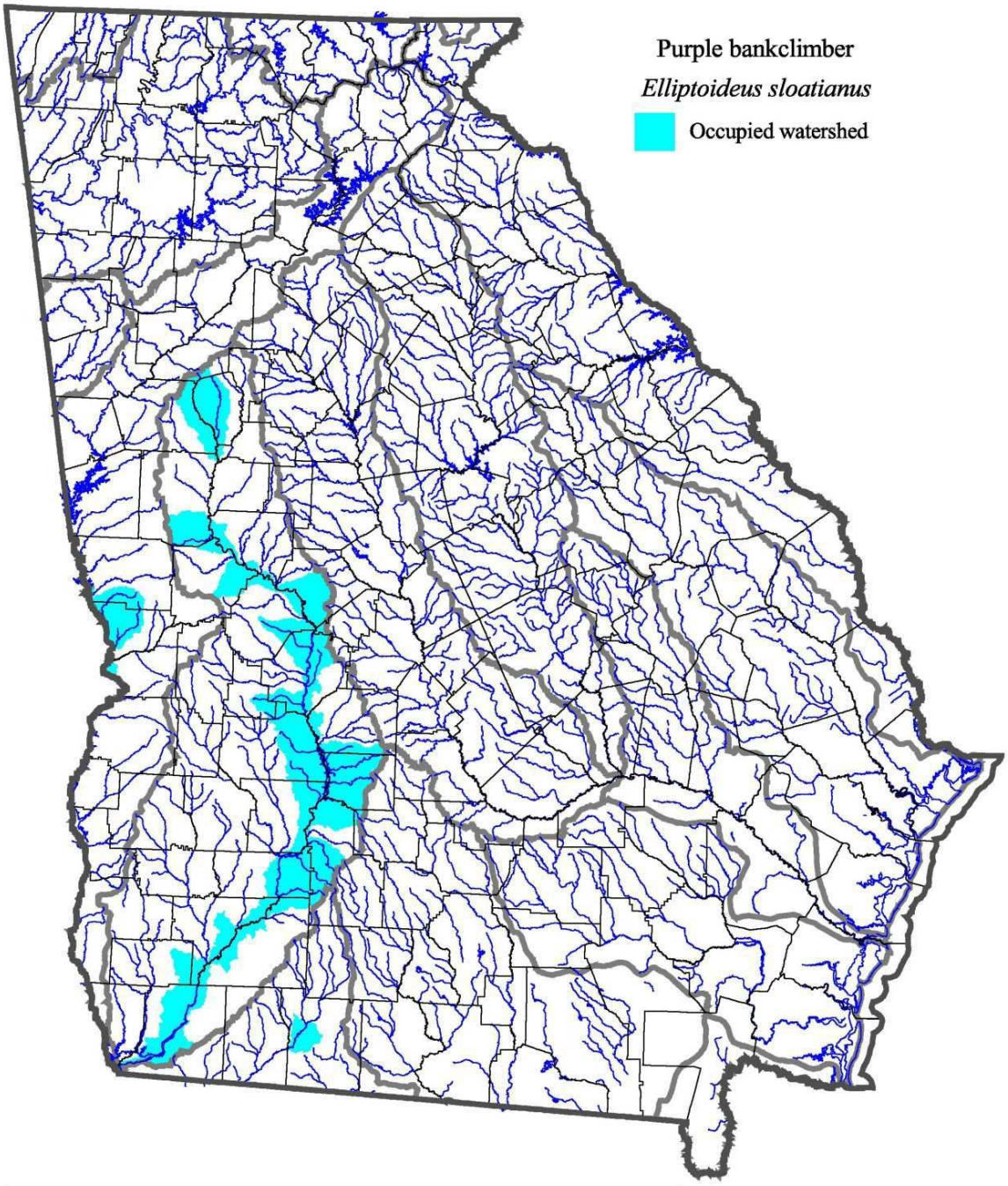

Watersheds (Huc 10) with known occurrences. Streams, county lines, and major river basin boundaries are also shown. Map generated from GADNR (Nongame Conservation Section) data on January 26, 2009.