

SUWANNEE MOCCASINSHELL

Medionidus walkeri

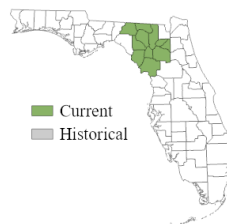
Order: Unionoida

Family: Unionidae

FNAI Ranks: G1/S1

U.S. Status: Threatened

FL Status: Threatened



Description: This small bivalve mollusk reaches a length of only 53 mm (2.1 inches). The shell is oval to sub-rhomboid in outline, 35-45% as wide as long, thin to moderately thick, and moderately inflated. The anterior shell margin is rounded, posterior margin narrowly rounded to obliquely truncate, dorsal and ventral margins straight to convex, and posterior ridge moderately sharp dorsally but rounded posteroventrally. The relatively thick valves are mostly smooth anterior to the posterior ridge but sculpted (ridged) from the posterior ridge to the dorsal margin. The umbos, situated on the anterior third of the shell, are elevated slightly above the hinge line and are broad and moderately inflated with shallow but wide internal cavities. Shell color varies from olive brown to brownish black, but is greenish yellow to brown with green rays in smaller specimens. Inner surfaces (nacre) are generally white to bluish gray. Internally, there are two relatively small, compressed pseudocardinal teeth in the left valve, and a single triangular one in the right valve; lateral teeth are short and straight, with two in the left valve and one in the right (Williams et al. 2014).

Similar Species: The small size, oval outline, and sculptured posterior slope of the shell distinguish *M. walkeri* from all other mussels in the Suwannee River basin. The Florida mapleleaf (*Quadrula kleiniana*), the only other sculptured mussel in the basin, is round to subtriangular in shape (Williams et al. 2014). The sharp posterior ridge and generally dark color distinguish this species from related *Medionidus* in Panhandle rivers.

Habitat: This species is found in small creeks to rivers where current is slow to moderate. Preferred substrates are stable muddy sand or sand with some gravel. Woody material, such as embedded logs, is often present (Williams et al. 2014, USFWS 2016). Presence of *M. walkeri* has been strongly positively correlated with

high levels of spring input (Holcomb et al. 2018).

Seasonal Occurrence: Adults are present in the substrate year-round. The period of gravidity for females extends from at least late January through May (S. Geda, unpublished data). Glochidial hosts are known to include two genera of darters (Johnson et al. 2016).

Florida Distribution: This mussel is restricted to the Suwannee river system, including much of the Santa Fe River, and historically, the Withlacoochee River. Relatively recent surveys have failed to detect continued existence in the Withlacoochee, upper Santa Fe, and lower Suwannee rivers, leaving only the middle Suwannee and lower Santa Fe rivers supporting known populations (USFWS 2016).

Range-wide Distribution: The Suwannee moccasinshell is endemic to the Suwannee River system of Florida and Georgia, although it is apparently extirpated from the Withlacoochee River, the major but drought-prone tributary of the basin in Georgia (USFWS 2016).

Conservation Status: The Suwannee moccasinshell is considered rare and imperiled based on very low population densities and a substantial decline in the extent of its small historic range, which is confined to a single river drainage (Williams in Deyrup and Franz 1994, USFWS 2016). As a consequence, in 2016 the species was listed as threatened by the U.S. Fish and Wildlife Service.

Protection and Management: Although public agencies have been very successful in protecting lands along the Suwannee River and its tributaries, additional conservation via acquisition or easement is needed for floodplains and adjacent uplands that remain private. Protection should extend upstream as far as possible. The major focuses in managing for viable populations of freshwater mussels are maintenance of high quality waters and benthic habitats, as well as ample stream and river flows (damming, dredging, and excessive water consumption are strongly discouraged); this may require multi-state cooperation (with Georgia for this species). Valuable tools include establishment of buffers and streamside management zones for all agricultural, silvicultural, mining, and developmental activities; and elimination or reduction of invasive species (especially other bivalves) if possible. Monitoring programs should focus on water and benthic habitat quality, as well as population sizes and population statuses of both mussels

and their host fishes (darters: Johnson et al. 2016) at all occupied sites. Additionally, it is important to promote responsible watershed land use practices by implementing aquatic habitat education programs for land use planners and resource managers, and to conduct periodic reevaluations of the effectiveness of habitat protection measures and watershed land use practices.

References: Deyrup and Franz 1998, Haag and Warren 2001, Holcomb et al. 2018, Johnson et al. 2016, U.S. Fish and Wildlife Service 2016, Williams et al. 2014.



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