NARROW PIGTOE
Fusconaia escambia

Order: Unionoida
Family: Unionidae
FNAI Ranks: G1G2/S1
U.S. Status: Threatened
FL Status: Threatened

Description: The narrow pigtoe is a small to medium-sized (to 75 mm [73 in Florida], ca. 3 inches) freshwater unionid mussel with a moderately thick, smooth shell that is moderately compressed, subtriangular to squarish in shape, and about 35-55% as wide as long. The anterior shell margin is rounded, the posterior margin rounded to obliquely truncate, the ventral margin straight to rounded, and the posterior ridge sharp dorsally but rounded posterioventrally. The umbo is narrow to broad, slightly inflated, elevated slightly above the hinge line, and marked by thick, nodulous ridges in juveniles; the internal cavity is relatively large. The shell is typically reddish brown to black, with its inner surface (nacre) generally white, sometimes pinkish in smaller individuals. Pseudocardinal teeth are thick to moderately thin, with one in the right valve and two in the left valve that are somewhat divergent; lateral teeth are short and fairly straight, with two in the left valve and one in the right (USFWS 2012, Williams et al. 2014).

Similar Species: The sharp posterior ridge, less inflated umbo with wider internal cavity, and white to pinkish (vs. purplish) nacre distinguish *F. escambia* from the similar and sympatric *Quadrula succissa*. The deeper umbo cavity also helps differentiate it from the sometimes similar *Pleurobema strodeanum*, although the latter usually is more elongate and posteriorly pointed in shape (Williams et al. 2014).

Habitat: This species is found in medium-sized rivers as well as in some medium to large creeks, where current is usually slow to moderate. Preferred substrates are sand, gravel, and silty sand (Williams et al. 2014).

Seasonal Occurrence: Adults are present in the substrate year-round. Females are short-term brooders and have been observed to bear eggs or larvae from March to October, with peak months from May to July (Williams et al. 2008, 2014; Holcomb

et al. 2020). Nine fish species are hosts to the narrow pigtoe, with blacktail shiner (*Cyprinella venusta*) and weed shiner (*Notropis texanus*) serving as primary host species (Holcomb et al. 2020).

Florida Distribution: This mussel is endemic to the Escambia and Yellow river systems in Florida's three westernmost counties. Each of these rivers continues northward into Alabama. Though still rare, the Escambia River population seems to be larger and more widespread than that in the Yellow River (USFWS 2012, Holcomb et al. 2020).

Range-wide Distribution: The narrow pigtoe is endemic to the Escambia and Yellow river systems of Alabama and Florida.

Conservation Status: In Florida, most of the floodplains of the Escambia and Yellow rivers are bordered by conservation and/or military lands (Lower Escambia River Water Management Area, Yellow River Water Management Area, Eglin Air Force Base). Although populations persist in two rivers, the narrow pigtoe is usually uncommon where it is found (Williams et al. 2014). In 2012, the species was listed as federally threatened under the Endangered Species Act, with critical habitat designated in both rivers and states within its narrow range. Water quality degradation, from a multitude of sources (Holcomb et al. 2020), is especially problematic in the Escambia River.

Protection and Management: Additional protection via acquisition or easement is needed for floodplains and adjacent uplands that remain private, particularly just south of the Alabama border and into Alabama. 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. 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 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: Clench and Turner 1956; Deyrup and Franz 1994; Holcomb et al. 2020; Johnson 1969; U.S. Fish and Wildlife Service 2012; Williams et al. 2008, 2014.

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