CHOCTAW BEAN
Obovaria choctawensis
(former name: *Villosa choctawensis*)

Order: Unionoida
Family: Unionidae
FNAI Ranks: G2G3/S1S2
U.S. Status: Endangered
FL Status: Endangered

Description: The Choctaw bean is a small (to 49 mm [46 mm in Florida: Florida Fish and Wildlife Conservation Commission/FWC Freshwater Mussel Conservation Program unpublished data 2025], ca. 2 inches) freshwater unionid mussel with a thin to moderately thick, smooth shell. The shell is moderately inflated, oval in shape, and about 35-50% as wide as long. Anterior and posterior shell margins both tend to be rounded, the dorsal margin slightly convex, the ventral margin convex to rounded, and the posterior ridge rounded. The umbo is broad, moderately inflated, elevated slightly above the hinge line, and marked by 3-5 moderately thick ridges; the umbo cavity is wide and moderately shallow. The shell commonly darkens with age, from yellowish green with dark green rays, to dark olive, brown, or black; the inner surface (nacre) is white to bluish white and iridescent posteriorly. Pseudocardinal teeth are moderately thick, with one in the right valve and two in the left valve that are divergent; lateral teeth are moderately long and fairly straight, with two in the left valve and one in the right (Williams et al. 2008, Williams et al. 2014).

Similar Species: Several somewhat similar mussels can co-occur with *O. choctawensis* (Williams et al. 2014). Some *Leaunio lienosus* (formerly *Villosa lienosa*: Watters 2018) are similar but differ from *O. choctawensis* by having a purplish to salmon nacre, no green rays, and a more elongate outline. Small *Pleurobema strodeanum* have a more defined posterior ridge, thicker pseudocardinal teeth, and no green rays. Small *Toxolasma* also lack green rays and have a single-loop ridge pattern of umbo sculpturing, rather than the parallel ridges of *O. choctawensis*. Because of the large diversity and overall similarity of Florida mussels, species identities should be confirmed by an expert.

Habitat: *O. choctawensis* inhabits large creeks and small to medium-sized rivers with moderate to slow current and silty sand to sandy clay substrates (Deyrup and

Franz 1994, Williams et al. 2014).

Seasonal Occurrence: Adults are present in the substrate year-round. Females are presumed to be long-term brooders and may be gravid from September to the following May (Williams et al. 2014, Beaver et al. 2019).

Florida Distribution: This species inhabits the Escambia, Yellow, and Choctawhatchee river systems in the western panhandle, although it is very poorly documented from the Yellow River (Williams et al. 2014).

Range-wide Distribution: *O. choctawensis* is endemic to the Escambia, Yellow, and Choctawhatchee river drainages of southern Alabama and adjacent western Florida (Williams et al. 2008, Williams et al. 2014).

Conservation Status: Like many of Florida's native freshwater mussels, the Choctaw bean has declined throughout its limited range. Though still extant in all three river systems, the species is generally uncommon (Williams et al. 2014). In 2012, the species was listed as federally endangered under the Endangered Species Act, with critical habitat designated in both states within its narrow range (USFWS 2012). Most of the Florida portion of the floodplains of all three rivers and some major tributaries are bordered by conservation and/or military lands (Lower Escambia River Water Management Area, Yellow River Water Management Area, Eglin Air Force Base, Choctawhatchee River Water Management Area). Although this provides important protection, it does not prevent pollution from upstream sources, nor does it prevent impacts of invasive species such as the introduced Chinese basket clam (formerly Asian clam: FMCS 2025), *Corbicula fluminea*. 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 those portions of the Escambia, Yellow, and Choctawhatchee River/Holmes Creek floodplains and adjacent uplands that remain private. Managing for viable populations of freshwater mussels requires focusing on the 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 requires multi-state cooperation. Valuable tools include the 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, and population sizes and statuses of both mussels and their host fishes (including blackbanded darter *Percina nigrofasciata*, Florida sand darter *Ammocrypta bifascia*, and speckled darter *Etheostoma stigmaeum*: FWC Freshwater Mussel Conservation Program unpublished data 2022) 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. Finally, for relatively small Gulf Coast rivers such as those inhabited by this species, it is imperative to do everything possible to limit global warming and consequent sea level rise to limit saltwater intrusion and inundation of lower reaches.

References: Beaver et al. 2019; Deyrup and Franz 1994; Freshwater Mollusk Conservation Society (FMCS) 2025; Holcomb et al. 2020; U.S. Fish and Wildlife Service (USFWS) 2012; Watters 2018; Williams et al. 2008, 2014.

Inner surface, same animal. Florida Fish and Wildlife Conservation Commission, Freshwater Mussel Conservation Program.

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