

Taxonomy, Life History, and Distribution

Fine-Lined Pocketbook (Lampsilis altilis (Conrad 1834))

The fine-lined pocketbook is a medium-sized mussel, suboval in shape, and rarely exceeds 100 millimeters (mm) (4 inches (in)) in length. The ventral margin (bottom) of the shell is often angled posteriorly in females, resulting in a pointed posterior margin. The periostracum (skin of the shell) is yellow-brown to blackish and has fine rays on the posterior half. The nacre (shell interior) is white, becoming iridescent posteriorly.

Gravid females (females with larvae) have been observed March through June. Fine-lined pocketbooks have also been observed releasing glochidia in a single large conglomerate (Haag *et al.*, 1999), termed a superconglutinate (Haag *et al.*, 1995). Redeye bass (*Micropterus coosa*), spotted bass (*M. punctulatus*), largemouth bass (*M. salmoides*), and green sunfish (*Lepomis cyanellus*) have been identified as suitable hosts (Haag *et al.*, 1999).

The fine-lined pocketbook was historically reported from the Tombigbee, Black Warrior, Cahaba, Alabama, Tallapoosa, and Coosa Rivers and many of their tributaries in Alabama, Georgia, Mississippi, and Tennessee. The species has apparently disappeared from the Tombigbee and Alabama River drainages, and possibly from the Black Warrior River drainage. Since publication of the final rule listing the fine-lined pocketbook, this mussel continues to survive in the upper Cahaba River and the Little Cahaba River (Jefferson/Shelby/Bibb Counties, Alabama); Coosa River (Cherokee County, Alabama) and its tributaries, including Duck Creek (Walker County, Georgia), Euharlee Creek (Bartow County, Georgia), Conasauga River (Murray/Whitfield County, Georgia; Polk County, Tennessee), and Holly Creek (Murray County, Georgia), Terrapin Creek, and South Fork Terrapin Creek (Cleburne County, Alabama); Yellowleaf Creek and its tributary Muddy Prong (Shelby County, Alabama); Kelly Creek and its tributary Shoal Creek (Shelby/St. Clair County, Alabama), Choccolocco Creek (Calhoun County, Alabama) and its tributaries Cheaha Creek (Talladega/Clay County, Alabama), Shoal Creek (Cleburne County, Alabama), Hatchet Creek (Coosa/Clay County, Alabama), and Tallasahatchee Creek (Talladega County, Alabama); and the Tallapoosa River and tributaries, including Uphabee Creek (Macon County, Alabama), Choctaw Creek (Macon/Lee County, Alabama),

Chewacla Creek (Macon/Lee County, Alabama), Opintlocco Creek (Macon County, Alabama), Cane and Little Cane Creeks (Cleburne County, Alabama), Muscadine Creek (Cleburne County, Alabama), Big Creek (Haralson County, GA), and McClendon Creek (Paulding County, Georgia). Populations are small and localized within these streams (Dodd *et al.*, 1986; Evans, 2001; Feminella and Gangloff, 2000; Haag *et al.*, 1999; Herod *et al.*, 2001; E. Irwin, U.S. Geological Survey, *in litt.* 2000; Irwin *et al.*, 1998; Johnson and Evans, 2000; L. McDougal, U.S. Forest Service, *in litt.* 1994; McGregor, M. 1993; McGregor *et al.* 2000; Pierson, 1991a, 1992b, 1993; Shepard *et al.*, 1994; Williams and Hughes 1998).

Orange-nacre Mucket (Lampsilis perovalis (Conrad 1834))

The orange-nacre mucket is a medium-sized mussel, 50 to 90 mm (2.0 to 3.6 in) in length. The shell is oval in shape, moderately thick, and inflated. The posterior margin of the shell of mature females is obliquely truncate (shortened). The nacre is usually colored orange, rose, pink, or occasionally white. The periostracum varies from yellow to dark reddish brown, and with or without green rays.

The orange-nacre mucket expels mature glochidia in a single superconglutinate (Haag *et al.* 1995). Discharge of superconglutinates has been observed between March and June, with releases appearing concentrated in early April (Hartfield and Butler 1997). Redeye bass, spotted bass, and largemouth bass have been identified as suitable host fish for the orange-nacre mucket (Haag and Warren 1997).

The orange-nacre mucket was historically known from the Alabama, Tombigbee, Black Warrior, and Cahaba Rivers and their tributaries in Alabama and Mississippi. The species has disappeared from the mainstem Tombigbee, Black Warrior, and Alabama Rivers, but continues to survive in Tombigbee tributaries, including the Buttahatchee River (Lowndes/Monroe County, Mississippi; Lamar County, Alabama), and East Fork Tombigbee River (Itawamba/Monroe County, Mississippi), Luxapalila Creek and tributaries Yellow Creek (Monroe County, Mississippi; Lamar County, Alabama) and Cut Bank Creek (Lamar County, Alabama), Sipsey River (Greene/Pickens/Tuscaloosa County, Alabama), Coalfire, Lubbub, and Trussels Creeks (Pickens County, Alabama); Black Warrior River tributaries, including North River (Tuscaloosa/Fayette County, Alabama) and its tributary Clear Creek (Fayette

County, Alabama), Locust and Blackburn Forks of the Black Warrior River (Blount County, Alabama), Sipsey Fork of the Black Warrior (Winston/Lawrence County, Alabama) and tributaries Thompson, Flannagin, and Borden Creeks (Lawrence County, Alabama), and Caney, North Fork Caney, Brushy, Capsey, Rush, Brown, and Beech Creeks (Winston/Lawrence County, Alabama); Cahaba River (Bibb/Jefferson/Shelby County, Alabama) and Little Cahaba River (Bibb/Shelby County, Alabama); and Alabama River tributaries Limestone Creek (Monroe County, Alabama) and Bogue Chitto Creek (Dallas County, Alabama). The orange-nacre mucket is locally common in the Sipsey Fork and several of its tributaries. All other populations are small and localized (Alabama Malacological Research Center, *in litt.*, 1996; Dodd *et al.* 1986; Haag and Warren 2001; Hartfield and Bowker 1992; Hartfield and Jones 1989, 1990; Jones 1991; Jones and Majure 1999; McGregor 1992; McGregor *et al.* 1996; McGregor 2000; McGregor *et al.* 2000; McGregor and Pierson 1999; McGregor and Haag *in prep.*; Miller 2000; MS Museum of Natural Science collection records 1989–1999; Pierson 1991a, b, 1992a; Shepard *et al.* 1998; Vittor and Associates 1993; Warren and Haag 1994; Yokley 2001).

Alabama Moccasinshell (Medionidus acutissimus (Lea 1831))

The Alabama moccasinshell is a small, delicate species, approximately 30 mm (1.2 in) in length. The shell is narrowly elliptical, and thin, with a well-developed acute posterior ridge that terminates in an acute point on the posterior ventral margin. The posterior slope is finely corrugated. The periostracum is yellow to brownish yellow, with broken green rays across the entire surface of the shell. The thin nacre is translucent along the margins and salmon-colored in the umbos (beak cavity).

Alabama moccasinshell females are gravid from October to June. This species lives completely embedded in stream bottoms for most of the year. Gravid females migrate to the surface of the stream bottom between March and June, anchor themselves to gravel by a bysial thread (protein thread), and lie exposed, displaying a black mantle lure apparently to attract potential host fish (P. Hartfield pers. obs. 1994; Haag and Warren 2001). Blackspotted topminnows (*Fundulus olivaceus*), Tuskaloosa darter (*Etheostoma douglasi*), redbfin darter (*E. whipplei*), blackbanded darter (*Percina nigrofasciata*), naked sand darter