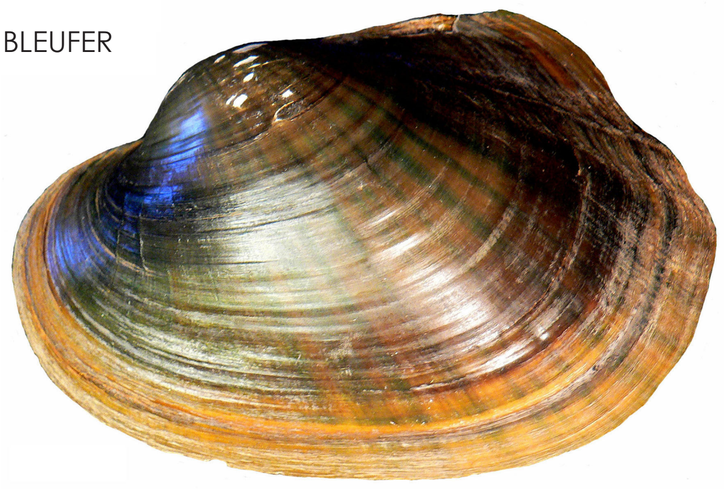
CALENDAR OF THE MONTH

FRESHWATER MUSSELS

OF CADDO LAKE AND BIG CYPRESS BAYOU

Pearls, history, and ecological importance

BLEUFER



Bleufer *Potamilus purpuratus* **often has a black exterior, but has purple nacre (shell interior layer) in eastern Texas waters.**

Freshwater mussels are important elements of freshwater ecosystems. Over 50 species have been found in Texas waters, with some 33 different kinds reported in Caddo Lake and the Big Cypress drainage. These include giant washboard mussels that grow to nearly a foot in length and four pounds in weight and tiny lilliputs that may mature under one inch long.

In addition to their shells that have been used to make buttons and implant nuclei to produce cultured pearls, some freshwater mussels may develop their own gem-quality freshwater pearls. Pearls found in Caddo Lake in 1909 actually prompted a pearl rush that is now part of Texas history.

Mussels dig into the bottoms of rivers, streams, lakes, reservoirs, and ponds where they are often unseen. They filter algae, bacteria, and organic particles from the water…Mother Nature's biofilters. In turn, freshwater mussels are eaten by some fishes, muskrats, and other animals. Poor flavor and potential health risks discourage human consumption.

Freshwater mussels are barometers of environmental quality. When ecosystems are modified or environmental conditions degrade, these animals are among the first to decline and then vanish. As a result, freshwater mussels are the most rapidly disappearing group of animals in North America. Between 50 and 80% of our freshwater mussels are already extinct, threatened, endangered, or will be very soon. In the Big Cypress Bayou drainage, one rare mussel has not been seen since 1984, another has not been found since 1913, and a third has only been reported once.

FRAGILE PAPERSHELL

Fragile papershell *Leptodea fragilis* **tolerates a wide array of different habitat types. The wing-like structure over its back is called an ala.**

BANKCLIMBER

Bankclimber *Plectomerus dombeyanus* **was also called white-eye mussel in the past and was one of the species that was taken for pearls in the 1909 pearl rush.**

THREEHORN WARTYBACK

Threehorn wartyback *Obliquaria reflexa* **is one of several area mussels with pustules on its shell, but the only species with pustules that alternate from side to side.**

WASHBOARD

Washboard *Megalonaias nervosa* **with mother-of-pearl buttons and freshwater spherical and baroque pearls.**

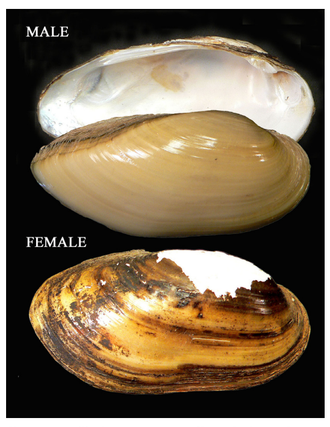
THE CADDO LAKE PEARL RUSH 1909

In the summer of 1909, oil rig cook, George Murata, found a pearl in a Caddo Lake mussel he was preparing for use as catfish bait. He sold the pearl for $1,500. A few days later he found another of equal value. A major pearl rush developed and fishermen and workers left their jobs to search Caddo and nearby waters for pearls. This harvest continued through 1910 and 1912, but ultimately ended in 1913 when a dam constructed downriver at Mooringsport caused lake levels to rise and placed mussels in waters too deep to be easily harvested (modern diving equipment was unavailable in those days). Many of the same pearl-producing mussels still live in Caddo Lake and Big Cypress Bayou, but no similar pearl rushes have occurred since.

MUSSEL SHELL BUTTONS

In the 1890s, major fisheries for freshwater mussel shells developed throughout much of the Mississippi River valley. Shells of several species were used to produce buttons. However, most Texas waters, including the Big Cypress drainage were too far from the major button factories in Iowa and Illinois to support extensive harvest here. Development of plastic and decline of freshwater mussel populations ultimately ended this fishery by the mid-1900s.

YELLOW SANDSHELL



Yellow sandshell *Lampsilis teres* **was often taken to produce pearl buttons because of its evenly thick and very pearly shell. Males are more pointed posteriorly. Females have deeper bodies and more bluntly rounded posterior margins** *(left side above)* **to provided room for marsupial pouches on their gills where eggs and larvae are held. Shells may be clear horn-yellow, lightly rayed, or stained dark.**

SHELLS FOR CULTURED PEARLS

By the 1970s –1980s, use of North American freshwater mussel shells to produce implant nuclei to create cultured pearls had developed. In late 1991, a price war broke out among shell buyers that drove prices for washboard mussels to over $10/lb (about $40/large specimen). As a result, hundreds of musselers began to harvest Texas rivers and streams for commercial shell species. This fishery declined by the late 1990s due to increasing mussel rarity and die-offs among Japanese pearl oysters (used to produce cultured pearls) that largely eliminated the demand for shells.

In Texas, a limited number of mussels and mussel shells can be taken under a fishing license, but bag limits, minimum shell sizes, and other regulations apply. Always check current regulations before harvesting mussels or their shells. Several species are currently candidates for federal endangered species protection (that would preclude legal harvest). Big Cypress Bayou from Bob Sandlin Reservoir dam to U.S. 271 is a protected no-harvest mussel sanctuary.

Louisiana pigtoe

Louisiana pigtoe *Pleurobema riddellii* **has not been reported in the Big Cypress since 1984 and is very rare elsewhere in Texas.**

MUSSEL REPRODUCTION: Unlike marine mussels that have planktonic larvae, larval freshwater mussels (called glochidia) are parasites on fishes. They attach to fins or gills of specific fish hosts for weeks or months, usually without any harm to the fish. Without the right kind of fish in the right place at the right time, freshwater mussels cannot reproduce.

REFERENCES: Blakely, M. 1988. The great pearl rush of '09. Texas Fish and Game (May):40-41. ■ Howells, R.G., R.W. Neck, and H.D. Murray. 1996. Freshwater mussels of Texas. Texas Parks and Wildlife Press, Austin. ■ Kunz, G.F., and C.H. Stevenson. 1910. The book of the pearl. Dover Publications, NY. ■ Shira, A.F. 1913. The mussel fisheries of Caddo Lake and the Cypress and Sulphur rivers of Texas and Louisiana. U.S. Bureau of Fisheries Economic Circular 6.

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