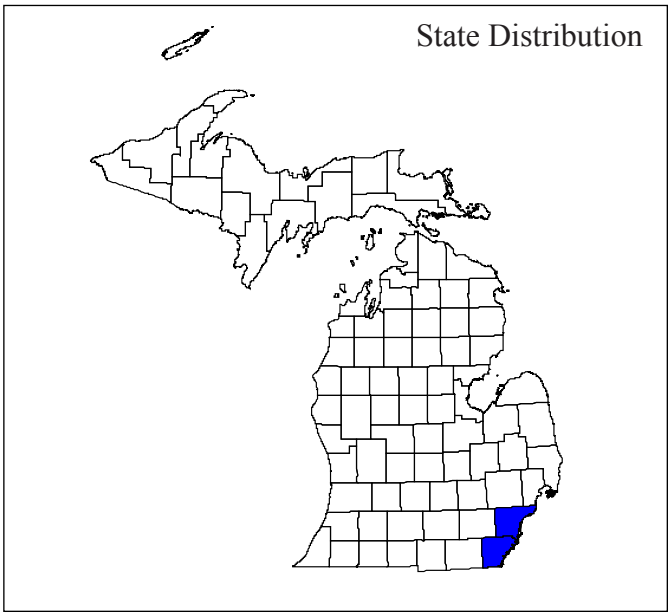
Epioblasma obliquata perobliqua Conrad — White Catspaw

Male (top), Female (bottom)



Best Survey Period

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
						■	■	■			

Status: State Endangered

Global and State Rank: G1/SH

Family: Unionidae (Pearly Mussels)

Synonyms: The catspaw mussel has had a complex taxonomic history. It has been known by many different names in the past, including *Unio sulcatus*, *Dysonomia sulcata* and *Epioblasma sulcata*. Currently, it is recognized as *Epioblasma obliquata*.
There is also debate concerning the integrity of the species. Currently, the American Fisheries Society and U.S. Fish and Wildlife Service recognize the catspaw as two subspecies. The purple catspaw mussel, *E. o. obliquata*, and the white catspaw, *E. o. perobliqua*, are distinguished by nacre color. Both subspecies are federally listed as endangered, but only the white catspaw occurs in Michigan.

Total Range: Catspaw mussels were historically widespread throughout the Midwest and eastern North America. The white catspaw was widely but thinly distributed in the Great Lakes drainages.
It has been reported in literature from New York to Indiana, although some of these records are questionable. It is confirmed from museum specimens to have inhabited several rivers in Ohio, Indiana and southeastern Michigan. It was also known from nearshore areas in Lake Erie. The white catspaw is a highly imperiled species and its range has been drastically reduced. Currently, the only known viable white catspaw population is in Fish Creek, Indiana (NatureServe).

State Distribution: Historically, the white catspaw mussel was present at several sites in southeastern Michigan. Specimens have been collected in the Detroit River near Belle Isle. The white catspaw was also known from Lake Erie, at sites in La Plaisance Bay and near Stony Creek. However, live specimens of this mussel have not been confirmed in Michigan since 1930.

Recognition: The white catspaw is a medium sized mussel, up to two inches long. The shell is thick and has a heavy hinge with distinct teeth. Ridges are often present along the growth lines on the posterior of the shell. There is considerable sexual dimorphism in the white catspaw mussel. The shell of the male is oval and elongate with a shallow sulcus. The female shell is rectangular or quadrate with a deep sulcus. The exterior shell color is tan with many fine wavy green rays, and the color of the nacre is white.
The white catspaw is most often confused with the northern riffleshell (*Epioblasma torulosa rangiana*).

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The northern riffleshell has a more rounded shell margin, whereas the rayed ridges in the white catspaw create a ragged margin (Burch 1994).

Best Survey Time: The white catspaw mussel is present in its habitat throughout the year, but it is easiest to find these mussels July through September when water levels are typically low. It may be easiest to find when females are releasing glochidia, at which time they are fully exposed on the substrate (USFWS 1990).

Habitat: Because the white catspaw is so rare, little is known of their required habitat. In Fish Creek where the only extant population exists, the species has been found in riffles or runs of high gradient streams. Coarse, stable substrates, such as gravel and pebble, are preferred. While the species has been found on the surface of the substrate (Clark 1977), the lack of marl or algae on freshly dead shells indicates that the white catspaw is typically buried in the substrate (USFWS 1990). In Michigan, the white catspaw also has been collected in large rivers, such as the Detroit River, and in the nearshore areas of Lake Erie.

Biology: The exact breeding season of the white catspaw mussel is unknown, although other species of this genus typically release glochidia (the parasitic larval stage of mussels) in late spring or early summer. The fish host of the glochidia is unknown at this time, although it is most likely a riffle dwelling fish, such as a darter or sculpin. The juvenile mussels are small, and nothing is known of their appearance or behavior. The lifespan of the white catspaw has been estimated, based on annular growth lines, to exceed 15 years of age (NatureServe). The age of sexual maturity is unknown. The white catspaw is a filter feeder, obtaining nutrition from material suspended in the water column.

Conservation/Management: The survival of the white catspaw mussel is currently in severe jeopardy. The population at Fish Creek must be preserved, and its habitat protected from any further disturbance. This includes maintaining high water quality throughout the area and protecting the entire fish fauna as possible hosts. Like all filter-feeding mussels, the white catspaw is sensitive to siltation, and efforts should be made to decrease surface run-off. Changes in river hydrology and morphology can also harm this riffle-dwelling species, and dredging, channelization and damming projects should be avoided. Additional sites at which the white catspaw may be found or transplanted need similar protection.

Research Needs: In order to better protect and manage the current population of white catspaw mussel, it is necessary to gather specific habitat and life history data on the mussel. Perhaps most importantly, the fish host needs to be determined to insure that the mussel is able to complete its life cycle. Surveys need to be performed at all historic sites, as well as the entire St. Joseph River system, where populations may still exist. Finally, a re-introduction effort may be possible, if the Fish Creek population is stable enough and suitable recipient sites can be found.

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