

Round Hickorynut

Obovaria subrotunda



Credit Environment Canada

Description

Round hickorynut is a freshwater bivalve mollusk, like a clam or an oyster. Its shell is greenish-olive to dark or chestnut brown, sometimes blackish in older individuals, and may have a yellowish band. The shell is thick and up to three inches long. Its round in shape, nearly circular, and the umbo, or beak is centrally located. The foot can be pale tan to pale pinkish orange. The round hickorynut mussel belongs to the family Unionidae, also known as the pearly mussels. This group of bivalves has existed for over 400 million years, representing over 600 species worldwide and over 250 species in North America. It was originally described under the genus *Obliquaria* and later moved to *Obovaria*.

Population Status

The number of known populations in the U.S. has declined by 78 percent, from 297 populations documented historically to 65 today.

Range and Habitat

The round hickorynut mussel is a wide-ranging species, occurring in nine states - Alabama, Indiana, Kentucky, Michigan, Mississippi, Ohio, Pennsylvania, Tennessee, and West Virginia, as well as the Canadian Province of Ontario. It is considered extirpated from Georgia, Illinois, and New York. It is currently found in five major basins: Great Lakes, Ohio (where it is most prevalent), Cumberland, Tennessee, and Lower Mississippi (where it is rarest).

It lives in small streams to large rivers at depths from less than one foot to more than six feet, and prefers a mixture of sand and gravel substrates. Round hickorynut habitat must have adequate flow to deliver oxygen, enable passive reproduction, and deliver food to filter-feeding mussels. Further, flowing water

dilutes contaminants and helps flush fine sediments from the stream bottom.

Life History

The round hickorynut has a complex life cycle relying on fish hosts for successful reproduction, similar to other native, North American mussels. Males release sperm into the water column, which is taken in by the female. The sperm fertilize eggs and the female holds onto the developing larvae until they are ready for release. Packets of larvae are released into the water, where they are targeted as food by fish. The larvae snap shut in contact with fish, attaching to the gills, head, or fins. For most mussels, the larvae will die if they do not attach to a fish within a short period. The larvae draw nutrients from the fish and develop into juvenile mussels, days to weeks after initial attachment. Several host fish species have been documented for the round hickorynut, but the dominant host fishes appear to be darters. Once the larvae develop into young mussels, they drop off the host fish, settling onto the stream bottom. Adult round hickorynuts are suspension-feeders, eating nutrients filtered from the water. Their diet consists of a mixture of algae, bacteria, detritus, and microscopic animals. Round hickorynut likely has a maximum life span between 10 and 16 years, reaching sexual maturity between one to five years.

Threats

The round hickorynut has suffered impacts from negative influences commonly found in central and eastern U.S. streams, including habitat degradation or loss from a variety of sources including poorly-managed agriculture and development; and site-specific threats from genetic isolation and invasive, nonnative species.

Streams in an urban or agriculturally-dominated landscape are often subject to increased soil erosion from banks that do not have a dense network of deep vegetative roots holding soil in place, or from areas without sufficient ground cover. Streams in urban areas may be subject to excessive runoff and contaminants from impervious surfaces, overwhelming a stream channel's ability

to carry the water, resulting in increased stream bed and bank erosion. Excess sediment settles to the stream bottom, filling spaces needed by juvenile mussels and host fish eggs. The round hickorynut relies on sight-feeding fishes as part of its life cycle; therefore, cloudy water at critical reproductive periods may impact reproductive success.

Dams have a profound impact on in-stream habitat as they can change flowing water to stationary or relatively still water and permanently alter the riverine ecosystem. Dams or poorly designed or maintained culverts can mean loss of access to quality habitat. In the case of mussels, fragmentation can result in barriers to host fish movement, which in turn, may influence mussel distributions. Mussels that use small host fishes, such as darters and minnows, are more susceptible to impacts from habitat fragmentation due to increasing distance between suitable habitat patches and low likelihood of small host fish swimming over that distance. Barriers to movement can cause isolated or patchy distributions of mussels, which may limit both genetic exchange and recolonization. Although the species' ability to disperse is evident through historical occurrence in a wide range of rivers and streams, population fragmentation by small and large impoundments has resulted in isolation and only patches of what once was occupied contiguous river and stream habitat.

What You Can Do

- Plant and maintain trees and shrubs along streams, as their roots do an excellent job of holding soil in place and minimizing erosion.
- Adhere to all local and state sediment and erosion control laws when moving or disturbing soil.
- Maintain compliance with all pollution discharge permits.
- Seek and implement ways to minimize stormwater runoff.
- Follow use and disposal instructions and laws for lawn and household chemicals.

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