Canaries in the Water

Most freshwater mussels live burrowed in mixed mud, sand, and gravel at the bottom of rivers and streams. Some are adapted to the quiet water and muddy depths of lakes, ponds, and reservoirs.

Unlike most animals, which must travel in search of food, their food—mainly tiny plants and animals called plankton suspended in the water—drifts to the mussels. By drawing water inside their shells through a siphon, their gills filter out food and take in oxygen. Mussels usually don't move much, but a muscular "foot" helps them burrow and allows limited travel if disturbed by floods or drought. The foot also helps anchor them against strong currents and may prevent a hungry muskrat from tugging them out for its dinner. A mussel's shell, however, provides its main protection from predators.

Their hard, calcium-based shells consist of two halves joined by a hinge. Unique names like "Texas fatmucket," "Texas fawnsfoot,"and "Golden orb" refer to the wide range of shell size, color, shape, and texture found in Texas mussels.

Although their lives appear boring, their reproductive strategies are quite fascinating. Fertilized eggs develop and are released into the water to begin a parasitic stage. With little time to waste, these youngsters, called glochidia, must attach themselves to a host fish or perish. This harmless parasitic stage lasts a matter of weeks before the larvae transform into young mussels and are ready to drop off the fish and begin a life on the stream bottom.

Why should we care about mussels? Because they are relatively stationary and cannot escape pollution, these critters can be compared to canaries in a coal mine in detecting unhealthy conditions. The presence of diverse and reproducing populations of mussels indicate a healthy aquatic system which means good fishing, good water quality for waterfowl and other wildlife species, as well as insurance that our water is safe for our use. Conversely, when mussel populations are at risk, it indicates problems for other fish and wildlife species, and people, too.

Mussels are natural filters, feeding on algae and plankton that help clean the water. Mussels are also an important food source for many species of wild-life including otters, raccoon, muskrat, herons, egrets, and some fish.

There is still much more to learn about the biology and conservation issues facing Texas mussels. Thanks to grants from the U.S. Fish and Wildlife Service and Texas

Parks and Wildlife Department researchers are now making new discoveries about the locations and abundance of rare mussel population in Texas rivers. In 2008-09 replacement of a bridge over the San Saba River in Sloan Community gave scientists a chance to explore the best ways to protect mussels during bridge work. Some of the mussels were held at a facility in San Marcos until bridge construction was complete. Mussels were measured and tagged so their growth and survival could be monitored. This information, along with efforts to understand specific biological traits like identifying fish hosts, will allow for better conservation actions to ensure the continued survival of these rare and interesting animals.

Individuals can do a number of things to help protect mussels including:

Conserve water use to allow more water to remain in streams.

Use pesticides responsibly, especially around streams and lakes, to prevent runoff into mussel habitats. How you manage your lawn in San Saba or your farm or ranch in Richland Springs impacts them. Everything that happens in a watershed affects its rivers and streams and all the things that live there.

Help control soil erosion by planting trees and plants to avoid runoff of sediments into freshwater areas.

Support and follow zebra mussel quarantine, inspection, and decontamination programs to prevent the spread of non-native zebra mussels.

Get involved in the Texas Mussel Watch program (http://www.tpwd.state.tx.us/learning/texas_nature_trackers/mussel/). Texas has about 191,000 miles of rivers and streams and some 1,000 reservoirs, so learning what mussels are out there is a daunting task. The Texas Mussel Watch is a citizen science program that uses volunteers to find, identify and monitor mussel populations.

This program enables volunteers "citizen scientists' to survey mussel populations throughout the State. These efforts not only provide up-to-date mussel distribution and status data, but it also yields insight into water quality and other environmental conditions in Texas. It's important to educate people that we have freshwater mussels in our systems. That's the first step in protecting them, because in order to protect them, people have to appreciate them.

Go outside & play—in the water!


Bruce Plante