



James Spiny Mussel (*Pleurobema collina*)

Common Name

James spiny mussel

Scientific Name

Pleurobema collina

West Virginia Status

Found in Potts Creek watershed (Monroe County); only endangered Atlantic slope mussel in WV. This freshwater mussel is listed by the U.S. Fish and Wildlife Service as federally **Endangered**.

Description

5.1 cm (2 in) oblong shell; 3 short spines on each valve, usually only seen on young specimens

Habitat

Freshwater mussels live in a variety of substrates including sand, gravel, cobble and mixed materials on the bottoms of streams and rivers. They generally require free-flowing, clean, well-oxygenated water. The James Spiny mussel lives in a variety of environments ranging from large rivers to shallow streams.

Threats and Prospects

Because they are sedentary filter feeders, mussels are extremely susceptible to changes in water quality. The creation of dams, levies, channels and the practice of dredging has degraded the habitats of many species in West Virginia. These practices often increase siltation which may smother mussels, choke out their food sources, or harm their host fish. Also, because they are long-lived, mussels are vulnerable to toxins which they can accumulate over a number of years. Land use practices--forestry, mining and agriculture--may also negatively impact mussel populations through erosion, pollution, acid runoff, trampling by livestock and altering water temperatures. Mussels are extremely vulnerable because of their dependence on fish as larval hosts. Any alteration that affects their host fish, whether detrimental to adult mussels or not, can interfere with their reproductive cycles, and cause population declines. The button industry that once thrived in St. Marys exacted a heavy toll on the thicker-shelled

mussels. Mussels are still collected in some states for their role in culturing pearls. Possession of mussels is now illegal in West Virginia, and a permit is required to collect for scientific purposes. The latest scourge to freshwater mussels is a biological one: zebra mussels. These small, non-native bivalves are not dependent on fish hosts, and as a result, can spread extremely quickly. They kill native mussels by encrusting them and intercepting their food and oxygen.

Life History

Mussels have a complex life history that involves egg, larva, juvenile and adult forms. Reproduction for most species begins in the spring when males release sperm into the water column. Females take up sperm through their siphons. Eggs are fertilized and develop into tiny larvae known as glochidia within the mother's gills. Because of this nurturing role, the shells of the females in some species have a posterior (rear) bulge. Some species of mussels finish incubating their young by the summer while others incubate throughout the fall and winter.



(USFWS Photo)

Most Unionid mussels depend on one or several fish species to serve as hosts and disperse their developing larvae. Glochidia latch onto the gills or fins of fish from which they derive nutrients before detaching and falling to their new locations. The juveniles, which have taken on a bivalve (adult) form by the time they depart their hosts, spend their first year or two buried in the stream floor where they feed with a fleshy (byssal) foot. Adults embed



themselves in the substrate of the stream where they siphon food items from the passing water. Adult mussels are sessile, seldom moving more than a few meters in their lifetimes. A fleshy foot allows them to adjust their positions within the substrate. In good water conditions, mussels can live from 15 to over 50 years. Some individuals have been known to exceed 100 years of age.

Range

Upper James River basin, Virginia and West Virginia.

Diet

Freshwater mussels eat a variety of microscopic organisms including algae, diatoms, phytoplankton, zooplankton and detritus which they filter out of the water.

Help

Refrain from collecting native mussels and report those who do to: Division of Natural Resources, P.O. Box 67, Elkins, WV 26241, (304) 637-0245 or your local conservation officer. Also, be aware of any unauthorized stream modification activities in your area and report suspected toxic spills or illegal dumping of wastes to your local Division of Environmental Protection office. Please discard any unused live bait on land or return it to where it was collected. Thoroughly cleanse buckets and boats when going between streams; pests like the zebra mussel can be inadvertently spread by boats and in bait buckets. If you have cattle, keep them from wallowing in streams where they may crush fragile mussels, or restrict their access to a small area in the stream. Promoting streamside vegetation to reduce erosion and shade streams also benefits freshwater mussels.