

# Dwarf Wedgemussel

*Alasmidonta heterodon*

When we think about the other species sharing this planet, it is easy to overlook the very small creatures, and easier still if those creatures live under the water's surface. The dwarf wedgemussel is just such an animal. Barely 1.5 inches long, this tiny mollusk lives in freshwater streams and rivers. Although they once thrived in about 70 different river systems on the Atlantic coast from New Brunswick, Canada, to North Carolina, dwarf wedgemussels are now considered endangered. No longer found in Canada, the species appears to be declining in Virginia and North Carolina. Small populations remain in Maryland, while large populations have been found in New Hampshire, and additional populations have been discovered in the Delaware River watershed in Pennsylvania, New Jersey and New York.

## Life on the bottom, and hitching a ride

Dwarf wedgemussels live on sand, firm muddy sand, firm clay, and gravel bottoms in creeks and rivers of varying sizes with a slow to moderate current. To survive, they need a silt-free, stable streambed and well-oxygenated water free of pollutants.



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This mussel reproduces sexually. The eggs are carried in the gills of the female and fertilized as sperm-laden water passes through the gills. Within the female's gills, the fertilized eggs develop into larvae called glochidia, which the female releases into the water. A larva then attaches to a host fish's gills to continue growth. It appears that the glochidium only uses the fish as a means of dispersal; after some weeks, the larva detaches itself from the unharmed fish and drops to the river bottom, where it may live as an adult for 10 years.

## Changes that harm

Degradation of dwarf wedgemussel habitat is the greatest cause of this species' decline, and water pollution and construction of impoundments are the primary threats to its survival. This mussel is sensitive to elevated concentrations of potassium, zinc, copper, cadmium and other elements. Pesticides, chlorine, excessive nutrients and silt carried by agricultural runoff also present a threat to this species. Erosion and siltation from land clearing as well as grading and construction of bridges, roads and other structures can bury and kill these bivalves.

Scientists believe another reason the species is declining is that one of its hosts may be an anadromous fish species that has been blocked from some habitat areas by dams and causeways. It is speculated that this is the reason dwarf wedgemussels disappeared from the Pettitcodiac River in Canada after a large causeway was built near the river's mouth. In addition, dam construction alters a river's current speed, oxygen levels, and amount and placement of silt, and may well result in unnatural water level fluctuations or drying out of the mussel habitat. Riprap and other artificial bank stabilization methods destroy the dwarf wedgemussels' substrate (bottom) requirements.

## Why bother?

Human beings also are sensitive to metals, fungicides, herbicides, insecticides and fertilizers in the water. With the same sensitivities, dwarf wedgemussels serve as a signal of a river or stream's health. Their presence or absence indicates the health of a natural ecosystem. If the water is too silted or polluted for dwarf wedgemussels, it is not good for people, either. Lining stream banks with natural vegetation helps to buffer the flow of pollutants and control erosion, protecting both the water and the endangered dwarf wedgemussels living in it. Ensuring the survival of dwarf wedgemussels maintains healthy aquatic habitats for aquatic residents as well as the rest of us.

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