

Tar spiny mussel

Elliptio steinstansana



Tar spiny mussel, USFWS

Status: Endangered

Description: The Tar spiny mussel, one of only three freshwater mussels in the world with spines, is a medium-sized mussel reaching about 2.5 inches in length. In young specimens, the shell's outer surface (periostracum) is an orange-brown color with greenish rays; adults are darker with inconspicuous rays. The inside of the shell (nacre) is yellow or pinkish at one end and bluish-white at the other. Juveniles may have as many as 12 spines, however adult specimens tend to lose their spines as they mature. It's found in association with other mussels, but it's never very numerous. It feeds by siphoning and filtering small food particles suspended in the water.

The reproductive cycle of the species is similar to other native mussels. Males release sperm into the water, and the eggs are fertilized when the sperm are taken in by the females through their siphons during feeding and respiration. Females retain the fertilized eggs in their gills until the larvae (glochidia) fully develop. The glochidia are released into the water and must attach to the gills or fins of the appropriate fish species. They remain attached to their "fish host" for several weeks, drawing nourishment from the fish while they develop into juvenile mussels. They do not hurt their "fish host." The juvenile mussels then detach from the fish host and drop to the bottom of the stream where

they continue to develop, provided they land in a suitable place with good water conditions. This dependence on a certain species of fish increases the mussels' vulnerability to habitat disturbances. If the fish host is driven off or eliminated because of habitat or water quality problems, the mussels can't reproduce and will eventually die out.

Habitat: The Tar spiny mussel lives in relatively silt-free, uncompacted gravel and/or coarse sand in fast-flowing, well oxygenated stream reaches.

Range: The Tar spiny mussel likely once existed throughout much of the Tar River system. In the early 1980s, this spiny mussel could be found relatively easily in the main stem of the Tar River in Edgecombe County, North Carolina. Presently, only two good populations are known to exist in two Tar River tributaries, while the species can only be found with great difficulty in one other tributary and in the main stem of the Tar River.

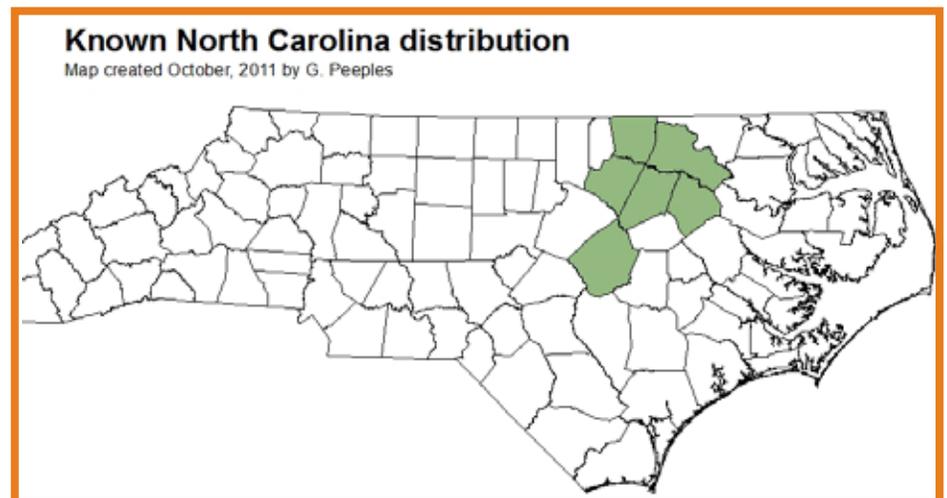
Listing: Endangered, July 27th, 1985.
50 FR 26572 26575

Critical habitat: None designated

Threats: The Tar River, like many other rivers, has been seriously degraded. Some of the Tar River has been dammed. Much of the river basin has been cleared for agriculture and other purposes, and poor erosion control on these lands allows large amounts of silt and sand to enter the river. This material smothers mussels and affects the stability of the river bottom. Discharges from agricultural, industrial, and domestic sources have also polluted much of the river system.

Why should we be concerned about the loss of species? Extinction is a natural process that has been occurring since long before the appearance of humans. Normally, new species develop, through a process known as speciation, at about the same rate than other species become extinct. However, because of air and water pollutions, forest clearing, loss of wetlands, and other man-induced environmental changes, extinctions are now occurring at a rate that far exceeds the speciation rate.

All living things are part of a complex and interconnected network. The removal of a single species can set off a chain reaction that could affect many other species. For example, the loss of



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a single plant species can result in the disappearance of up to 30 other species of animals and plants. Each extinction diminishes the diversity and complexity of life on earth.

Endangered species are indicators of the health of our environment. The loss of these plants and animals is a sign that the quality of our environment – air, land, and water – is declining. Gradual freshwater mussel die-offs, such as the declining Tar spiny mussel, and sudden mussel kills are reliable indicators of water pollution problems. Stable, diverse mussel populations generally indicate clean water and a healthy aquatic environment. While poor environmental quality may first manifest itself in the health of our plant and animal populations, if untreated, it eventually affects humans directly, as we breathe polluted air, lose valuable topsoil to erosion, or get sick from swimming in contaminated water.

We depend on the diversity of plant and animal life for our recreation, nourishment, and many of our lifesaving medicines and the ecological functions they provide. One-quarter of all the prescriptions written in the United States today contain chemicals that were originally discovered in plants and animals. Industry and agriculture are increasingly making use of wild plants, seeking out the remaining wild strain of many common crops, such as wheat and corn, to produce new hybrids that are more resistant to disease, pests, and marginal climatic conditions. Our food crops depend on insects and other animals for pollination. Healthy forests clean the air and provide oxygen for us to breathe. Wetlands clean water and help minimize the impacts of floods. These services are the foundation of life and depend on a diversity of plants and animals working in concert. Each time a species disappears, we lose not only those benefits we know it provided but other benefits that we have yet to realize.

What you can do to help:

Establish and maintain forested stream-side buffers. Several federal, state, and private programs are available to assist landowners, both technically and financially, with restoring and protecting stream-side buffers and eroding streams.

Implement and maintain measures for controlling erosion and storm water during and after land-clearing and disturbance activities. Excess soil in our streams from erosion is one of the greatest water pollution problems we have today.

Be careful with the use and disposal of fertilizers, pesticides, and other chemicals. Remember, what you put on your land or dump down the drain may eventually wind up in nearby water. Support local, state and national clean water legislation.

Report illegal dumping activities, erosion, and sedimentation problems. These activities affect the quality of our water, for drinking, fishing, and swimming.

Participate in the protection of our remaining wild lands and the restoration of damaged ecosystems.

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