



U.S. Fish & Wildlife Service

Endangered Species Facts

Scaleshell Mussel

Leptodea leptodon

The scaleshell is a freshwater mussel that was listed in 2001 as an *endangered species* by the U.S. Fish & Wildlife Service.

Endangered species are animals and plants that are in danger of becoming extinct. *Threatened species* are animals and plants that are likely to become endangered in the foreseeable future.

Identifying, protecting, and restoring endangered and threatened species is the primary objective of the U.S. Fish and Wildlife Service's endangered species program.

What is a scaleshell mussel?

Appearance - The scaleshell is a relatively small freshwater mussel with a thin, fragile shell and faint green rays. It grows to about one to four inches in length. The inside of the shell is pinkish white or light purple and highly iridescent. The scaleshell gets its name from the scaly appearance of the shell, which is only seen in females.

Range - Scaleshell historically occurred across most of the eastern United States. During the last 50 years this species became increasingly rare within its reduced range. Of the 55 historical populations, 14 remain scattered within the Mississippi River basin in Arkansas, Missouri, and Oklahoma.

Habitat - Scaleshell live in medium-sized and large rivers with stable channels and good water quality. They bury themselves in sand and gravel on the bottom with only the edge of their partially-opened shells exposed. As river currents flow over them, they siphon particles out of the water for food such as plant debris, plankton, and

Once present throughout most of the eastern United States, the scaleshell mussel is now found only in Arkansas, Missouri, and Oklahoma.

other microorganisms. The roles of scaleshell in river ecosystems are as food for wildlife like muskrats, otters, and raccoons and as filters which improve water quality.

Reproduction - The life cycle of the scaleshell, like most freshwater mussels, is unusual and complex. Their eggs develop into microscopic larvae (glochidia) within the gills of the female. The female discharges its glochidia into the river where they must attach to gills or fins of a fish to continue developing. Each mussel species has specific fish species (host fish) that are needed by the glochidia to develop. It appears that scaleshell be other species. Glochidia continue growing on the fish and transform into juveniles. After a few weeks, they drop off, land on the river bottom, and continue maturing into adults.

Why is the scaleshell mussel endangered?

Pollution - Adult mussels are easily harmed by toxins and

declines in water quality from pollution because they are sedentary (stay in one place). Pollution may come from specific, identifiable sources such as factories, sewage treatment plants and solid waste disposal sites or from diffuse sources like runoff from cultivated fields, pastures, cattle feedlots, poultry farms, mines, construction sites, private wastewater discharges, and road drainage. Contaminants reduce water quality and may directly kill mussels, reduce the ability of surviving mussels to have young, and/or result in poor health or disappearance of host fish.

Sedimentation - Sediment is material suspended in water that usually is moved as the result of erosion. Although sedimentation is a natural process, poor land use practices, dredging, impoundments, intensive timber harvesting, heavy recreational use, and other activities may accelerate erosion and increase sedimentation. A sudden or slow blanketing of the river bottom with sediment can



Photo by Dr. M.C. Barnhart

suffocate freshwater mussels because it is difficult for them to move away from the threat. Increased sediment levels may also make it difficult for scaleshell to feed, which can lead to decreased growth, reproduction, and survival.

Dams - Dams affect both upstream and downstream mussel populations by disrupting natural flow patterns, scouring river bottoms, changing water temperatures, and eliminating habitat. The scaleshell and many other river mussels and fish cannot survive in the still water impounded behind dams. Scaleshell and other mussels depend on their host fish for dispersal. Dams are barriers to fish movement and migration, which, in turn, prevent upstream dispersal of mussels. Upstream mussel populations then become isolated from downstream populations. This isolation leads to small unstable populations which are more likely to die out.

Exotic Species - The recent invasion of the exotic zebra mussel into the U.S. poses a substantial threat, because it starves and suffocates native mussels by attaching to their shells in large numbers.

What is being done to prevent the extinction of the scaleshell?

Listing - The scaleshell was added to the U.S. List of Endangered and Threatened Wildlife and Plants on October 9, 2001, providing Endangered Species Act (ESA) protection. The ESA also requires that a Recovery Plan be prepared for listed species.

Watershed Protection Through Partnerships - The scaleshell cannot survive without soliciting outside help to restore habitat and improve surface lands. Causes of habitat degradation are numerous in streams throughout its range. In many cases, these threats are the result of widespread problems originating on land at the highest elevations of watersheds where

the species does not occur. Habitat restoration will require that watershed improvements take place on a large scale. The voluntary assistance of Federal and State agencies, conservation groups, local governments, private landowners, industries, businesses, and farming communities will be necessary to meet recovery goals. The role of private landowners and businesses cannot be emphasized enough as land in watersheds occupied by scaleshell are primarily privately owned.

Recovery Plan - The U.S. Fish and Wildlife Service prepared a recovery plan that describes actions needed to help the scaleshell survive. Some of these include: 1) stabilizing existing populations through artificial propagation; 2) utilizing existing legislation, regulations, and programs to protect remaining populations and habitat; 3) conduct research on critical aspects of its biology needed to manage the species and to identify harmful pollutants; 4) establish a recovery implementation team to apply sound science to recovery and foster partnerships; 5) work with willing partners to protect existing populations and habitat, eliminate threats, restore habitat, and improve surface land in watersheds, and 6) carry out an outreach and education to heighten awareness of scaleshell and to solicit outside help with recovery actions.

What can I do to prevent the extinction of species?

- Learn more about how the destruction of habitat leads to loss of endangered and threatened species and our nation's plant and animal diversity. Discuss with others what you have learned.
- Support local and State initiatives for watershed and water quality protection and improvement.
- Help improve water quality

locally in streams by minimizing use of lawn-care chemicals and properly disposing of or recycling hazardous materials found in your home, like batteries, paint, car oil, and pesticides.

- Join a conservation group or volunteer at a local nature center, zoo, or wildlife refuge.

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