30 YEARS OF THE ENDANGERED SPECIES ACT

FRESHWATER MUSSELS

Freshwater mussels were once remarkably abundant, but over the last hundred years, they have become among the most endangered of all North American species. About 12 percent of mussel species are extinct and 23 percent are threatened or endangered. The Endangered Species Act has slowed the decimation of these species, and recovery efforts have proven enormously successful in replenishing mussels. In the Southeast, which contains more than 95 percent of all federally listed mussels, active conservation initiatives have had some impressive success.

HISTORY OF ENDANGERMENT

The world's greatest diversity of freshwater mussels is in the continental U.S., where populations of these nearly 300 species once thrived. However, mussel populations have been dropping sharply due to siltation of waterways from development, pollution of waters with toxins, dredging of waterways for navigation, and encroachment of non-native species such as the zebra mussel.

Zebra mussels. USGS

ROAD TO RECOVERY

The assistance of environmental laws, federal, state, local, and tribal agencies, as well as academic institutions and private parties, have contributed to a number of remarkable recovery efforts. In particular, habitat protections and population augmentation of mussel species under the Endangered Species Act have been helpful for recovery.

CONSERVATION TODAY

The U.S. Fish and Wildlife Service's (FWS) Asheville, North Carolina field office has implemented large mussel recovery programs for regional ecosystems. Through funding under the Endangered Species Act, the Ashville field office has been operating a cooperative riparian habitat restoration project to improve the habitats of endangered mussels.

Depleted to the brink of extinction, the Tan riffleshell mussel, for example, was designated as endangered in 1977. These mussels were raised in captivity over a number of years and recently released into the Hiwassee River in Tennessee through a partnership between government agencies, Virginia Polytechnic Institute and State University and others. Endangered mussels in two other tributaries of that river have also been augmented, in hopes that the populations can become sustainable.

A successful refugia program has been developed for Mississippi River mussels through which thousands of fish have been used as hosts for larval mussels and released into habitats free of competition from non-native zebra mussels. By holding host fish in cages in the river, hundreds of thousands of these mussels have been released.

ECOLOGICAL & ECONOMIC VALUE

Freshwater mussels are an important food source for many animals. In addition, they improve water quality by filtering pollutants, particulates, and excess nutrients. Due to their sensitivity to water quality, reductions in mussel numbers serve as valuable indicators of decreased water quality.

Mussels also have considerable economic value. The mussel shell industry has provided tens of thousands of jobs and an estimated at $40 to $50 million to the economy.

OUTLOOK FOR THE FUTURE

The Endangered Species Act has been instrumental in the slow recovery of some species of freshwater mussel. For several other species, however, challenges stand in the way of recovery.

Decreased water quality has particularly hurt mussels, and future prospects have appeared bleak for the numerous species.

If wildlife managers focus on improving water quality, combating invasive species, decreasing siltation, and otherwise improving mussel habitat, they could further foster the stabilization of mussel species.

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Unio Gallery, http://courses.smsu.edu/mcb095f/gallery

Hiwassee River

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