Multiple organizations work toward developing refuges as a tool in managing rare fish species.

Aquatic Refuges

Photos By Trent Thomas

Mansion pond aquatic refuge

Many of the 31 fish species in Illinois listed as endangered or threatened are species adapted and dependent on the slack-water habitats once provided by backwater lakes, wetlands, swamps and meandering streams. As these habitats were destroyed for development and agriculture, the fishes dependent on them declined—or disappeared completely.

The adaptations to life in water with little or no current may also save them from extirpation (extinction at the local level) as biologists are establishing populations in aquatic refuges in ponds and small lakes. The aquatic refuge practice has been used successfully across the nation for many years, with the desert pupfish aquatic refuge project drawing broad news coverage.

In Illinois, the first aquatic refuge for endangered and threatened fish species was established in Lake County in the 1990s by Integrated Lakes Management. Four fish species from natural glacial lakes of northeastern Illinois were stocked into an urban detention pond at a subdivision in Grayslake. The blackchin shiners (*Notropis heterodon*), blacknose shiners (*N. heterolepis*), Iowa darters (*Etheostoma exile*) and banded killifish (*Fundulus diaphanus*) have reportedly thrived in the detention pond, ensuring their continued existence in the state.

Starhead topminnow (*Fundulus dispar*)

In 2004, a cooperative effort between a University of Illinois Restoration Ecology class and the Department of Natural Resources Division of Fisheries was initiated to establish an aquatic refuge for rare fish species of the Sangamon River basin. The 1.3-acre Mansion Pond at Allerton Park (Piatt County) was drained in the spring of 2004 and all fish removed. After minor repairs, landscaping, and refilling of the pond, lake chubsucker (*Erimyzon sucetta*) from Crane Creek in the Lower Sangamon River basin were stocked. Two additional species, the starhead topminnow (*F. dispar*) and ironcolor shiner (*N. chalybaeus*), both state-threatened, were released in the spring of 2005. Successful spawning was observed in 2005. A U.S. Fish and Wildlife Service grant is supporting management of aquatic vegetation in the pond.

Future planned stockings of additional rare fish species from the Sangamon River basin include obscure species such as the redspotted sunfish (*Lepomis miniatus*) and mud darter (*E. asprigene*). As additional species are added, pond management becomes tricky as all species need to co-exist and prosper. One dominant and destructive species could eliminate the other species from the small pond.

Genetic diversity is another issue to contend with. A sizable population with a large number of adults needs to be established to help maintain a high level of genetic diversity—a population of closely related, inbreeding individuals is not desirable in the refuge or in the wild.

Aquatic refuges are not the ideal situation for maintaining biological diversity in our rivers and lakes, but simply an insurance plan to save species from being lost. As lost habitats are restored through conservation efforts by the state and federal governments and conservation organizations, fish reared in refuge populations can once again populate our backwater lakes, wetlands and streams.

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