

Rain Garden Constructed at Shiawassee Refuge

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One of the most important issues affecting Shiawassee National Wildlife Refuge is water quality. The refuge is near the bottom of the largest watershed in the state. Consequently, it is adversely impacted by increased sedimentation, higher nutrient loads, industrial contaminants, and decreased clarity. Thus, when the refuge paved the headquarters employee parking lot, it was important to consider what would happen to the runoff generated from the new impervious surface.



The headquarters rain garden, with the parking lot in the background, is an attractive and educational feature. Steven F. Kahl/USFWS; 10/2008

A rain garden was constructed next to the parking lot to prevent further degradation of refuge waters. Rain gardens are planted depressions that are designed to retain and absorb stormwater runoff from impervious surfaces. They prevent water degradation by allowing the vegetation to take up the excess water and filter it through the soil layers before it enters the groundwater system. The root systems of the rain garden enhance infiltration and moisture redistribution, and encourage growth of diverse microbial populations involved in biofiltration.

Slowing down the runoff also prevents rapid peaks in flooding downstream. The poor alternative to the garden was to simply channel the runoff into the adjacent roadside ditch which eventually dumps into the Shiawassee River.

The rain garden has also enhanced wildlife habitat adjacent to the refuge's headquarters. The depression was planted with native wetland flowers and grasses, including prairie cordgrass and cardinalflower. Five species of amphibians successfully bred in the depression last spring, including American toad, western chorus frog, common gray treefrog, green frog, and northern leopard frog. Killdeer and solitary sandpiper are frequent visitors and countless wetland invertebrates exploit the new habitat, including dragonflies, whirligig beetles, and predaceous diving beetles.



*An adult green frog takes advantage of the new habitat afforded by the rain garden.
Steven F. Kahl/USFWS; 10/2008.*

The refuge plans to expand the rain garden in 2009. Subsurface soils were less permeable than anticipated when the garden was constructed. Thus, a larger depression must be excavated to accept higher volumes of runoff.