



Black River Falls Mine Pre-restoration, 1977



Black River Falls Mine Post-restoration, 1992

Black River Falls Mine Restoration

Jackson County Iron Mine
Black River Falls, Wisconsin
Project Initiation Date: 1975
Project Size: 1,340 acres

Project Goals

- Restore strip mine site to sustainable native ecological communities
- Stabilize steeply sloping waste rock piles to avoid contaminant dispersal

Project Results

- Restored 1,340 acres to native prairie ecosystems
- Met all agency requirements for contaminant control and site closure
- Created a high-quality, 146-acre lake, converting the mine site into a highly regarded regional park

Project Statement

In 1975 Applied Ecological Services was retained to assist in the permitting of a taconite strip mine that was to create a pit one half mile in length and one fourth mile in width. AES worked with this mine system for over 25 years, first permitting and then reclaiming and managing the mine site to create a new county park that includes a crystal-clear, 146-acre, 385-foot deep lake in the former mine pit. The county park includes an extensive trail system for hiking and biking, one of the region's most highly regarded fishery systems, swimming beaches and wildlife areas. Lake Wazee is one of the most popular regional parks in west-central Wisconsin and one of the region's most highly esteemed scuba diving lakes.

The mine was active from 1975-1982, but major successes with native species restoration were realized long before closure. AES began experimentation with native prairie species in 1977, and with live-staking woody species on tailings in 1980. Between 1984 and 1988, AES restored the site's 312-acre tailings basin to a dry-prairie community by directly seeding the tailings. Nearly 620 acres of the waste-rock dumps were shaped and hydroseeded with native species between 1985 and 1990. And by 1992, the mine's 43-acre rail yard and processing site was covered with sandy soils and restored to prairie.

The restoration plan involved detailed and comprehensive phasing of restoration activities to accommodate the development of the mine and the generation of mine wastes that would need reclamation. Initially, no local native genetic seed stock was available in sufficient quantities to address even the early phases of the reclamation process. AES developed a basic nursery on the mine site to propagate species of forbs and grasses needed to establish the prairie in its early years. Eventually, the nursery grew to cover more than 200 acres and was harvested annually to enrich the reclamation project. Restoration planting techniques also allowed for gap-phase invasion by native plants from the surrounding pine/oak barrens.

To stabilize mine wastes and reduce contaminant dispersal, AES increased the pH of mine waste rock by adding carbonates through a

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routine fertilization process. This developed a cementum layer impervious to internal leaching and groundwater contamination. Carbonates were spread like a fertilizer and tilled into the ground-up rock waste. This, along with planting, was used to create internal low-permeable and impervious layers in the substrates. Deep-rooted native prairie vegetation was planted to continue building an organic substrate and topsoil. This process worked very successfully and met all agency requirements for contaminant control and site closure.

For 20 years, AES conducted comprehensive monitoring of vegetation success and key faunal-group response while also providing detailed cost-accounting and compliance monitoring for regulatory agencies. In all, 1,340 acres were restored to native prairies, making the former mine site the largest prairie restoration in the state of Wisconsin at that time.

Current Status

The park is now used as an educational model of successful reclamation by the Wisconsin DNR.

