AES Projects in Fen Wetland Communities

Applied Ecological Services staff has worked on hundreds of projects involving wetland construction, restoration, enhancement, design, and monitoring. Included in this experience is a subset of wetland projects involving fen communities. Our fen projects have focused on studying existing conditions, assessing potential impacts from adjacent developments, and assisting with creation of conservation development plans designed to minimize or eliminate negative impacts to sensitive fen communities. The following summarizes some of our most significant work in fen ecosystems.

Sedgewood Cove

Lake County, Illinois
Client: Red Seal Development Corp.

AES was retained to conduct the initial ecological assessment of an 80-acre parcel bordering a one-mile stretch of Crooked Lake, adjacent to the Village of Lindenhurst. This assessment identified the presence of a high quality prairie and a small fen remnant, in addition to lake shoreline wetlands, and savanna and mesic forest remnants.

AES worked on the development team to design the residential and commercial areas of this development in a way that would minimize negative impacts to the important natural resources, including the lake. We also prepared restoration, management and monitoring plans for the natural areas that were into the design of the development.

In addition, AES assisted in negotiations with regulators and obtained appropriate local, state and federal permits regarding wetlands and natural resources. As part of the permitted development, we also conducted on-going monitoring to document the health of the fen, the prairies, wetlands and other natural areas in the development.

This project was featured as an important regional conservation development in several technical journals and popular press articles.

Lemont Quarry and Book Property Wetland Mitigation Bank

Lombard, Illinois
Client: Vulcan Materials Co.

AES provided technical scientific, regulatory negotiation, and design services to Vulcan Materials Co., in addressing on-going regulatory problems at the firm's Lemont Quarry in Will County, Illinois. The focus of our study was on an area of wetlands that was impacted by quarry operations and adjacent land-uses. AES studied the wetland impacts, providing detailed botanical and wetland studies, and contributed to hydrological investigations of the wetlands. As a part of this process, AES conducted a detailed

ecological assessment of a Lemont Quarry expansion near a 14-acre fen and seep complex.

AES also worked closely with Vulcan and the federal and state regulatory agencies to design win-win solutions that resolved the threatened closure of Vulcan's quarry operation. To obtain a wetland permit that allowed the quarry expansion, we designed a 90-acre wetland mitigation bank on an off-site location called the "Book Property". The Book Property project included a substantial acreage of wetland restoration, in excess of Vulcan's anticipated immediate and future likely needs. The unique location of the wetland restoration site - near the entrance of the new Midewin National Grassland - also made it particularly attractive. Vulcan's purchase and restoration of this 90-acre Book Property, located along a major highway with prime development opportunities, assures that the Midewin National Grassland entranceway is committed to public-use and conservation. The land will likely be gifted to the Midewin National Grassland at a future date.

An additional part of the solution that allowed the continued use and expansion of the quarry included AES negotiations with the Will County Forest Preserve District for Vulcan to assist in restoration and management of adjacent fens and seepage areas within the Forest Preserve District.

Cowles Bog Natural National Landmark

Indiana Dunes National Lakeshore
Client: National Park Service

The National Park Service contracted with AES to study the very unique Cowles Bog Natural National Landmark. This wetland complex includes both a fen and acid bog wetland, and adjacent forested wetlands.

For the NPS, we studied vegetation, breeding birds, small mammals, water quality, impacts of adjacent land-uses on hydrology, weedy wetland vegetation species, and other variables. In addition, we prescribed management and restoration strategies for this area. The detailed plant, animal, hydrological and water chemistry analysis of a bog and fen complex were key to design of the restoration and management program which addressed the natural resources of approximately 1,200 acres.

AES also installed a long-term monitoring program and generated data in initial years to begin the monitoring of future ecological changes and dynamics of the wetland complex.

Bluff Spring Fen

Elgin, Illinois
Client: Illinois State Nature Preserve

AES was retained to study vegetation, breeding birds, and water quality relationships of savanna vegetation and other uplands around Bluff Spring Fen. This study included detailed quantitative investigations, including studies of areas that were involved in restoration programs.

Our initial studies were conducted in 1985 and are being continued to the present day in order to better understand the vegetation and recharge areas at Bluff Spring Fen. This program was initially funded by the Illinois Department of Natural Resources Non-Game Wildlife Fund.

Fort Snelling State Park
Minneapolis, Minnesota
Client: Minnesota Department of Natural Resources

For this rare and valuable fen and seep complex at Ft Snelling State Park, AES conducted detailed studies, mapped natural resources and designed restoration, management and monitoring programs We also assessed potential impacts to the fen and seep complex located along the bluffs overlooking the Minnesota River. Potential impacts were from gravel mining operations, ground water pumping, railroad embankments, and ground and surface-water diversions. AES staff assessed existing conditions and prepared a management plan to mitigate for impacts to fens.

The site has been designated as one of international importance This site was also used by AES for four years in training Minnesota Department of Natural Resources and National Park Service personnel about wetland regulations, restoration and management.

Shaw Property
Dundee Township, Illinois
Client: Private Property owner

AES was retained to assist this private landowner in developing management and restoration plans for several small fens located within a savanna community. We conducted initial prescribed burning on several of the fens, and laid the ground work for follow-up volunteer restoration and management efforts on this property.

We also were retained on several occasions to review the potential impacts of proposed adjacent land developments on the hydrology, water chemistry and vegetation in the fen communities on this parcel. AES provided property owners with a preliminary opinion on potential impacts to on-site fens from off-site development activities. AES also provided its opinion as an expert legal witness during a public hearing.

High Hills Farms
Algonquin, Illinois
Client: United Development

AES was retained to assist United Development Homes in understanding ecological resources on a 200 acre parcel the firm had acquired. We conducted a study of a small fen system located within the property as well as ecological assessments, botanical studies and wetland delineations throughout the property.

AES worked with the development firm and regulatory agencies to develop a win-win program that avoided impacts to the majority of the important natural resources. AES prepared a restoration and management plan for the development project and has been involved in its implementation over the span of several years. In addition, we negotiated wetland permits for the development with state and federal regulatory agencies.

Chrysler Testing Facility

Auburn Hills, MI
Client: Chrysler Corporation

AES was retained by Chrysler Corporation to document the ecological conditions of a large wetland complex that included several fens within and adjacent to Chrysler's automobile test track facilities. We quantitatively characterized the pre-development conditions of the fens and wetlands, and established a monitoring protocol for on-going study of the ecological health and conditions of the wetlands. AES was also retained to monitor the site and provide a technical report on the baseline conditions of the wetlands during the first year of the study.

This study was required by regulatory agencies and was designed to document impacts of the track test facility on the wetlands.

Fen Restoration

Williams Bay, WI
Client: Mann Brothers

AES was retained as the ecological consultant to a team designing a condominium development in a former gravel mine site. Studies during this investigation of the ecological resources revealed that the site historically included a large fen wetland complex. Small parts of this fen complex still remained, albeit in a deteriorated condition. AES worked with the design team to develop plans for stormwater management that would recharge surface waters into the gravel seams present. As stormwater traveled through these seams, its chemistry would be changed commensurate with the needs for the fen vegetation.

AES created conceptual and detailed plans for the restoration of tile-drained fens and for the integration of alternative stormwater management systems. We worked closely with the development team to integrate the residential development with the restored natural resources.

We also conducted studies of the tile-drained fens and their water quality, along with an investigation of potential impacts from an adjacent gravel quarry operation and proposed residential development. In addition, we designed restoration, management, and monitoring plans for the fens, and integrated fen, prairie restoration, and savanna restoration into this residential development plan.

Carrington Reserve Fen

West Dundee, IL
Pulte Home Corporation

AES conducted the preliminary vegetation and water quality assessment of this valuable sedge meadow fen located on a development site. Currently, AES is designing a stormwater management plan designed to maintain the existing fen hydrology and water chemistry. As part of the on-going study, AES has assisted in the development of a conservation development plan focusing on fen protection.

Updated June, 1999