

## Coal Mining in Iowa

In the late 1800s and early 1900s, coal mining was a major Iowa industry. Coal was mined from Pennsylvanian-age bedrock in approximately 5,500 underground mines in 34 counties. Iowa led the nation in coal production in 1918. Due to the elevated sulfur content of Iowa coal and regulations prohibiting use of high sulfur coal, coal mining in Iowa stopped in 1994.

Little direct evidence of the once thriving coal industry is visible. However, abandoned coal mines continue to impact the environment. Subsidence (sinking or collapse) of the land surface has occurred over abandoned underground coal mines in Iowa. Well documented cases of mine collapse in the Des Moines area has resulted in damage to structures and utilities.

'Coal Mine Maps' (<http://programs.iowadnr.gov/maps/coalmines/>) is an interactive map for locating abandoned coal mines. The site offers numerous ways to locate abandoned coal mines. Once a mine is located, users can view the last known mine map available.



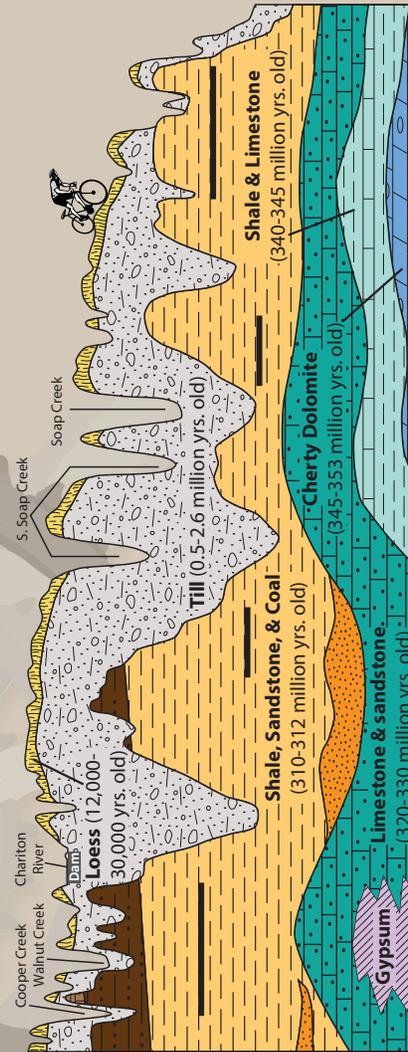
**Iowa Rocks!!**



For more information contact your local Aglime supplier.

### Daily Geology:

Mississippian-age bedrock units underlie the Pennsylvanian throughout southern Iowa and are characterized by a wide variety of lithologies. Limestone, dolomite, chert, sandstone, and shale are common throughout the sequence. Unique to the Centerville area is a deposit of gypsum, which is a mineral that is used mostly in the manufacturing of drywall. The gypsum is about 500 feet below ground and is up to 80 feet thick. Gypsum is formed when large volumes of sea water evaporate and leave behind minerals that were in solution, also known as an evaporite deposit.



# RAGBRAI

# Day 5

# 2016

Thursday, July 28

Learn About the Land



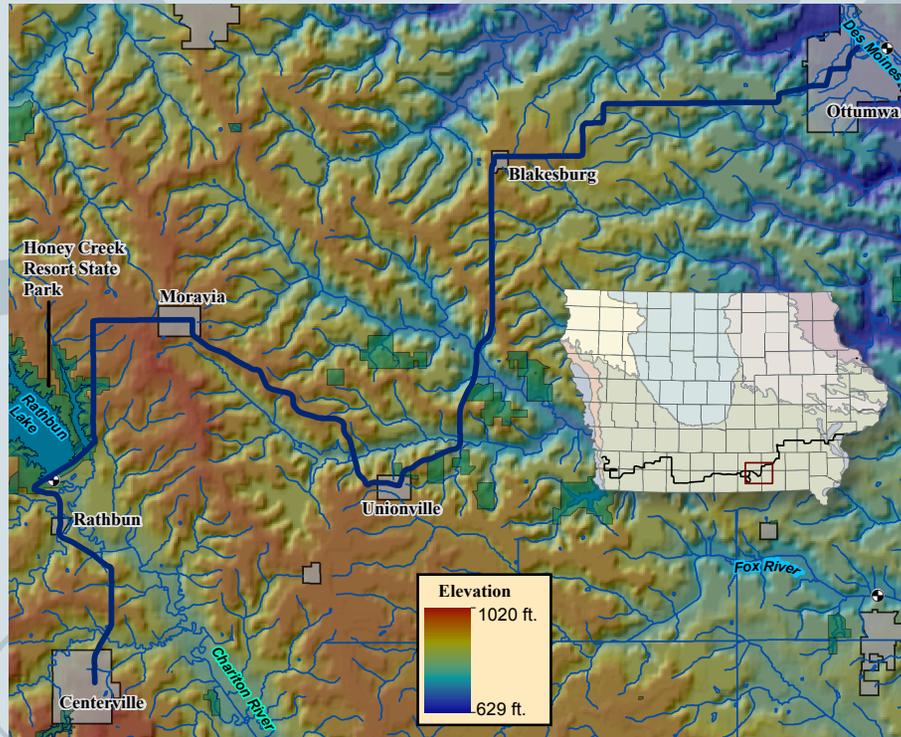
## Soap Creek Watershed

The Soap Creek Watershed Board was formed in 1986 when representatives from Monroe, Wapello, Appanoose, and Davis counties came together after recognizing a need to address water quantity and water quality challenges within the watershed. In 1988, a plan was developed that identified 154 project locations that would help reduce flooding, control erosion, improve water quality, protect people and infrastructure, and create abundant habitat for wildlife. By 2012, 132 watershed projects had been completed.

In 2010, the Iowa Flood Center was awarded funding through the U.S. Department of Housing and Urban Development for the creation of the Iowa Watersheds Project (IWP). The IWP provided funding for five watersheds across the state (Upper Cedar River, Turkey River, Soap Creek, Middle Raccoon, and Chequest Creek) to establish a Watershed Management Authority, develop a hydrologic assessment and watershed plan, and construct practices to reduce flooding and improve water quality.

The projects that have been implemented in the Soap Creek Watershed provide multiple benefits to landowners, provide significant savings in road and bridge maintenance costs to the county, and have drastically reduced peak flows during heavy rain events.

\* Cover photo: A small lake built as part of the Soap Creek Watershed project.



-  USGS streamflow station
-  Parks and preserves
-  Cities and towns

## Ambient Lake Monitoring

As you cycle across the state you may notice a large number of lakes. They support excellent fisheries, provide a home to numerous plants and animals, create recreational opportunities for Iowans and tourists, and in some cases, supply Iowans with drinking water. Statewide water quality monitoring is important so that we can better understand the health and status of our lakes.

In 2000, the Iowa Department of Natural Resources (Iowa DNR) Water Quality Monitoring and Assessment Section began its ambient lake monitoring program. The Iowa DNR monitors 138 publically-owned lakes three times each summer. Lakes are monitored for a number of physical, chemical and biological parameters. Results from monitoring are used to inform Iowans about water quality in their lakes, track



trends in water quality in order to target individual lakes for restoration activities, and perform Water Quality Assessments on lakes as mandated by the Federal Clean Water Act. Rathbun Lake is a federal flood control reservoir. The Iowa DNR, the United States Army Corps of Engineers (USACE) and others monitor streams in the watershed and several points in the lake. Links for additional information on Rathbun and other lakes can be found on the Iowa DNR's Ambient Lake monitoring webpage. <http://www.iowadnr.gov/Environmental-Protection/Water-Quality/Lakes>.



## Ottumwa Coal Palace

The Coal Palace was built in 1890 in Ottumwa, Iowa. Surrounding Iowa counties and various businesses hosted an exposition to promote Iowa coal and other Iowa products. The wooden framed building was faced with coal and housed a small replica of a coal mine complete with shaft and hoist so that visitors could have the experience of being lowered into a coal mine. A 200-foot tower, dance floor, auditorium and stage, and a variety of exhibits were among the attractions housed at the Coal Palace. The building was razed in 1891 after the close of the exposition.

