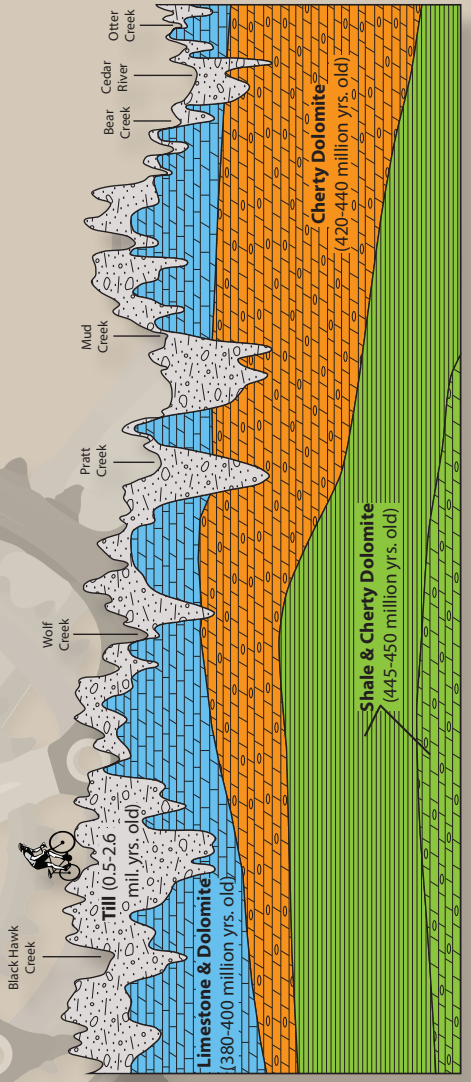
Restoring Dry Run Creek

The Dry Run Creek Project began in 2004 to restore Dry Run Creek, an urban stream that faces many challenges. During storms, high amounts of storm water runs off of the paved areas, cars, and rooftops in the watershed, carrying pollution and causing creek levels to rise quickly. As a result, the creek has low abundance of aquatic life, high levels of bacteria and is designated as an "impaired" stream by the Iowa Department of Natural Resources.

The Black Hawk Soil and Water Conservation District works with partners such as the City of Cedar Falls, the University of Northern Iowa, and private businesses and landowners to make watershed improvements to allow water to soak directly into the ground instead of running off into the creek. The Dry Run Creek project has installed practices such as rain gardens, permeable pavement, and bioswales. The project partners also repair damaged streambanks and improve habitat for aquatic life.



Daily Geology: Aquifers are bedrock units that store and transmit groundwater. Aquicludes are bedrock units that do not allow the vertical transmission of groundwater. The Ordovician-age (445-450 mil. yrs.) Maquoketa Shale is a regional aquiclude that separates the Devonian-Silurian aquifer (blue and orange units) from deeper aquifers. Aquicludes help keep contaminants from the surface or shallow wells from impacting deeper aquifers that might be used by the majority of the population.

RAGBRAI

Day 5

2015

Thursday, July 23

Learn About the Land

IOWA GEOLOGICAL SURVEY

IIHR Hydroscience & Engineering

USGS science for a changing world

IOWA LIMESTONE PRODUCERS ASSOCIATION
Your limestone resource since 1945!

DNR

Iowan Surface and Erratics

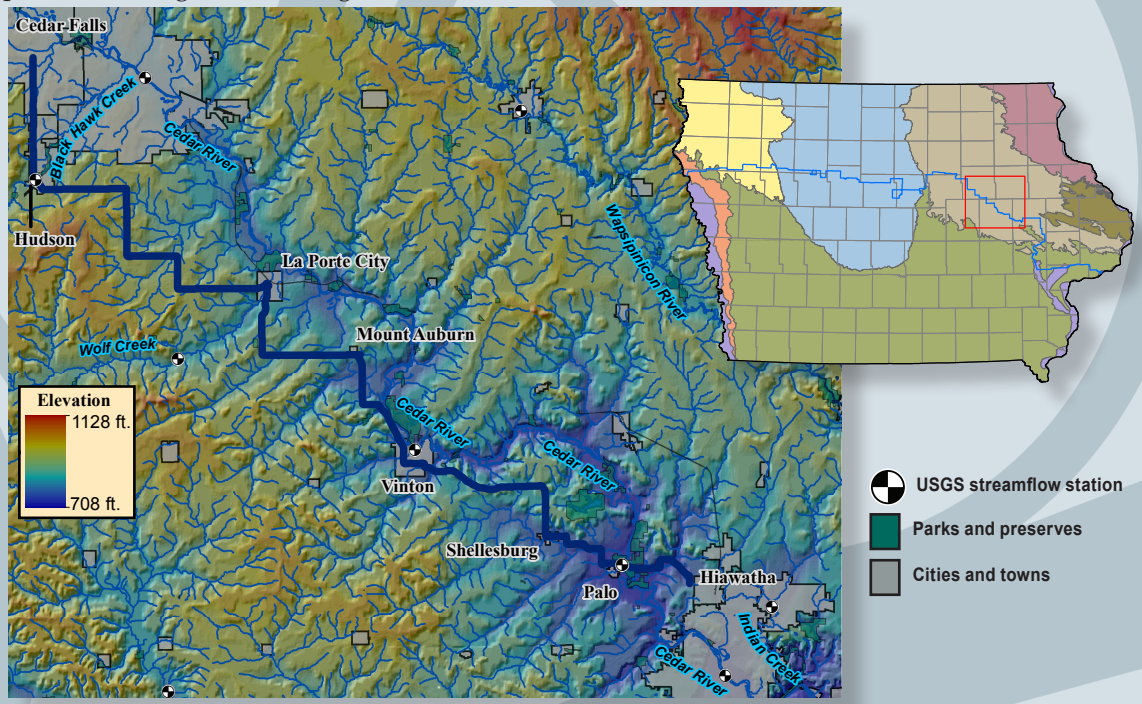
Most of Day 4 and all of Day 5 will be spent riding on the Iowan Surface landform region. The Iowan Surface, which makes up much of northeast Iowa, was subjected to an intense period of cold between approximately 21,000 and 16,500 years ago during the Wisconsin Glacial Episode. This time period was characterized by periglacial processes including freeze-thaw activity, strong winds and solifluction, creating gently rolling topography and a low relief landscape. During this time, significant amounts of Pre-Illinoian glacial till were eroded.

Characteristic features of the Iowan Surface include stone lines, glacial erratics (large boulders carried by glaciers), and paha. Both stone lines and glacial erratics are lag deposits left behind as erosion carried away finer materials. Stone lines are often covered by a thin layer of loess and are only visible in cross-sectional views. Numerous glacial erratics are found throughout the area, such as the one shown in the photo below near the Marion Airport; and may be observed in fields along the route.

* Cover photo: Devonian-age limestone with brown fluorite crystals and clear calcite crystals. Collected from a quarry near Cedar Falls.

Going Nuclear in Palo

The town of Palo sits about 11.5 miles northwest of Cedar Rapids and is home to the only nuclear power plant in Iowa. The Duane Arnold Energy Center (DAEC) is located 2.5 miles north of downtown Palo along the Cedar River. This facility generates enough electricity to power more than 600,000 homes annually (615 Megawatts). The DAEC took 40 months and $300 million to build and was brought online in February 1975. Full production capacity for the plant was achieved in 1985 after several modifications. The DAEC was recently granted a 20 year extension on its license, allowing operation to continue until 2034. The plant employs about 600 people during normal operation and up to 1,500 people during outage operations. The DEAC utilizes a General Electric Mark 1 boiling water reactor fueled by uranium. The DAEC occupies a 500 acre site that includes natural habitat and farmland. The Pleasant Creek Reservoir was constructed northwest of the plant to provide cooling water during times of low flow in the Cedar River.



Limestone is one of the most common rocks in Iowa. It is a sedimentary rock composed largely of the mineral calcite (calcium carbonate or $CaCO_3$). Limestones often contain variable amounts of chert or flint as tiny void fills, nodules, or layers. Sand, silt, and clay are also comonly found in limestone to varying degrees; geologists refer to a clayey or silty limestone as argillaceous limestone.

The primary source of the calcite in limestone is typically microscopic remains of ancient marine organisms. Iowa's vast resources of limestone are obvious when you see buildings, retaining walls, sculptures, signs, walkways, gravel roads, and interstate highways all utilizing this vastly versatile material.