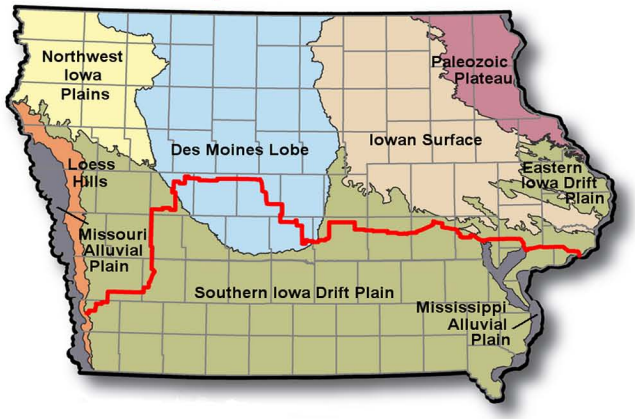
RAGBRAI Geo-pedia



Landforms of Iowa

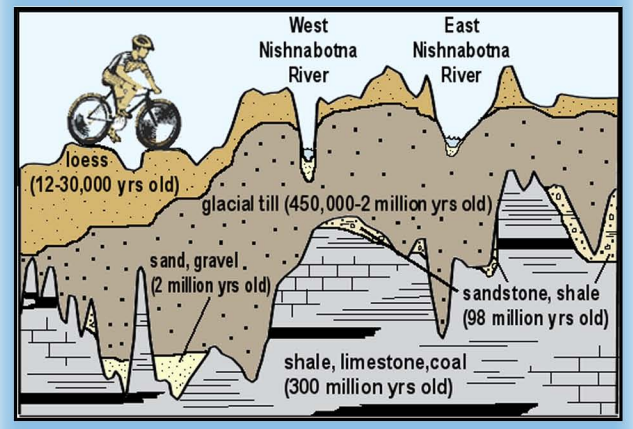
In Iowa, landform regions are composed of similar earth materials derived from glacial, wind, river, and marine environments in the geologic past. These landforms serve as a guide to appreciating the state's subtly diverse landscape and remarkable history. This year you will bike through four landscapes in the southern part of the state. If you begin the trip in Glenwood you will experience only the eastern edge of the remarkable Loess Hills, and you will scarcely notice the subtle transition to the Southern Iowa Drift Plain. The Des Moines Lobe and Alluvial Plains encountered on the route present a much different landscape.

- **Loess Hills**: Iowa's steeply rolling Loess Hills are very thick accumulations of silt, blown out of the Missouri River Valley during glacial periods.
- **Southern Iowa Drift Plain:** This generally hilly landscape is characterized by thick loess over deeply weathered Pre-Illinoian glacial deposits.
- **Des Moines Lobe:** The most recent advance of glacial ice into Iowa (about 15,000 to 12,000 years ago) left an amazingly flat landscape highlighted by hilly moraines.
- **Alluvial Plains:** This very flat landscape features multiple levels of floodplain sediments deposited in river-incised valleys.

For more information on **Iowa's Landform Regions** see:
http://www.igsb.uiowa.edu/Browse/Landform.htm

COVER PHOTO: *2011 flooding on the Missouri River in southwest Iowa, looking northwest at Nebraska City. Photo by U.S. Army Corps of Engineers.*

Day 1 Milestones



Start: Glenwood
Loess Hills: mile 0
Southern Iowa Drift Plain: mile 1
West Nishnabotna River: mile 29
East Nishnabotna River: mile 44
Finish: Atlantic, mile 62

For More Information...

On the landscape of Iowa, including the Des Moines Lobe, Southern Iowa Drift Plain, and Loess Hills, go to:
www.igsb.uiowa.edu/browse/landform.htm

Human and Natural History Partners

For the second year the **IDNR Geological & Water Survey**, the **U.S. Geological Survey**, and the **University of Iowa Office of the State Archaeologist** "***Team Archaeology***" are teaming up as the RAGBRAI **"Human and Natural History Partners."** **Archaeology on the Road** highlights the unique cultural history and prehistory along the RAGBRAI route by pointing out interesting and significant archaeological sites and sharing Iowa's past along the way. **Learn about the Land** provides daily brochures describing interesting landscape, geologic, and other natural and historical features and resources along the RAGBRAI trail. And, with help from the **Iowa Limestone Producers Association,** we will also provide some informative facts about one of Iowa's greatest natural resources, limestone.

Read your **Learn about the Land** daily brochures and don't miss any of the interesting natural and historical sites on this year's RAGBRAI tour. And keep an eye out for the riders from **Team Archaeology** with information on and discussions of Native American history and culture.

RAGBRAI 2011

Learn about the Land

Sunday, July 24

Day 1

Iowa DNR -Geological and Water Survey
109 Trowbridge Hall
Iowa City, IA 52242
www.igsb.uiowa.edu

US Geological Survey - IA Water Science Center
400 S. Clinton St.
Iowa City, IA 52240
http://ia.water.usgs.gov

Iowa Limestone Producers Association
5907 Meredith Dr.
Des Moines, IA 50322
www.limestone.org

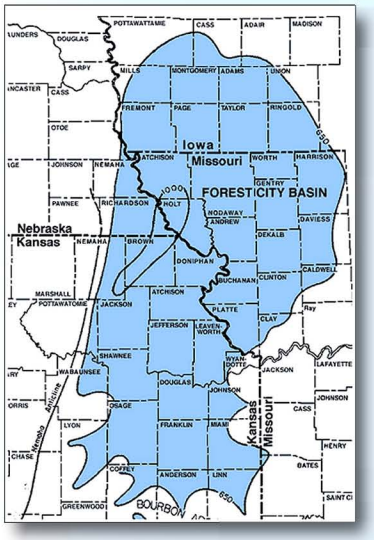
Southwest Iowa Oil?

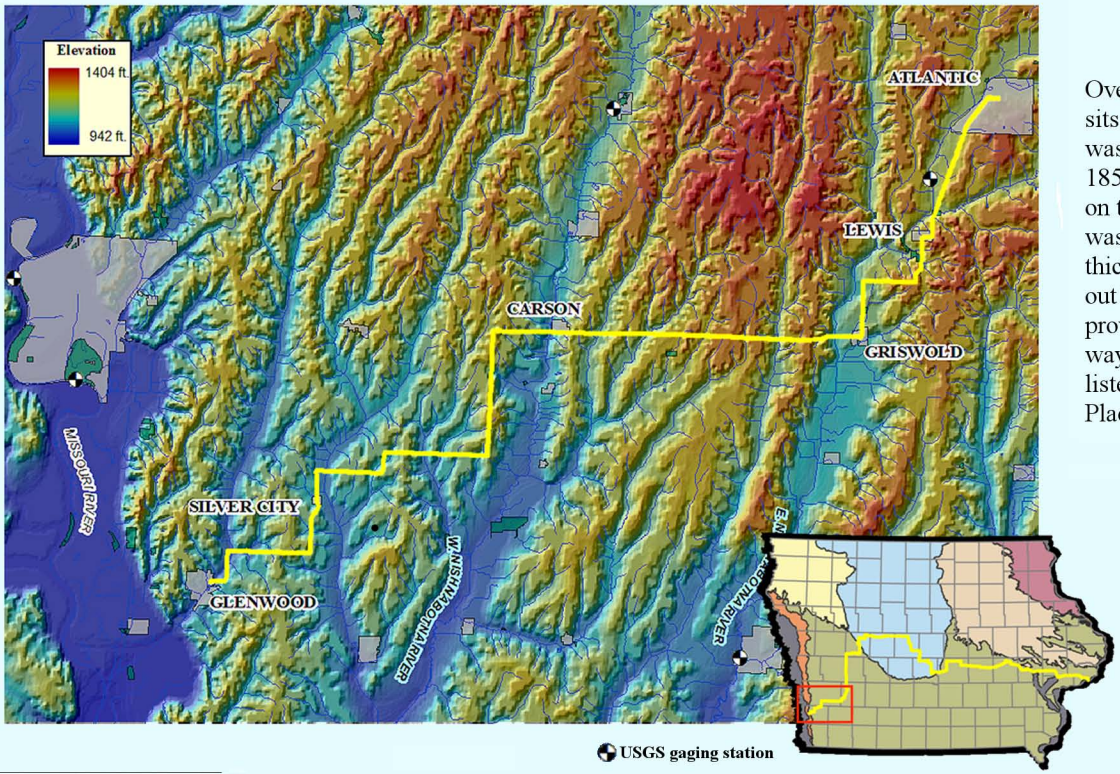
Ten oil exploration wells have been drilled right here in Mills County. The greatest potential for economic production of oil in Iowa lies in the southwest quadrant of the state. This area includes the northern limits of the Forest City Basin (centered in northwestern Missouri). Oil has been produced for many decades from fields in northwestern Missouri, some (the Tarkio field) less than 20 miles south of the Iowa border, and also from fields in adjacent areas in southeastern Nebraska and northeastern Kansas. It is likely that petroleum generated in the basin migrated into Iowa where it was trapped and is now waiting to be discovered.

2011 Flooding on the Missouri River

The Missouri River, with its headwaters in Montana, has seen historical flooding with peaks of record (since the mid 1950s when the river became regulated with dams) at every stream gage on the Missouri River in Iowa. Over the past 50+ years many floods have been averted or reduced because of river management by the U.S. Army Corps of Engineers. This year's flood has been uncontrollable due to heavy spring rains in the headwaters and the thick snow pack in the Rockies that was one and a half times larger than normal and extended to much lower elevations. In typical years, the snow pack will melt slowly as spring temps begin to rise. With the equivalent of a year's worth of rain falling in one weekend in May before the snow began melting, the Missouri River flooding is forecasted to continue for several months. Scientists with the U.S. Geological Survey have noted that the normal 1,100-ft wide channel south of Glenwood is now more than two and half miles wide.

Forest City Basin





The Hitchcock House

Overlooking a bend in the Nishnabotna River sits the Hitchcock House in Lewis. The house was built by Rev. George B. Hitchcock in 1856. Brown sandstone from Jester's Quarry, on the east side of the road just south of town, was used to construct walls averaging 20 inches thick. From this house, Hitchcock carried out his Underground Railroad activities, providing shelter to fugitive slaves on their way northward. The Hitchcock House was listed on the National Register of Historic Places in 2006.

Iowa's Loess Hills

Loess (rhymes with bus) is produced by the movement of glacial ice, grinding rocks to a fine, silt-sized powder. During the Ice Ages vast amounts of this glacial sediment were transported in meltwater by the Missouri River and deposited on its floodplain. During glacial winters, the loess was picked up by westerly winds and deposited on the lee side of the valley. Three loess units are present in Iowa: the Loveland (deposited 160,000 to 125,000 years ago), Pisgah (42,000 to 24,000 years ago), and Peoria Formation (21,000 to 12,500 years ago).

Limestone Facts

- The limestone industry employs over 1,800 people in Iowa.
- For every $1 billion spent on highway construction, 42,100 jobs are generated.
- 90% of limestone is used within 50 miles of where it is mined.
- 94% of asphalt and 80% of concrete is made up of aggregates.
- Iowans use over 32,000,000 tons of crushed limestone each year. 15,000 tons of limestone is required for the construction of an average size school or hospital.
- About 150 tons of limestone are used in construction of the average home.
- An estimated 152,000 tons of limestone are necessary to construct one mile of interstate highway.

Iowa Limestone Producers Association