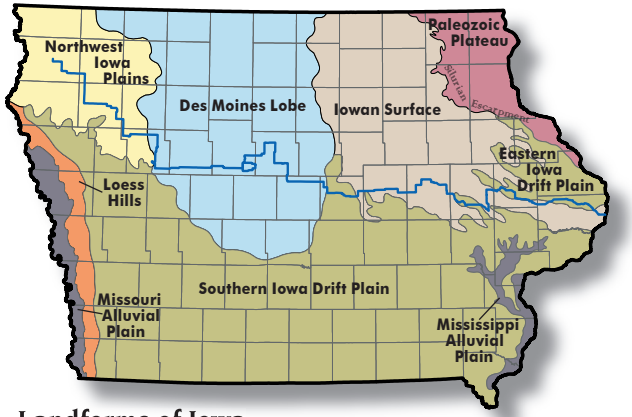
RAGBRAI Geo-pedia



Landforms of Iowa

In Iowa, landform regions are composed of similar earth materials derived from glacial, wind, river, and marine environments of the geologic past. These landforms serve as a guide to appreciating the state's subtly diverse landscape and remarkable history. This year, you have the pleasure of biking over five of the eight major landform regions in the state! These major landforms in Iowa are summarized as follows:

• **Northwest Iowa Plains** – a gently rolling landscape that was last glaciated during ancient glacial advances between 500,000 and 2.2 million years ago.

• **Des Moines Lobe** – the most recent advance of glacial ice into Iowa (about 15,000 - 12,000 years ago) left an amazingly flat landscape highlighted by hilly moraines.

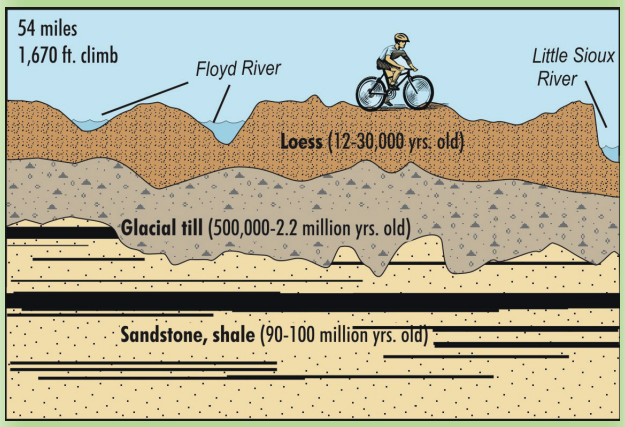
• **Southern Iowa Drift Plain** – an older glacial till terrain that has had time to weather into a deeply creased landscape.

• **Iowan Surface** – younger than the Southern Iowa Drift Plain but older than the Des Moines Lobe, this region consists of subtle topography with long slopes and shallowly insiced erosional channels.

• **Eastern Iowa Drift Plain** – renamed from the Southern Iowa Drift Plain due to its geographic location, being separated by the Iowan Surface. Generally thought of as a transitional region toward the Paleozoic Plateau.

COVER PHOTO: *Typical western Iowa scene, gently rolling and crop-covered hills divided by tree-lined valleys.*

Day 1 Milestones



Start: Sioux Center

Floyd River: 14 miles

Sanford Museum: 117 E. Willow St., Cherokee, IA

Northwest Iowa Plains: 0 - 54 miles

Finish: Cherokee – 54 miles

Human and Natural History Partners

For the fifth year the **IDNR Geological and Water Survey**, the **U.S. Geological Survey**, and the **University of Iowa Office of the State Archaeologist "Team Archaeology"** return as **"Human and Natural History Partners." Archaeology on the Road** highlights the unique cultural history and prehistory of Iowa on the RAGBRAI route, pointing out interesting and significant archaeological sites and sharing Iowa's past along the way. Look for our booth at Expo and then again on Days 5 and 6 on the route, and also keep an eye out for our Team Archaeology riders throughout the week and online at: **www.iowaarchaeology.org**. ***Learn about the Land*** provides daily brochures describing interesting landscape, geologic, and other natural and historical features and factoids along the RAGBRAI trail. Look for USGS volunteers as they distribute the Learn about the Land brochures in RAGBRAI campgrounds.

Special thanks to the **Iowa Limestone Producers Accociation** for assisting in the production of Learn about the Land daily brochures. With their help, we are able to provide interesting information about one of Iowa's greatest natural resources... limestone!

Learn about the Land-casts

Interested in hearing more about Iowa's fascinating landscape? Go to the link below to download daily podcasts:

www.igsb.uiowa.edu

40th RAGBRAI 2012

Learn about the Land

Sunday, July 22

Day 1

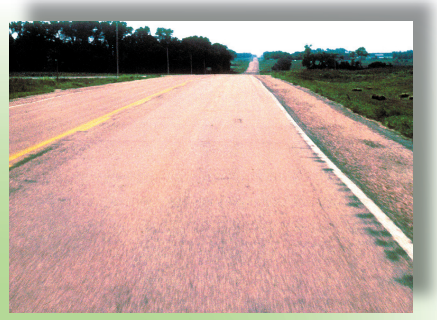
Iowa DNR – Geological and Water Survey
109 Trowbridge Hall
Iowa City, IA 52242
www.igsb.uiowa.edu

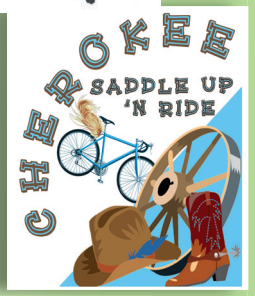
US Geological Survey - IA Water Science Center
400 S. Clinton St.
Iowa City, IA 52240
http://ia.water.usgs.gov

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

Follow the Pretty Pink Roads

As you bike across northwest Iowa, you will note a pink coloration of many roads. This color comes from the rock aggregate that is commonly used in the concrete and asphalt in this area, the **Sioux Quartzite**. The Sioux Quartzite was deposited 1.7 billion years ago as a beach sand, that later became sandstone. The quartz sand grains are cemented with quartz, making it a very hard rock called quartzite. The Siouz Quartzite is exposed at the land surface in northwestern most Iowa and is quarried in southern Minnesota and adjacent South Dakota. It is extremely resistant to natural weathering as well as traffic on roads. This toughness also means that it was not easily broken up by the glaciers, so pink Sioux Quartzite rocks and boulders were carried south into Iowa in great numbers and can be commonly seen on the landscape of this part of Iowa. Its toughness also makes Sioux Quartzite a commonly used stone as ballast along area railroads.

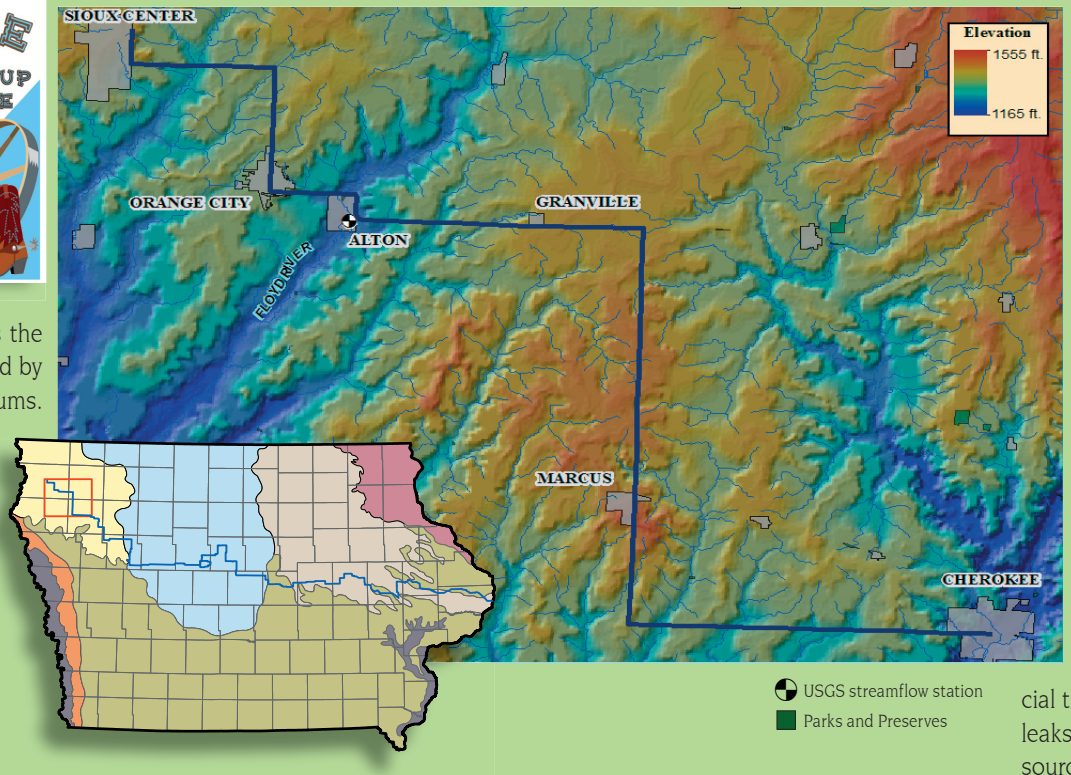




Cherokee's Sanford Museum

The Sanford Museum in Cherokee is the first museum in Iowa to be accredited by the American Association of Museums. The Natural History exhibits include **Archaeology**, Art, Astronomy, **Geology**, History, Natural History, and **Paleontology**. The Fossil exhibit includes a 4-ft giant cephalopod and other marine fossils from a time when Iowa was covered by a shallow sea. Learn About the Land you are standing on while in the museum by visiting the 3-D relief display showing the stratigraphic column of the geologic features under the museum.

http://sanfordmuseum.org/



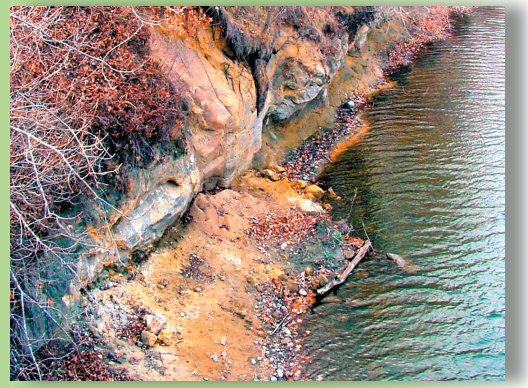
Limestone Facts

- The limestone industry employs over 1,800 people in Iowa.
- For every $1 billion spent on highway construction about 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

Drink Up!

Buried far beneath your wheels during the first two days of RAGBRAI will be one of Iowa's major rock formations: the **Dakota aquifer**. The Dakota aquifer is a layer of sandstone deposited some 95 million years ago, during the "age of the dinosaurs" when vast river systems ran through Iowa on their way to the Western Interior Seaway. The sand in the Dakota is typically buried beneath hundreds of feet of glacial till and shale; and is, therefore, protected from spills, leaks, or other contamination that impact shallower water sources. Water from the Dakota aquifer, though safe, is not known for its great taste due to dissolved minerals. That is why many cities, such as Sioux Center, Sioux City, Orange City and many others mix the water with a shallower, alluvial source to help alleviate taste issues while at the same time maintaining a safe protected source of water. Recently the IDNR-Geological and Water Survey completed a study of the water quality, movement, and quantity of the Dakota aquifer as part of the Iowa State Water Plan.



For mor information about the Dakota aquifer go to:
http://pubs.usgs.gov/wsp/2215/report.pdf