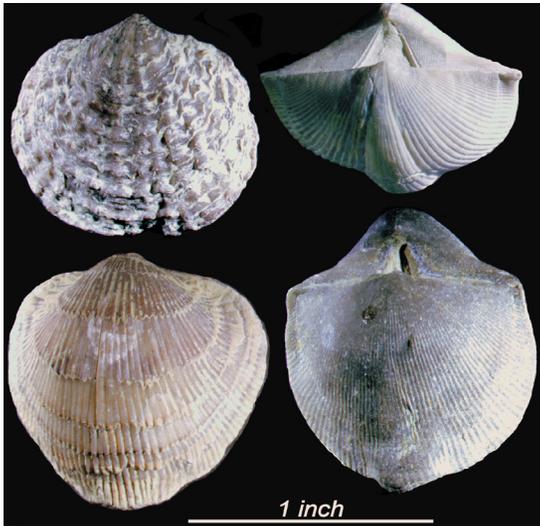


RAGBRAI Geopedia

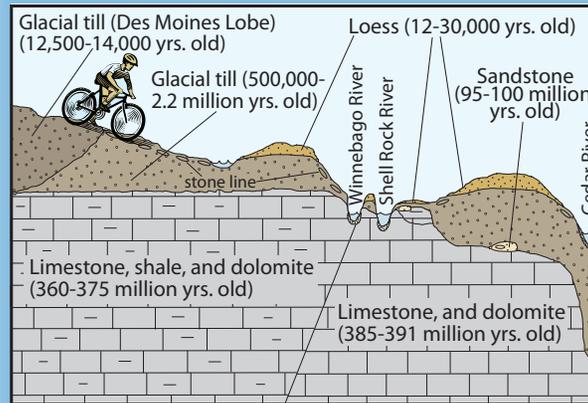
Common Fossils from the Rockford Fossil Park and Prairie Preserve



The above top image shows brachiopods, the bottom image shows various corals, bryozoa, gastropods, and crinoid stems commonly found in the Rockford Fossil Park and Prairie Preserve.

COVER PHOTO: View of Rockford Fossil Park and Prairie Preserve (photo by Brian Witzke).

Day 4 Milestones



Start: Clear lake

Union Hills WMA: mile 9

Iowan Landform Surface: mile 13

Rockford Fossil and Prairie Park: mile 34

Winnebago River: mile 37

Cedar River: mile 51

Finish: Charles City – mile 52

For More Information...

on how fossils are related to geologic time, and examples of "index" fossils, which are used as guides to determine the age of the rocks in which they are preserved, go to:

<http://pubs.usgs.gov/gip/geotime/fossils.html>

Rockford Fossil Park and Prairie Preserve's website, including fossil identification guide and live webcam, can be found at:

www.fossilcenter.com/

Information about public health concerns specific to Iowa, including arsenic, nitrates, and commonly used pesticides can be found at:

www.iowapha.org/

A map of the Union Hills Wildlife Management Area, including parking, boat access, and roads, can be found at:

www.iowadnr.gov/wildlife/wmamaps/maps/union_hills.pdf

RAGBRAI

Learn about the Land

Wednesday, July 28

Day 4



Iowa DNR – Geological and Water Survey

109 Trowbridge Hall
Iowa City, IA 52242
www.igsb.uiowa.edu

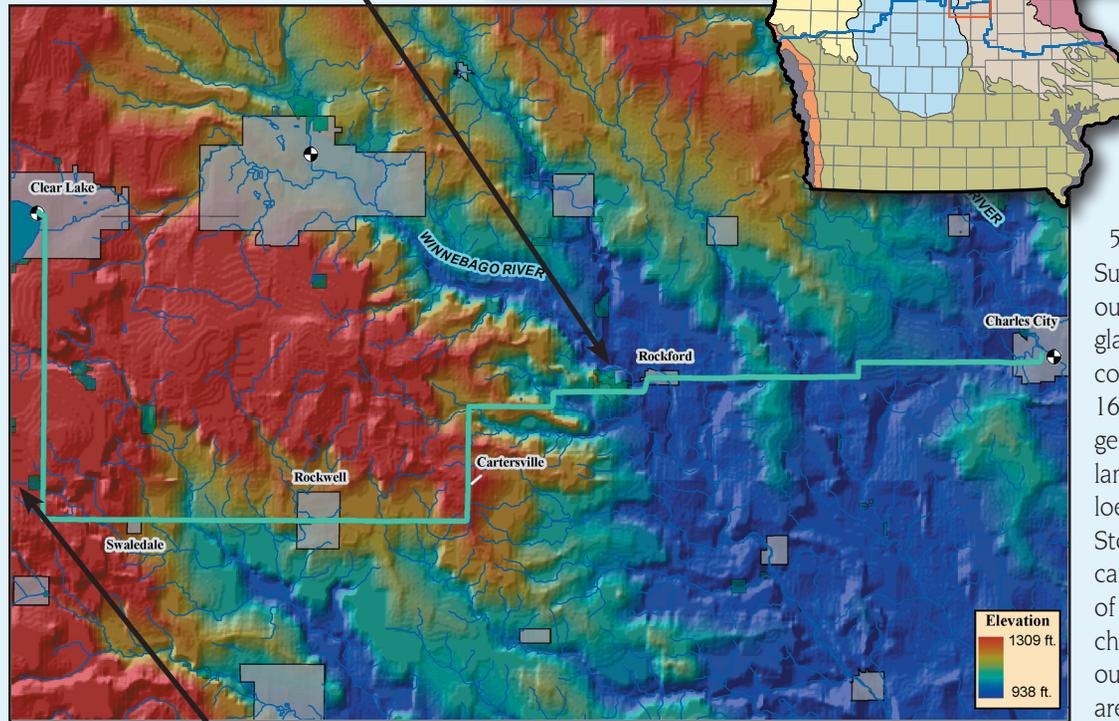
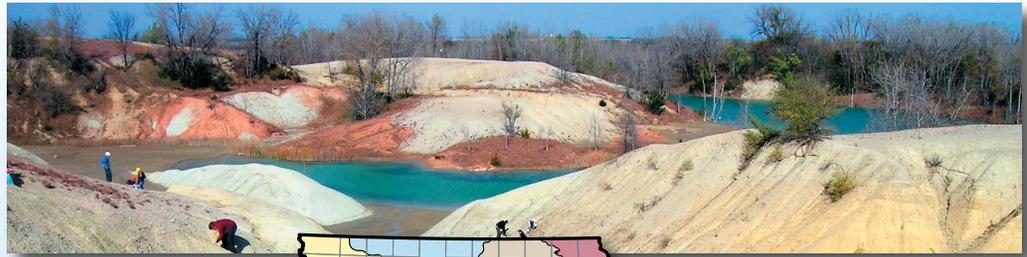
US Geological Survey - IA Water Science Center

400 S. Clinton St.
Iowa City, IA 52240
<http://ia.water.usgs.gov>

Iowa Limestone Producers Association

5911 Meredith Dr.
Des Moines, IA 50322
www.limestone.org

Today, just before the town of Rockford, be sure to stop by one of the premiere fossil collecting areas in the United States, **Rockford Fossil Park and Prairie Preserve** (photo right). In addition to numerous fossils, the Rockford Fossil and Prairie Park includes an abandoned shale pit, historic kilns, 60 acres of native prairie, and a newly built visitors' center. Rocks exposed at the shale pit include the 375 million year old Lime Creek Formation, with three members, the Juniper Hill, the Cerro Gordo, and the Owen. The relatively soft limestones and shales of the Cerro Gordo and Owen members at the preserve yield abundant small fossils collectively known as the Lime Creek Fauna. Visitors are encouraged to collect fossils, including brachiopods (shellfish), solitary corals, colonial corals, stromatoporates (presumed sponges), bryozoans ("moss animals"), crinoids ("sea lilies"), cephalopods (squidlike), and pelecypods (clams), as well as the molds of gastropods (snails) and pelecypods. Similar fossil-rich units are found at nearby Claybanks Forest and Bird Hill State Preserves, but Rockford is the only site where fossil collecting is allowed.



A few miles after turning east, right after the town of Swaledale, you will drop off of the Des Moines Lobe and enter the **Iowan Surface** landform – gently rolling, low relief stepped surfaces with open views to the horizon. From 500,000 to 2.2 million years ago, the Iowan Surface was covered with glaciers numerous times. The deposits left by these earlier glaciers were substantially eroded during the coldest part of the last glacial period from 16,500-21,000 years ago. This created the gently rolling topography and low relief of the land that we see today. There may be a thin loess (wind-blown silt) cover on some areas. Stone lines, glacial erratics (large boulders carried by glaciers), and pahas (large ridges of sand and loess blown off of glaciers) are characteristic of the Iowan Surface. Numerous glacial erratics are found throughout the area and may be observed in fields along the route.

Union Hills Waterfowl Production Area (WPA) is located six miles south of Clear Lake (photo left). It is owned by the US Fish & Wildlife Service and managed by the Iowa DNR. Over 2,100 acres in size, this beautiful area consists of prairie and pothole wetlands that have mainly been restored over the past 20 years, giving the viewer a chance to see what this part of Iowa looked like prior to European settlement. The Union Hills WPA supports many types of upland and wetland wildlife dependent species such as waterfowl, shorebirds, migratory grassland birds, pheasants, and whitetail deer. It is also a major stopover for Monarch butterflies during their southward migration to Mexico. Major forms of recreation for this area include hunting, hiking, and bird watching.



As you leave Clear Lake heading south, you will traverse the **Cerro Gordo County Department of Public Health Arsenic Zone**. Although arsenic had been identified in every major Iowa aquifer, only Cerro Gordo County has taken steps to identify the geologic source, currently believed to be the Devonian Lime Creek Formation, and taken steps to protect its citizens. By casing out certain rock formations and drilling deeper, the county is striving to have well contractors provide arsenic-free groundwater to the public.