

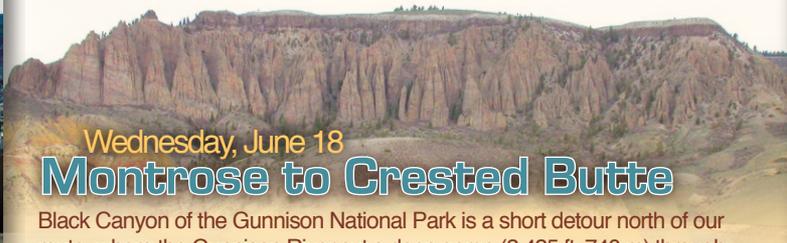
# Geology Highlights Along ridetherockies 2008 Route



Tuesday, June 17

## Telluride to Montrose

The area around Telluride is prone to landsliding because of volcanic rocks that contain poorly consolidated volcanic ash layers, easily erodible Mancos Shale, and valley walls oversteepened by glaciers. Pleistocene glacial moraines extend down the valley to just east of Placerville. Dark red sandstone of the Permian Cutler Formation forms the cliffs along Leopard Creek on our way up to Dallas Divide. From Ridgway to Montrose, Mesozoic rocks juxtapose the stream-deposited Ice Age glacial debris of the terraces of the Uncompahgre River.



Wednesday, June 18

## Montrose to Crested Butte

Black Canyon of the Gunnison National Park is a short detour north of our route, where the Gunnison River cut a deep gorge (2,425 ft, 740 m) through Precambrian-age gneiss and schist (about 1.8 billion years old). The Canyon is the deepest and narrowest in the country; so the name refers to the lack of sunlight rather than the color of the rocks. Along our route, we'll see Dillon Pinnacles north of Blue Mesa Reservoir. Violent volcanic eruptions and mudflows from the West Elk Mountains about 30 million years ago formed the rocks that make up the Pinnacles. The larger rock fragments protect the softer, muddy ash material from erosion.



Saturday, June 21

## Buena Vista to Breckenridge

Hoosier Pass  
11,542 ft

FINISH

(Photo by Floyd Muad'Dib)

Trout Creek Pass  
9,346 ft

Situated in the Arkansas River Valley, Buena Vista lies along the northern extension of the Rio Grande rift. The rift valley cut through and down-faulted the land as Mid-Tertiary regional uplift formed an anticline; sedimentary rocks dip west in the Sawatch Range and east in the Mosquito Range. South Park, made famous by the television show of the same name, is one of three intermontane valleys in Colorado. Developed primarily during late Cretaceous to middle Eocene time (45 to 70 million years ago), South Park is a structural basin; volcanic activity closed the southern end of the basin during the Oligocene (24 to 34 million years ago).

Thursday, June 19

## Rest Day in Crested Butte

Crested Butte was established in the late 1800s to supply gold and silver mining operations in the surrounding mountains. Crested Butte itself is an early Oligocene-age (28 to 34 million years old) laccolith. Laccoliths form when a feeder dike intrudes magma between sedimentary layers and bow them up; subsequent erosion of encasing sedimentary layers reveals the dome structure.



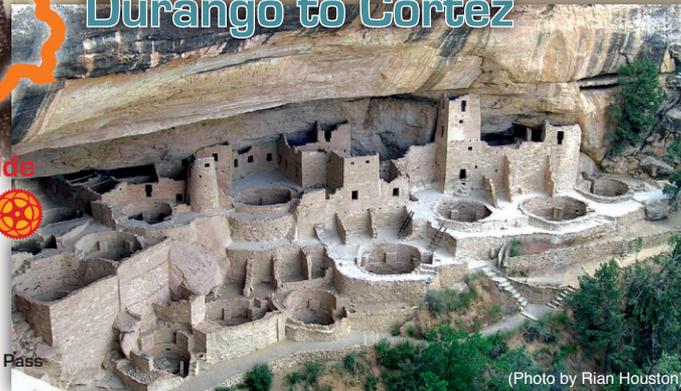
Montrose

Cerro Summit  
7,950 ft

Blue Mesa Summit  
9,288 ft

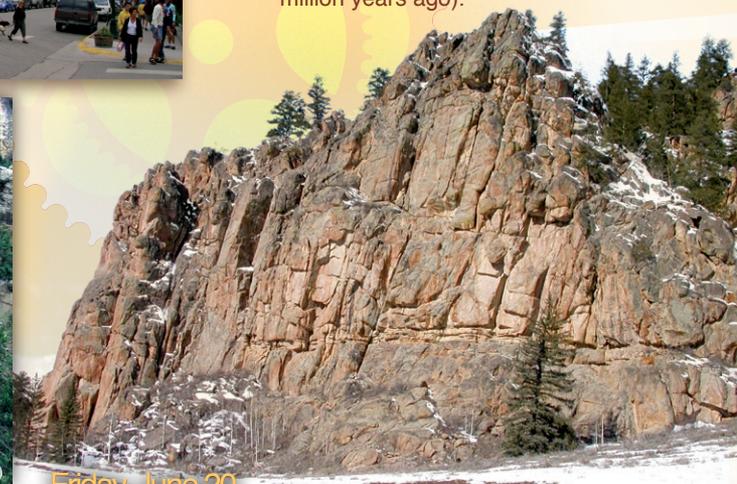
Sunday, June 15

## Durango to Cortez



(Photo by Rian Houston)

Cretaceous rocks (65 to 144 million years old) of the Mesaverde Group, Mancos Shale, and Dakota Sandstone make for one of the gentler rides of our tour. Economic deposits of silver (to the north), uranium (to the west), coal (along the route), and gas and oil (mostly to the south) make this area geologically rich. Mesa Verde National Park—probable namesake of the ≈72 to 82 million-year-old Mesaverde Group sandstone, shale, and coal—is a short but steep detour south of our route. Impressive sandstone alcoves were home to Ancestral Puebloans through the 1200s.



Friday, June 20

## Crested Butte to Buena Vista

As we head up the Taylor River drainage from Almont toward Cottonwood Pass, we'll ride through Taylor Park, a half-graben (a down-dropped block with a fault along one side; here on the east side) that formed during the Miocene (about 20 million years ago). We cross over the Sawatch Range at Cottonwood Pass through some of the highest mountains in Colorado. The Sawatch Range is composed of Precambrian-age rocks (1,400 to 1,800 million years old)—mostly granites and some gneiss.

Monday, June 16

## Cortez to Telluride

As we pedal up the Dolores River valley to Rico, we go down through the rock sequence from Mesozoic- to Paleozoic-age rocks; the sequence is reversed north of Rico because Laramide (about 50 million years ago) intrusions pushed up the strata forming a dome. The intrusions injected mineral-rich fluids along contacts with Paleozoic-age rocks resulting in economically viable mineral deposits in the region. Rugged peaks, such as Lizard Head, indicate they protruded above Pleistocene glaciers, which smoothed the surrounding topography. Lizard Head itself is an eroded remnant of pre-volcanic conglomerate capped by reddish-gray, welded ash-flow tuff. Rich in mining history, Telluride is named for a gold-bearing tellurium compound, which is found in veins. Some veins were mined 3,000 ft vertically, others up to 7 miles horizontally.

Dallas Divide  
8,970 ft

Telluride

Lizard Head Pass  
10,222 ft

Cortez

Durango

START