Geology Highlights Along RIDE THE ROCKIES 2010 Route

DAY 1
SUNDAY, JUNE 13 — 46 MILES
Colorado National Monument Loop


Jerry Nolan photo

Grand Junction is where the Gunnison River joins the Colorado. The majority of the rocks we'll see today in Colorado National Monument, which lies along the northeastern flank of the Uncompahgre Plateau, are of Mesozoic age (66 to 245 million years old). Desert conditions resulted in the prominent cross-bedded sandstone; multi-hued shale and sandstone formed later in shallow-marine and non-marine settings. These rocks were exposed by erosion after the Uncompahgre Plateau was uplifted during the Laramide orogeny (a mountain-building episode 70 to 45 million years ago).


Kevin Delaney photo


Richard Dunbar photo


Rian Houston photo

DAY 2
Monday, JUNE 14 — 90 MILES
Grand Junction to Delta via Grand Mesa

The flat-topped Grand Mesa is capped by late Tertiary basalt flows (10 million years old) that protect the underlying poorly consolidated, less resistant early Tertiary rocks. The basalts erupted in response to the same crustal extension that shaped the major valleys of the Rio Grande Rift farther to the east.

DAY 3
TUESDAY, JUNE 15 — 67 MILES
Delta to Ouray

The Uncompahgre River joins the Gunnison River at Delta. Mesozoic sedimentary rocks juxtapose the stream-deposited, Quaternary-age glacial debris that forms the terraces of the Uncompahgre River as we pedal up-valley to Ouray.


Rian Houston photo

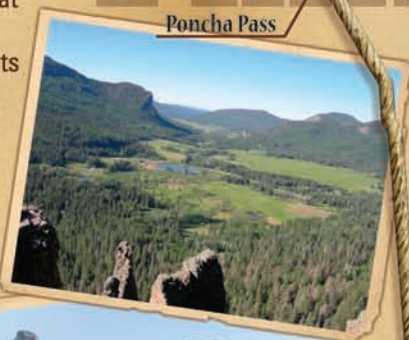
DAY 4
WEDNESDAY, JUNE 16 — 70 MILES
Ouray to Durango

Volcanic activity is responsible for the hot springs in Ouray and elsewhere in the San Juan Mountains. Heading into the mountains, we move down through the geologic section—from Paleozoic sedimentary rocks to Precambrian crystalline rocks—and then cross into the Tertiary volcanic rocks of the San Juan Mountains, primarily remnants of ash-flow tuff layers that erupted explosively 27 to 30 million years ago from several sources. To the south of Red Mountain Pass catch the view of a classic, glacially U-shaped valley. We re-enter Paleozoic rocks as we head up to Molas Divide out of Silverton; Precambrian crystalline rocks form the mountains to our east.

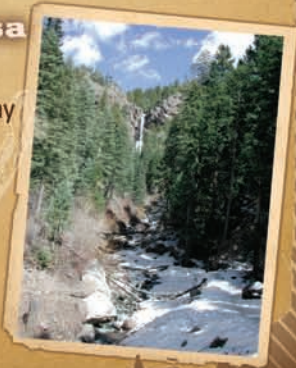
DAY 5
THURSDAY, JUNE 17
Durango to Pagosa Springs
85 MILES

The series of sandstone and shale beds we cross today reflects shallow-marine, shoreline, and swamp conditions during the Cretaceous Period (≈66 to 144 million years ago) when a seaway flooded Colorado and dinosaurs roamed. We traverse the northern part of the San Juan Basin, a structural basin of down-warped rocks that is a major oil and gas producer. Chimney Rock rises more than 1,000 ft (305 m) above the surrounding landscape; sandstone forms the hard cap at the top. Finally, we descend into the shale-floored valley of Pagosa Springs where superheated groundwater issues through springs at the surface.

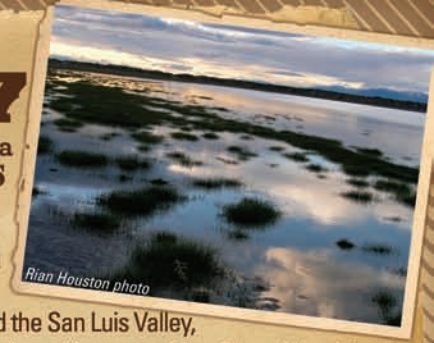
DAY 6
FRIDAY, JUNE 18 — 90 MILES
Pagosa Springs to Alamosa



As we ascend the San Juan River valley out of Pagosa Springs, the road tilts up steeply and our reward is a view of Treasure Falls up Fall Creek to the east. We cross the Continental Divide at Wolf Creek Pass and descend adjacent to South Fork out of the jointed, volcanic tuff layers of the San Juan Mountains. South Fork joins the main stem of the Rio Grande at the town of South Fork where the gradient drops considerably as we traverse the San Luis Valley nearly to its center at Alamosa.



DAY 7
SATURDAY, JUNE 19
Alamosa to Salida
84 MILES


Rian Houston photo

Crustal extension along the Rio Grande Rift—starting in the Oligocene (about 30 million years ago)—created the San Luis Valley, which has been the site of deposition ever since. The wide, virtually flat valley floor is filled with thousands of feet of sediment. Pedaling up the valley affords us an expansive view of the Sangre de Cristo Mountains to the east. Reddish Paleozoic rocks give the Sangre de Cristo Mountains their name. Great Sand Dunes National Park lies east of our route; the dunes are the tallest in North America (700 ft, 215 m) and started forming at the end of the last Ice Age (about 12,000 years ago). Precambrian metamorphic rocks are exposed at Poncha Pass, the saddle between the Sawatch and Sangre de Cristo Ranges.

Grand Junction
Grand Mesa
Delta
Ouray
Red Mountain Pass
Molas Divide
Coal Bank Pass
Durango
Wolf Creek Pass
Pagosa Springs
Poncha Pass
Salida
Finish
Alamosa