USGS
science for a changing world

2002 RIDE THE ROCKIES ROUTE
489 MILES

SUNDAY, JUNE 16
Alamosa to Pagosa Springs - 99 Miles
Wolf Creek Pass—10,850 feet

MONDAY, JUNE 17
Pagosa Springs to Durango - 67 Miles

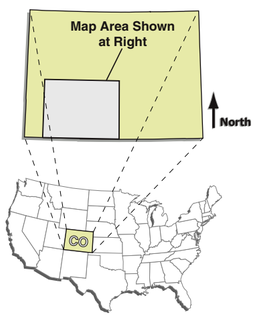
TUESDAY, JUNE 18
Durango to Silverton - 51 Miles
Coal Bank Pass—10,640 feet
Molas Pass—10,899 feet

WEDNESDAY, JUNE 19
Silverton to Montrose - 59 Miles
Red Mountain Pass—11,090 feet

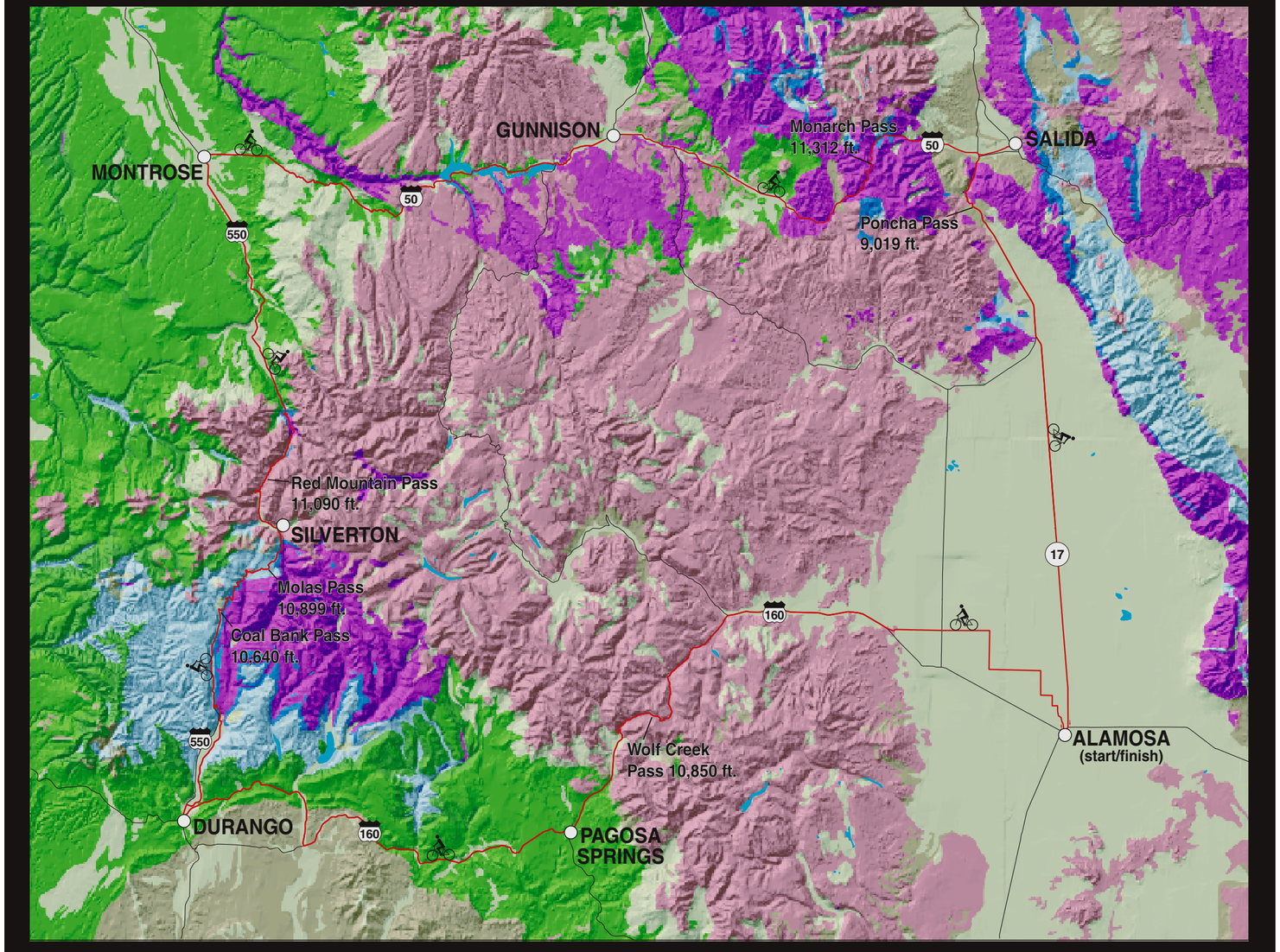
THURSDAY, JUNE 20
Montrose to Gunnison - 65 Miles

FRIDAY, JUNE 21
Gunnison to Salida - 65 Miles
Monarch Pass—11,312 feet

SATURDAY, JUNE 22
Salida to Alamosa - 83 Miles
Poncha Pass—9,019 feet



Ride The Rockies — June 16-22, 2002



0 10 20 Miles
MAP SCALE

Ride The Rockies course route shown on USGS Geologic Map

Quaternary – 0 to 1.8 million years ago
This is the period during which the present landscape formed. Glaciation peaked and waned several times sculpting cirques and U-shaped valleys. Last major glaciers retreated about 12,000 years ago.

Includes alluvium (sand, gravel, and silt deposited by rivers and streams), eolian (windblown) deposits, glacial deposits, landslide deposits, and young volcanic rocks (basalt flows).

Tertiary – 1.8 to 66 million years ago
A major mountain-building episode, the Laramide Orogeny, occurred during this period—70 to 45 million years ago. Erosion then exposed basement rocks and created a planar surface. Erosion of this surface during regional uplift—beginning 10 to 5 million years ago—shaped the present mountain landscape. Rifting (faulting) began (about 30 million years ago), creating the Arkansas and San Luis Valleys.

Sedimentary rocks of Tertiary age
Includes sandstone, siltstone, shale, claystone, and conglomerate (rounded rock fragments in a fine-grained matrix).

Igneous rocks of Tertiary age
Includes volcanic rocks such as basalt, rhyolite, and ash-flow tuffs (especially in the San Juan Mountains), and intrusive rocks with compositions similar to granite.

Cretaceous – 66 to 144 million years ago
A seaway flooded Colorado depositing shallow marine, shoreline, and swamp sediments. Dinosaurs became extinct by the end of this period.

Includes primarily shale, sandstone, and coal, and minor limestone and conglomerate (rounded rock fragments in a fine-grained matrix).

Jurassic, Triassic, and rocks that span Triassic-Permian-Pennsylvanian – 144 to 245 million years ago (includes some rocks as old as 320 million years)
The Ancestral Rockies were eroded during this time of deserts, intermittent streams, salt flats, coastal plains, dunes, and deltas. Dinosaur fossils and footprints are found in deposits of ancient river channels.

Includes sandstone, siltstone, and claystone; minor limestone, gypsum, and conglomerate (rounded rock fragments in a fine-grained matrix).

Permian and Pennsylvanian – 245 to 320 million years ago
During this time, rocks were uplifted to form the Ancestral Rocky Mountains, which were just as high and rugged as our present mountains. Erosion of older sediments resulted in deposition along flanks and in basins.

Includes sandstone, siltstone, shale, conglomerate (rounded rock fragments in a fine-grained matrix), gypsum, and limestone.

Pre-Pennsylvanian Paleozoic – 320 to 540 million years ago
This was a time of widespread marine deposition when Colorado was intermittently below sea level.

Represented mostly by limestone, but also includes quartzite, sandstone, shale, and dolomite.

Precambrian – older than 540 million years ago (includes rocks as old as about 1,800 million years in Colorado)
This era accounts for more than 85% of geologic time. These rocks are referred to as the basement rocks; they are exposed in the cores of major mountain ranges and in some of the deeper canyons. They are the products of metamorphism (changes in the chemistry and fabric resulting from heat and/or pressure) and igneous intrusion (emplacement of molten rock).

Includes intrusive rocks, chiefly granite, and metamorphic rocks such as gneiss, schist, and quartzite.

Lakes

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

For more information on the geology of Colorado and the United States, please go to the U.S. Geological Survey website at: http://www.usgs.gov