USGS
science for a changing world

Ride The Rockies — June 17-22, 2001

2001 RIDE THE ROCKIES ROUTE
432 MILES

SUNDAY, JUNE 17
Crested Butte to Buena Vista
75 Miles—4,900 feet elevation gain

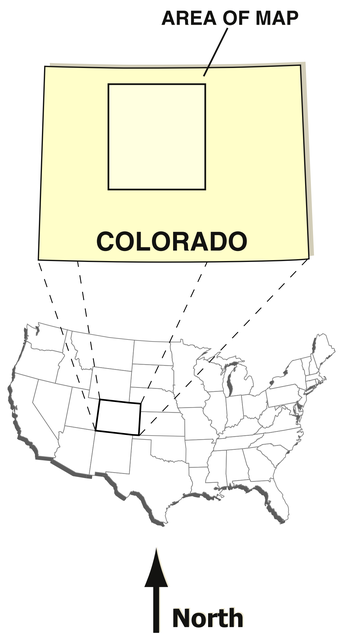
MONDAY, JUNE 18
Buena Vista to Edwards
75 Miles—3,600 feet elevation gain

TUESDAY, JUNE 19
Edwards to Steamboat Springs
81 Miles—4,700 feet elevation gain

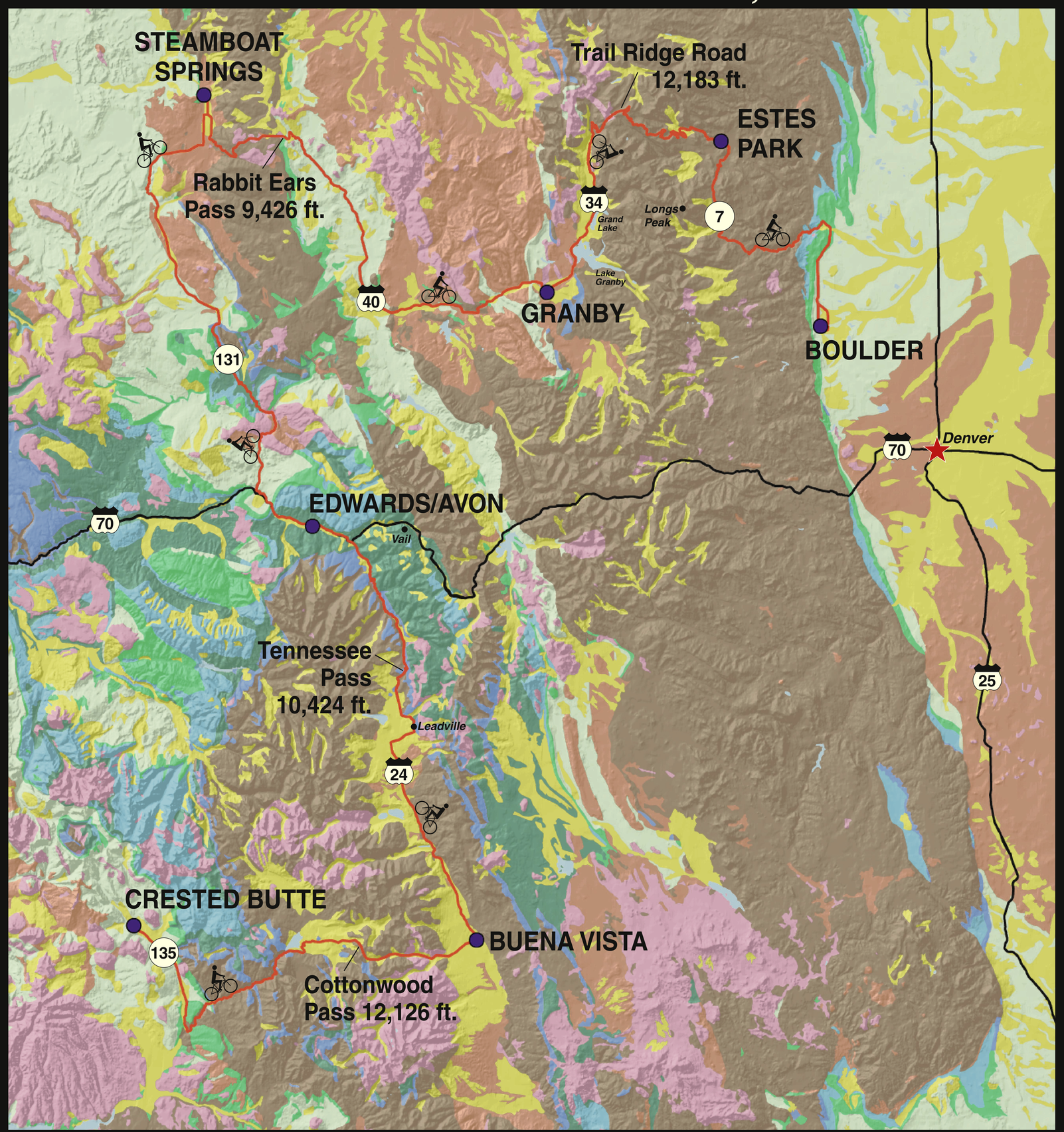
WEDNESDAY, JUNE 20
Steamboat Springs to Granby
80 Miles—4,800 feet elevation gain

THURSDAY, JUNE 21
Granby to Estes Park
65 Miles—5,400 feet elevation gain

FRIDAY, JUNE 22
Estes Park to Boulder
56 Miles—4,200 feet elevation gain



0 10 Miles
MAP SCALE



Ride The Rockies course route on USGS Geologic Map

Quaternary – 0 to 1.6 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 – 1.6 to 66.4 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.

→ 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.

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

Cretaceous – 66.4 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.

→ Chiefly sandstone and conglomerate (rounded rock fragments in a fine-grained matrix).

→ Sandstone, limestone, shale and gypsum.

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.

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