

U.S. Department of the Interior
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Geologic Map of Colorado National Monument and Adjacent Areas, Mesa County, Colorado

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Independence Monument is an erosional remnant of a wall of Wingate Sandstone that once separated the North Entrance from the East Entrance of Monument Canyon. A massive cap of calcite-cemented Kayenta Formation helps project the towering structure from the east. Photograph by W.C. Hood, 1998.

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(Pamphlet accompanies map)

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History

The Human Story

We don't know how long ago Anasazi Indians began to hunt in the canyons of Colorado National Monument, but one of the tools used to scrape hides was found in sediments in No-Thoroughfare Canyon just below a piece of charcoal dated at 2,600 years old. The Anasazi Indians were eventually succeeded by the Fremont Indians, who hunted and grew corn in irrigated agricultural fields near and other wild foods. In turn, the Fremont culture vanished about 1,200 to 1,300 years ago to be replaced by the Ute Indians. The Utes lived a more nomadic life and depended upon their horses for hunting and traveling.

Europeans began to arrive during the early 1800s, for traders and explorers came first. An adventurer, François Armand Robbeson, built a trading post in Grand Valley in 1836, but this did not last. When Captain W. Gunnison and Lt. J. F. Beckwith arrived during their quest for a transcontinental railroad route, the only inhabitants they found were Utes. Beckwith described the Grand Valley of 1853 as "very barren [with] a meager supply of grass, corn, wheat, and wheat." When the first party of the Hayden Survey arrived in 1875 to record the topographic and geologic character of the West for the U.S. Government, the party had a confrontation with the Utes that cut short the survey's field season. Ultimately, the treaty that followed the Meeker massacre of 1879, which occurred about 70 miles north of the monument, forced the Utes from their homeland onto a reservation in Utah in 1881.

Beginning in 1881, permanent settlers moved to the region, and by that fall Grand Junction was founded. The next year, the narrow-gauge Denver and Rio Grande Railroad reached Grand Junction. Ranchers commuted cattle trails to the gray Uncompahgre highlands at Glade Park. In 1882, the Grand Valley Irrigation Company dug irrigation ditches from the Colorado River to the Flatlands area. In 1886, farmers built irrigation systems at Fruita for their orchards, and ranches flourished at Glade Park.

In 1907, Fruita residents convinced the Fruita Dispatch to bring mountain water in wooden pipes from the Uncompahgre highlands to Fruita. Later, cattlemen drove their herds along the narrow sheep trail, which was cut into the precipitous cliffs. Also that year, the Gunnison River was dammed to divert water through the Redlands River Canal to an electrical generator, and by 1917, the Redlands Irrigation Company sent water down irrigation canals, which can still be seen in the Redlands area. Now, the Redlands area is a growing suburb of Grand Junction.

Many citizens and civic organizations championed the scenic wonders of the Monument area. The most colorful promoter, John Otto, took up residence in Monument Canyon in 1906 and dedicated himself to saving the area as a National Park. The next year, local community organizations, John Otto, and Judge Sullivan petitioned the U.S. Department of Interior and requested that the area be preserved as a National Park. Colorado's U.S. Senator Gallagher and Representative Taylor were also highly influential in promoting the Monument. During the four years it took for Otto's dream to come true in 1911, he laboriously carved numerous foot trails up the sheer canyon walls. Starting in 1913, Glade Park members and local promoters raised money for a road, and by 1925 they contracted with a company to complete the 54 switchbacks of Serpents Drive, joining Grand Junction to the Monument and Glade Park. In 1940 this road became a four-lane highway. The National Park Service provided John Otto with the job of caretaker of the Monument for \$1 per month until 1927.

In 1931 during the Great Depression, many unemployed men including local residents began work in local and federal programs, such as the Civilian Conservation Corps, to have a road that began at the eastern end of the Monument with hand drills, dynamite, picks, shovels, hand carts, and trucks. In one dramatic accident, one local experienced man (L.D.M.) was killed when a poorly designed tunnel collapsed. After the delay caused by World War II, National Park-funded crews finally finished Rim Rock Drive in 1951, connecting the Fruita and Grand Junction entrances of the Monument.



(Above left) Riding down through "The Crack" from the southwest side of the Uncompahgre Plateau. Photograph by C.E. Hunt, 1929 (USGS I-284-012)

(Above) John Otto, dedicated promoter of Colorado National Monument with his beloved horses. Sometime between 1906 and 1907. Photograph courtesy of Grand Junction Chamber of Commerce.



Ecology

Rich Life in an Arid Land

The Grand Valley has an arid climate, averaging less than 10 inches of precipitation each year. Summer days commonly exceed 100° F, and relatively mild winters with little snow can be interrupted by short periods of intense subzero cold. Without irrigation, the valley would be nearly barren. The cooler and wetter climate of the Monument highlands sustains more abundant plant life, and springs supplement intermittent streams that are used by a varied animal population. Most of the precipitation falls in late summer when large thunderstorms can create sudden flash floods that rush through narrow canyons in the Monument. Water in these narrow canyons can flow several feet in a few minutes and has the force to tumble boulders 5 feet in diameter down the stream.

Piñon-juniper forests with an understory of mountain mahogany, serviceberry, sagebrush, and grasses cover most of the highlands above elevations of about 5,000 feet in the Monument. Where the sand and silt floor of the canyons, sagebrush, oak, and Gambel's oak grow, and cottonwood trees border intermittent streams. Oak on nearby bare Proterozoic basement rock, sparse vegetation struggles to live.

A surprisingly diverse population of larger mammals inhabits the canyons and highlands: male deer, mountain lions, bobcats, gray foxes, coyotes, bears, and mink. Occasionally, reintroduced desert bighorn sheep can be spotted. The many smaller mammals that form the base of the predator food chain include cottontail and jackrabbits, squirrels, chipmunks, pocketrats, and muleskips of mice.

Ravens scold jays, piñon jays and magpies, tiny rock wrens and titmouse, house finches, dark-eyed junco, mourning doves, Gambel's quail, meadowlark, canyon wren, and even broad-tailed and black-chinned hummingbirds fill about the trees, grasses, and flowers. Golden eagles and red-tailed hawks soar in and above the canyons and great horned owl silently search for prey. Peregrine falcons are particularly fond of the rock doves (pigeons) that also nest on the cliffs. Vast green swallows sweep playfully past visitors near cliff edges. Ravens and turkey vultures make wide sweeps of the skies in search of carrion. Several species of lizards scurry about the rocky terrain but visitors are most impressed with the colorful collared lizards. Although gopher snakes are more common, faded midjet rattlesnakes also inhabit the Monument along with spade-tailed and red-spotted lizards, tree frogs, and clouded tiger salamanders.

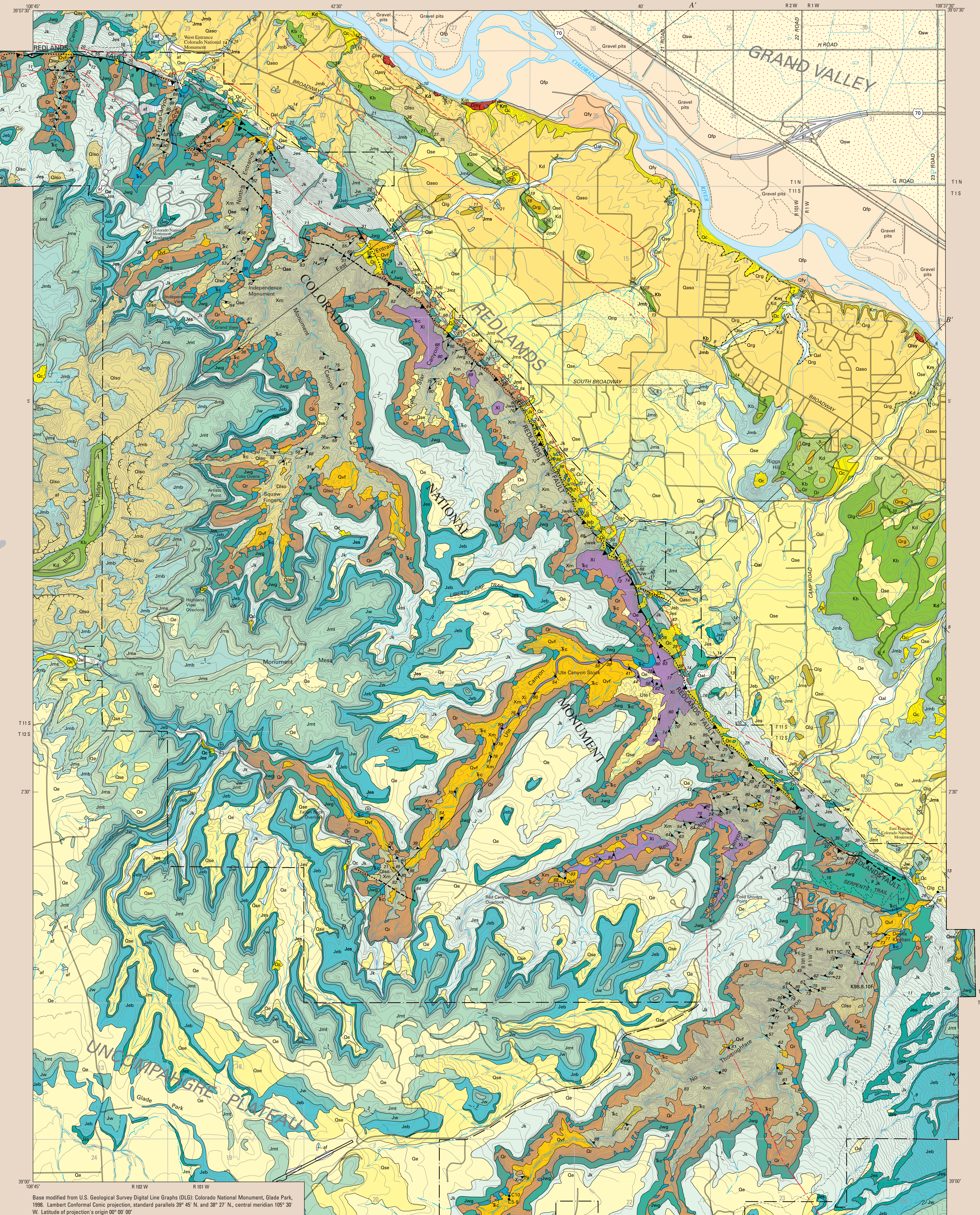


Collared lizard. Photograph by A.E. Harding, 1988.

(Top) Petroglyphs highlighted by chalk on desert varnish on the Wingate Sandstone in No-Thoroughfare Canyon. The human figure in the foreground is about 6 inches tall. Photograph by J.R. Gies, 1976 (USGS I-284-012a)

(Middle) View up trail during the winter of 1940, showing Civilian Conservation Corps men cutting the roadway through sandstone on the switchback leading to the upper entrance of the tunnel at the east end of the Monument. Photograph from Monument Superintendent's Monthly Report, April 8, 1940.

(Left) Water work on the road in No-Thoroughfare Canyon in 1940. High cliffs of Wingate Sandstone are in the background. Photograph from Monument Superintendent's Monthly Report, April 8, 1940.



Base modified from U.S. Geological Survey Digital Line Graphs (DLG), Colorado National Monument, Glade Park, 1988. Latest Colorado State projection, standard parallels 39° 49' N, and 39° 27' N, central meridian 109° 30' W. Contour interval is 100 feet (50).

Redland and surface maps: by Robert Scott and William Hood in 1985, map updated by Anne Harding and Robert Scott in 1988 and 1989. Association of cartographers led by Cole and William Hood in 1985. Association of cartographers led by Richard Livaccari in 1990. Association of cartographers led by Anne Shroba and Ralph Shroba in 1988, 1989, and 1990. Map by Robert Dickerson in 1986. Additional DLG work by Peter Sederberg, Nancy Shaw, and Alan Swartz in 2000.

Geology

(Right) Window Rock formed by selective erosion along a crack in the Wingate Sandstone. The resistant capping layers are the Kayenta Formation. View toward the northeast across Grand Valley shows the distant Rock Cliffs overlain by the light-colored Green River Formation. Photograph by S.W. Lohman (USGS I-284-012a)



(Above right) Window Rock. Photograph by Alan Swartz, 1990.

(Above middle) Piñon pine. Photograph by Brian Tauxe, 1990.

(Above left) Juniper. Photograph by F.C. Brunstein, 2000.

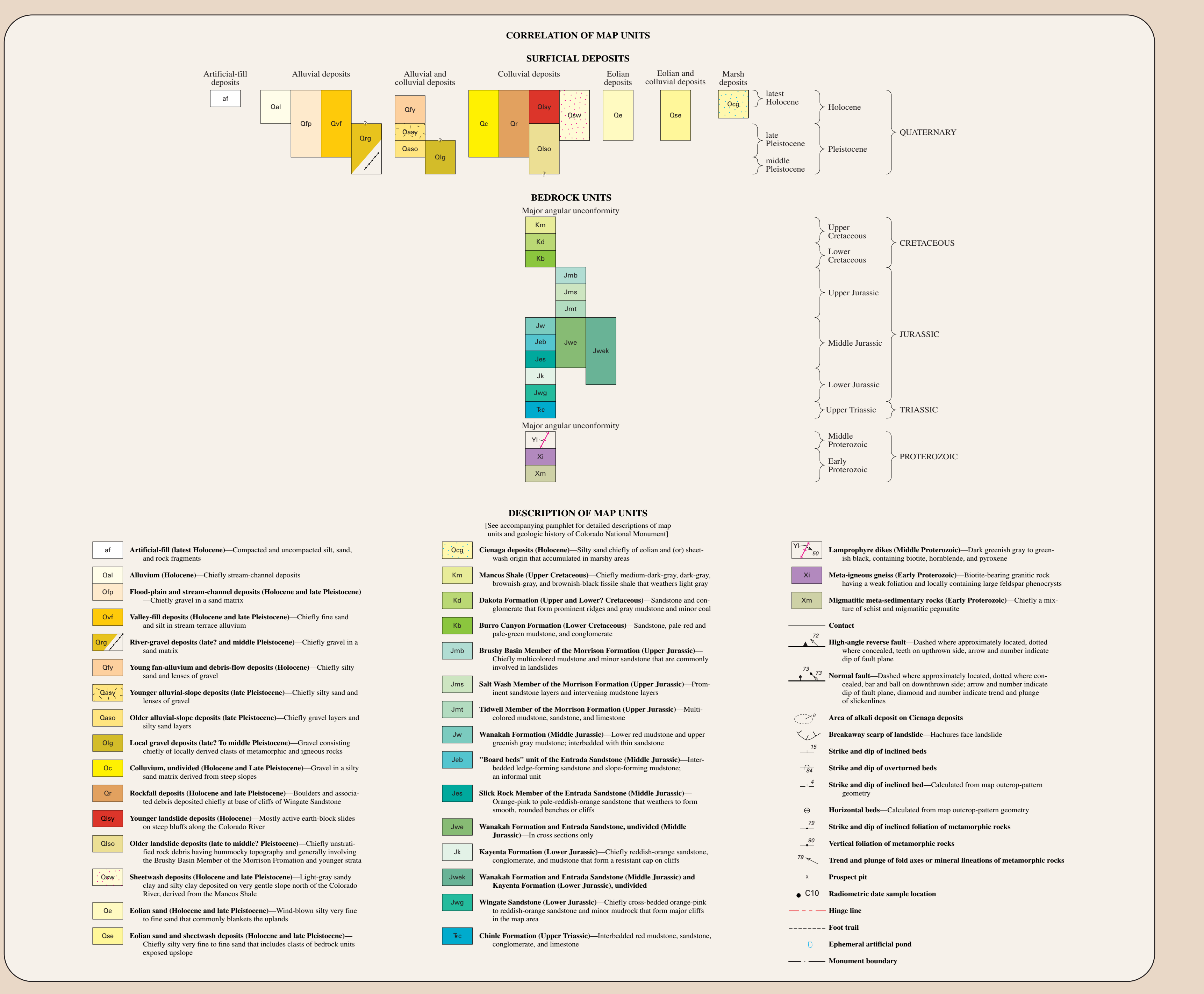
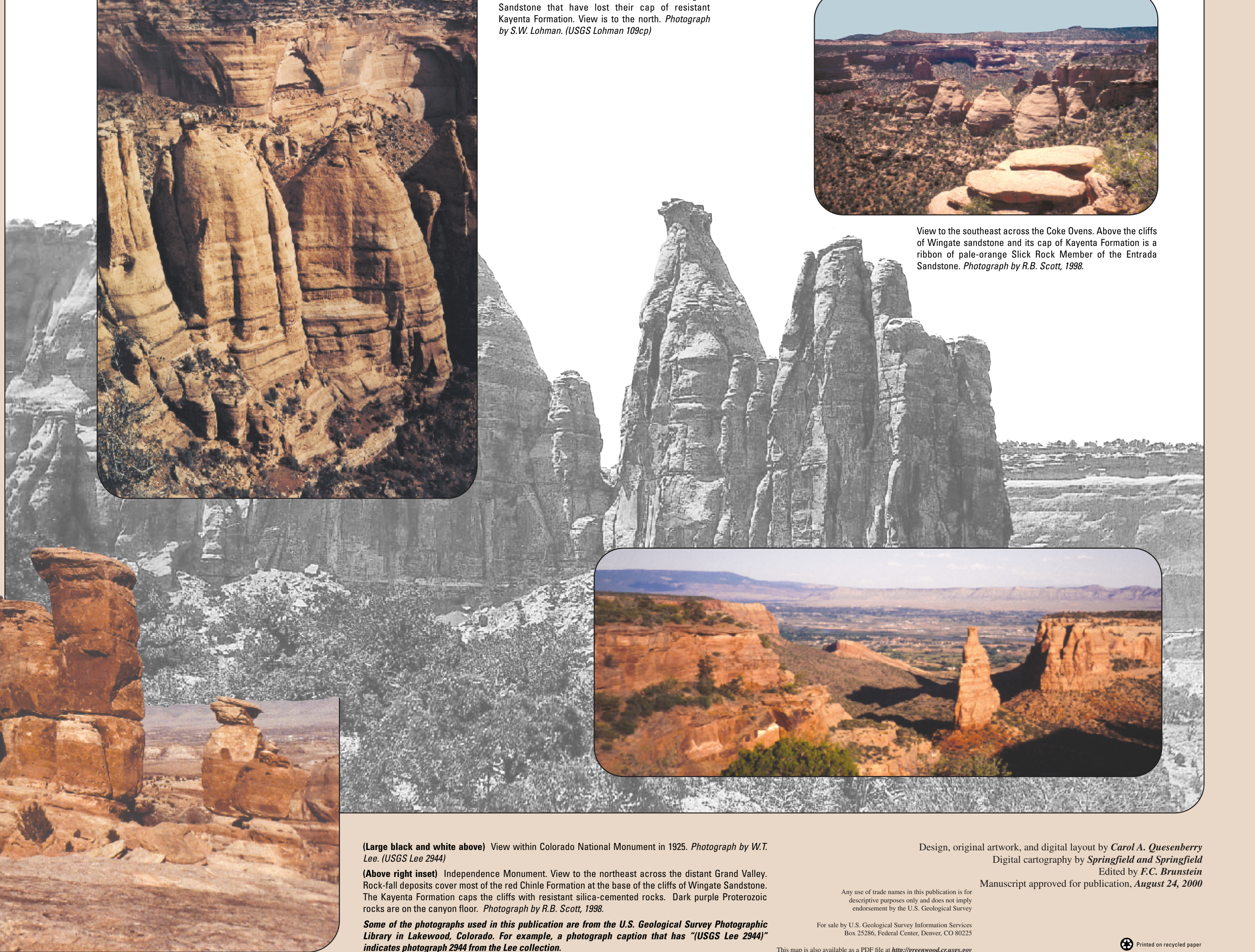


Diagram A: Southeast to Northwest. Shows the relationship between the Kayenta Formation, Wingate Sandstone, and the Uncompahgre Plateau. **Diagram B:** Southeast to Northwest. Shows the relationship between the Kayenta Formation, Wingate Sandstone, and the Ute Canyon Stock.



The "Coke Ovens" are remnants of Wingate Sandstone that have lost their cap of resistant Kayenta Formation. View is to the north. Photograph by S.W. Lohman (USGS I-284-012a)

View to the southeast across the Coke Ovens. Above the cliffs of Wingate sandstone is the cap of Kayenta Formation in a ribbon of pink-orange Slick Rock. Member of the Entrada Sandstone. Photograph by R.B. Scott, 1988.

(Large black and white above) View within Colorado National Monument in 1925. Photograph by W.T. Lee (USGS I-284-012a)

(Above right inset) Independence Monument. View to the northeast across the distant Grand Valley. Rockfall deposits cover most of the red Chinle Formation at the base of the Wingate Sandstone. The Kayenta Formation caps the cliffs with resistant calcite-cemented rocks. Dark purple Proterozoic rocks are on the canyon floor. Photograph by R.B. Scott, 1988.

Some of the photographs used in this publication are from the U.S. Geological Survey Photographic Library in Lakewood, Colorado. For example, a photograph caption that has "USGS I-284-012a" indicates photograph 284 from the Lee collection.

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