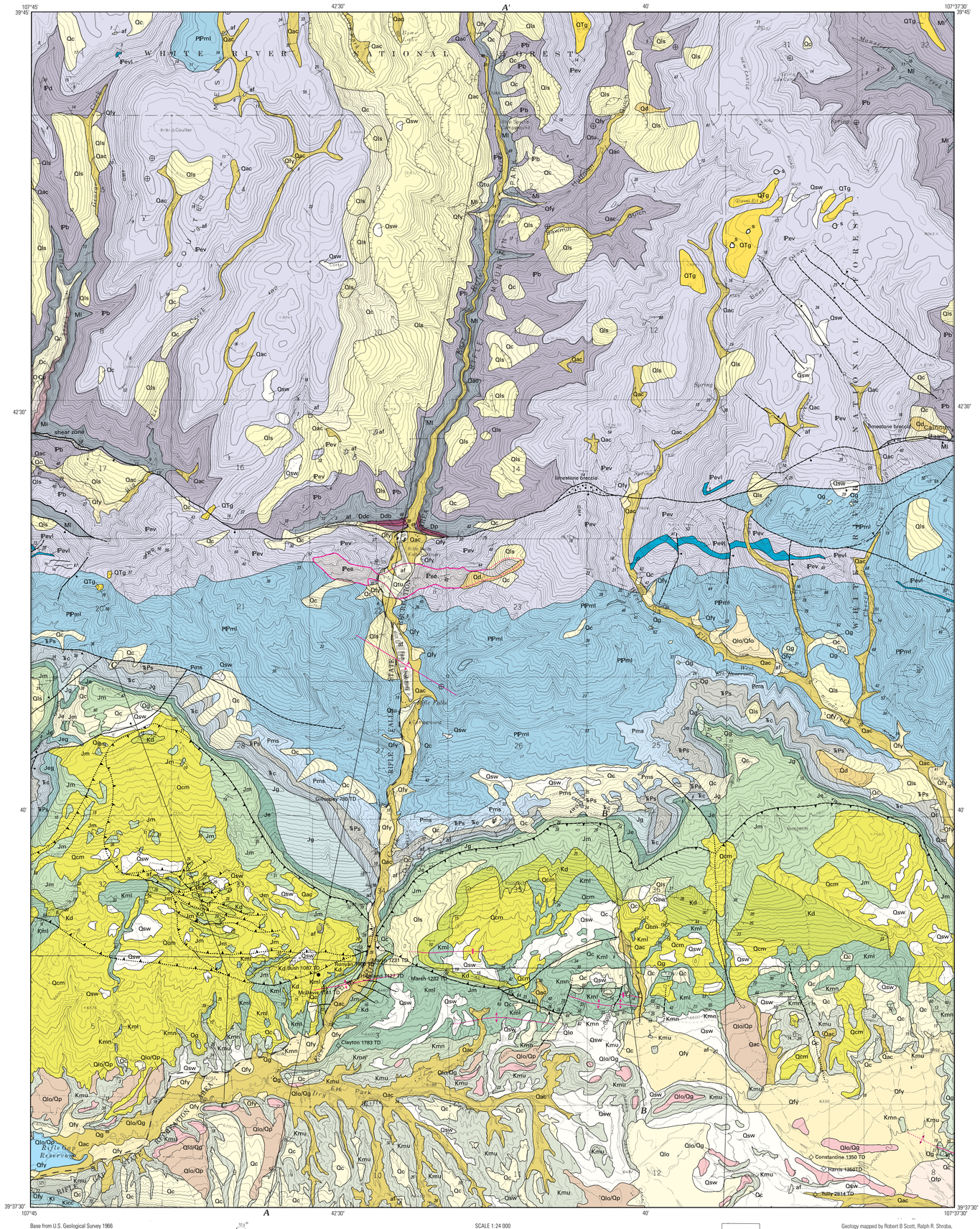
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES MAP MF–2341
VERSION 1.0
Pamphlet accompanies map



Base from U.S. Geological Survey 1966
Polyconic projection. Photo revised 1987
10,000-foot grid based on Colorado coordinate system, central zone

TRUE NORTH
MAGNETIC NORTH
13½°
APPROXIMATE MEAN DECLINATION, 2001

SCALE 1:24 000
1 1/2 0 1 MILE
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

COLORADO
QUADRANGLE LOCATION

Geology mapped by Robert B Scott, Ralph R. Shroba, and Anne Egger, 1999.
Edited by Craig Brunstein
Digital cartography by Nancy Shock and William E. Sowers

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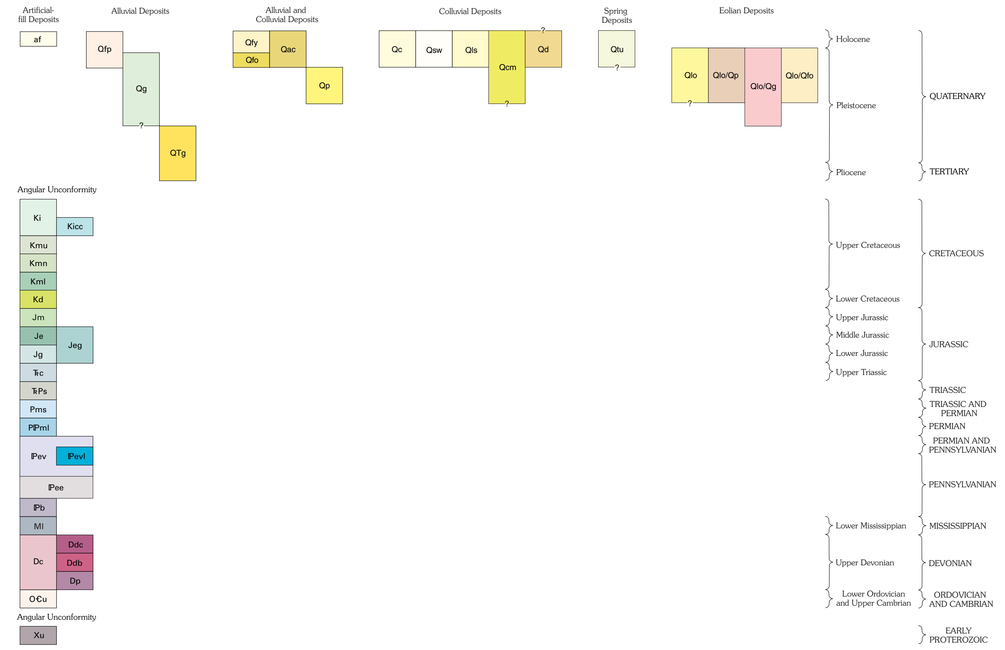
CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

ARTIFICAL-FILL DEPOSITS

af — **Artificial fill (latest Holocene)**

ALLUVIAL DEPOSITS

Qfp — **Flood-plain and stream-channel deposits (Holocene and late Pleistocene)**
Qg — **Gravelly alluvium (late to early? Pleistocene)**
QTg — **High-level gravelly alluvium (early Pleistocene or late Pliocene)**

ALLUVIAL AND COLLUVIAL DEPOSITS

Qfy — **Younger fan-alluvium and debris-flow deposits (Holocene and latest Pleistocene)**
Qac — **Undivided alluvium and colluvium (Holocene and late Pleistocene)**
Qfo — **Older fan alluvium and debris-flow deposits (late Peistocene)**
Qp — **Pediment deposits (middle Pleistocene)**

COLLUVIAL DEPOSITS

Qc — **Colluvium, undivided (Holocene and late Pleistocene)**
Qsw — **Sheetwash deposits (Holocene and late Pleistocene)**
Qls — **Landslide deposits (Holocene and late Pleistocene)**
Qcm — **Mass-movement deposit (Holocene to middle? Pleistocene)**
Qd — **Debris-flow deposits (Holocene(?) to late Pleistocene)**

SPRING DEPOSITS

Qtu — **Tufa deposits (Holocene and late Pleistocene?)**

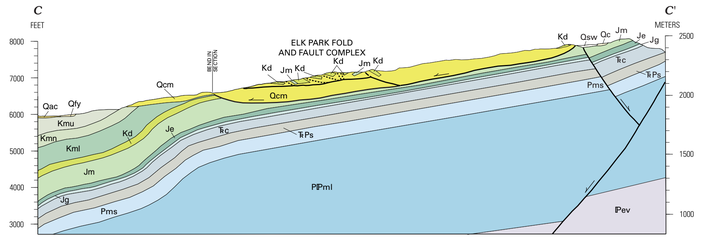
EOLIAN DEPOSITS

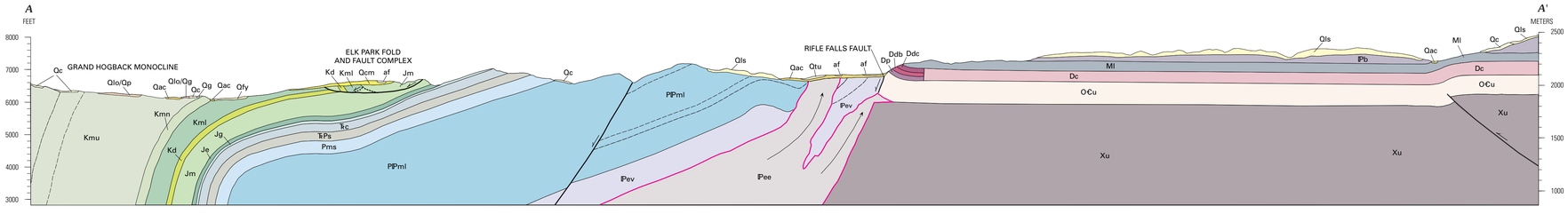
Qlo — **Loess (late and middle? Pleistocene)**
Qlo/Qp — **Loess over pediment deposits**
Qlo/Qg — **Loess over gravelly alluvium**
Qlo/Qfo — **Loess over older fan alluvium and debris-flow deposits**

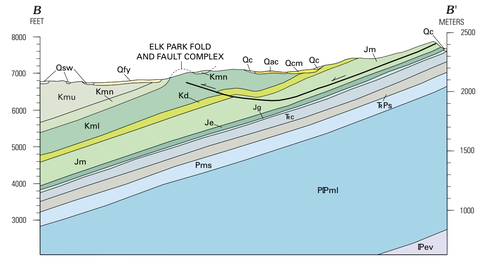
BEDROCK UNITS

Ki — **Iles Formation (Upper Cretaceous)**
Kicc — **Cozzette Sandstone and Corcoran Sandstone Members, undivided**
Kmu — **Mancos Shale (Upper Cretaceous)** **Upper member**
Kmn — **Niobrara Member**
Kml — **Lower member**
Kd — **Dakota Sandstone (Lower Cretaceous)**
Jm — **Morrison Formation (Upper Jurassic)**
Je — **Entrada Sandstone (Middle Jurassic)**
Jg — **Glen Canyon Sandstone (Lower Jurassic)**
Jeg — **Entrada Sandstone (Middle Jurassic) and Glen Canyon Sandstone (Lower Jurassic), undivided**
Ꞧc — **Chinle Formation (Upper Triassic)**
ꞦPs — **State Bridge Formation (Lower Triassic and Permian)**
Maroon Formation (Lower Permian to Middle Pennsylvanian)
Pms — **Schoolhouse Member (Lower Permian)**
PPml — **Lower member (Lower Permian? to Middle Pennsylvanian)**
Ꝑev — **Eagle Valley Formation (Middle Pennsylvanian)**
Ꝑevl — **Limestone bed**
Ꝑee — **Eagle Valley Evaporite (Middle Pennsylvanian)**
Ꝑb — **Belden Formation (Middle and Lower Pennsylvanian)**
Ml — **Leadville Limestone (Lower Mississippian)**
Dc — **Chaffee Group (Upper Devonian)**
Dyer Dolomite
Ddc — **Coffee Pot Member**
Ddb — **Broken Rib Member**
Dp — **Parting Formation**
O€u — **Ordovician and Cambrian units, undivided**
Xu — **Metamorphic rocks, undivided (Early Proterozoic)**

Contact—Dashed on map where approximately located
Trace of strata in the Maroon Formation and the Mancos Shale—Locally shown on map and on cross sections
ls **Isolated limestone bed in Eagle Valley Formation and Lower member of Maroon Formation**
Trace of breakaway zones of younger landslides within landslide complexes—Hachures on the downslope side; where breakaway zone is against fault, landslide deposited against fault scarp
67 **Normal fault**—Dashed where approximately located; dotted where concealed; queried where location uncertain. Bar and ball on downthrown side. Arrow and number show dip directions and amount of fault-plane dip. Arrows show relative sense of movement in cross section
76 29 **Basal detachment of gravity-driven slide block**—Dashed where approximately located; dotted where concealed. Teeth are on the upper plate of the slide block. Arrows show relative sense of motion in cross section. Arrow and number shows dip direction and amount of fault-plane dip. Diamond and number shows slickenline trend direction and plunge amount
Shear zone along normal fault
Breccia zone along normal fault
Syncline axial trace—Dotted where concealed
Anticline axial trace—Dotted where concealed
Contact between evaporite intrusions and surrounding map units—Shown both on map and in cross sections. Dotted where concealed
Presumed flow direction of injected evaporite bodies—Shown by double-sided arrows in cross section A-A'
Sink Hole
Strike and dip of bed
Inclined
Horizontal
Overturned
Adit
Oil well—Showing name of drilling company and total depth (TD) in feet
Dry hole—Showing name of drilling company and total depth (TD) in feet







GEOLOGIC MAP OF THE RIFLE FALLS QUADRANGLE, GARFIELD COUNTY, COLORADO

By

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2001

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http://geology.cr.usgs.gov