U.S. DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

# GENERALIZED SURFICIAL GEOLOGIC MAP OF THE BAYFIELD QUADRANGLE, LA PLATA COUNTY, COLORADO

by

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Note: Heights of terraces above the main river are figured in feet (ft) because it was convenient to read elevations of the terraces and river (in feet) directly off the topographic base map. Thickness of deposits are in meters (m) and distance in kilometers (km) because of authors' preference. This mapping was done as part of geologic mapping at 1:100,000 scale (unpublished) covering the southwest quarter of the Durango 1° x 2° quadrangle.

## DESCRIPTION OF MAP UNITS

Qal **Alluvium (Holocene)**--Gravel, sand, silt, and clay. Underlies channels, bars, and floodplain of Los Pinos River. Composed of white and purple quartzite--Precambrian Uncompahgre Formation? (39%), dark green, banded aphanitic igneous rock--greenstone? (18%), multicolored quartzitic conglomerate (Precambrian Vallecito Conglomerate) locally called "calico rock" (16%), sandstone/siltstone (9%), volcanic or hypabyssal porphyritic rhyolite, (4%), gabbro (4%), granite (3%), amphibolite and hornblende feldspar gneiss (4%), vein quartz (2%), and unknown (1%). Base covered, estimated thickness 4-10 m

Qac **Alluvium and colluvium (Holocene)**--Sand, silt, clay, and minor gravel lenses. Light-olive-brown (2.5Y 5/4) pebbly sand, very fine to coarse-grained; brown (7.5YR 5/4) sandy clay to clayey, sandy silt. Bedding faint, appears massive. Under flats of Crowbar and lower Beaver Creek deposit contains several dark-brown (7.5YR 3/2) buried A horizons 0.2-0.4 m thick. Weakly calcareous along veinlets; contains charcoal pieces. Deposits of streams and intermittent drainages, sheetwash alluvium on low slopes, and colluvium near bedrock outcrops. Near mouths of canyons in hills at east edge of quadrangle (Armstrong, Ritter, and other canyons), subround sandstone pebbles and cobbles are abundant. Thickness 1-12 m

Qsw **Sheetwash alluvium (Holocene)**--Clayey sand, silt, and sandy clay; trace of small pebbles. Sticky when wet, hard when dry. 2-5 m thick

Qf **Fan alluvium (Holocene)**--Sand, gravel, silt, and clay. Crudely stratified; mostly subangular to subround sandstone and mudstone pieces. Base covered, estimated thickness 2-10 m

Qrg **Residual gravel (Holocene and Pleistocene)**--Scattered rounded quartzite clasts, especially Vallecito Conglomerate ("calico rock") on upland surface near terraces of the Los Pinos River, sandstone clasts in other places. Thin, pinkish-white (7.5YR 8/2) calcium carbonate rind on underside of clasts. Composition suggests that deposit is mass-wasting vestige of former terrace gravel deposits. In places covered by less than a meter of weathered silty clay sheetwash and loess(?). 0.2-0.4 m thick

Qls **Landslide deposit (Holocene)**--Heterogeneous mix of sand, clay, and angular rock debris composed of weathered, masses of mudstone, light-olive-brown (5Y 5/6) sandstone of the Animas Formation; gravitationally displaced soil and bedrock, broken and disaggregated. 2-5 m thick

$Qtg_{1-5}$ **Terrace-gravel deposits (early Holocene-Pleistocene)**--Rounded gravel, sandy gravel, and pebbly sand. Scarce rounded boulders as much as 2.5 m across made of quartzitic Vallecito Conglomerate in places. Composition of unit like unit Qal. Deposits are uniformly sloping remnants of more extensive channel gravel deposits of an older Los Pinos River, essentially older Qal deposits. The deposits, symbolized by $Qtg_1$, the youngest, through $Qtg_5$, the oldest, step up as terrace levels going away from river, recording successively older periods of fluvial deposition. Units differentiated by field and aerial photograph study. The approximate heights of terraces above the modern Los Pinos River are numbered as +40', +100'(in feet), etc. Correlation of the sloping remnant deposits involves subjective judgement, especially the small ones higher than about 80 ft above river. Deposits of ancestral Beaver Creek (3 km southeast and northeast of Bayfield) near the north edge of the map are rounded gravels of Dakota Sandstone (85%), sandstone of the Animas and Mesa Verde Formations (5%), quartzite (5%), and metamorphic rocks (5%). Most terrace deposits are veneered with sandy to clayey deposits, 0.3-2 m thick, that are floodplain deposits or are Holocene? slopewash or eolian deposits. Pedogenic calcium carbonate has accumulated in varying amounts in the upper 2 m of deposits. 2-10 m thick

Qpg **Pediment gravel (Pleistocene)**--Subangular to subround brown sandstone and claystone gravel and sand. Surface of deposits are veneered with clayey and silty sand to sandy, silty, clay and slope about 120 to 280 ft/mi (25 to 50 m/km) from the hills at east edge of map toward the river. May include old fan alluvium. 3-6 m thick

BR **Bedrock (late Cretaceous and Paleocene)**--Mostly Animas Formation, except possible Nacimiento Formation in southern parts of area and possible San Jose Formation above 7300-7500 feet in hills in east part. Animas Formation is dusky-yellow (5Y 6/4), light-olive-brown (5Y 5/6), and very pale brown (10YR 7/4) clayey andesitic litharenite, sandy mudstone, and minor pebble conglomerate. Chiefly planar, medium bedding; some cross-bedding and cut-and-fill structure. On stable upland, a sticky (when wet) decomposition residuum develops which is yellowish brown (10 YR 5/6) to light olive brown (2.5 Y 5/6) sandy clay, and is olive yellow (2.5 Y 6/6) clay at 0.3-1.2 m depth in the argillic B horizon.

## MAP SYMBOLS

~~—— **CONTACT**, dashed where uncertain

+40' **HEIGHT OF SURFACE ABOVE LOS PINOS RIVER OR UPPER BEAVER CREEK**

BR **BEDROCK**, (see Descriptions of Map Units)

# CORRELATION OF MAP UNITS